

KaiZen HOCl Research Digest · High relevance

982 research records screened as High relevance in the source workbook

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1. Decoupling the CT Paradigm in Membrane Chlorination: Equivalent Versus Inequivalent Impacts of Hypochlorite Concentration and Exposure Time on Contaminants Rejection.

2026 · Environmental science & technology · Water, sanitation & biosecurity · Journal article / other
Authors: Su, Wenhao; Yao, Keyu; Li, Jiaying; Xing, Dingyu; Qiu, Jianhua; Li, Wanbin; Guo, Hao

Results reveal near-equivalent effects on the rejection of PFASs and antibiotics at low chlorination intensities (e.g., $\leq 2000 \text{ ppm} \times \text{h}$), but significantly inequivalent impacts on the rejection of all contaminants at higher intensities (e.g., $\text{CT} \geq 10,000 \text{ ppm} \times \text{h}$). Based on these results, a conceptual framework was established to decouple the traditional CT paradigm, revealing the fundamental mechanisms of chlorination-induced changes in membrane rejection.

PMID 42611467 · DOI 10.1021/acs.est.6c05663 · [PubMed record](#)

2. An oligothiophene-based "turn-on" fluorescent probe: Ultrasensitive detection and bioimaging of hypochlorite in environmental and living systems.

2027 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Food & agriculture · Human observational / experimental
Authors: Liang, Limin; Li, Baokun; Jin, Zichen; Hu, Tingting; Wei, Tao; Niu, Qingfen

Developing effective detection tools is therefore of great importance. This work offers a simple and effective fluorescent tool for visual monitoring and bioimaging of ClO^- in diverse environmental and biological systems.

PMID 42600306 · DOI 10.1016/j.saa.2026.128600 · [PubMed record](#)

3. Validation of digital PCR as a complementary tool to MS2 plaque assay for virucidal activity assessment.

2026 · Frontiers in public health · Water, sanitation & biosecurity · Journal article / other
Authors: Kim, Sung Jae; Yang, Song Yi; Song, Min Sik; Kim, Cheong Ung; Park, Yong Ho; Jung, Woo Kyung; Lee, Jae Myun; Chung, Hee Chun

The dPCR counts correlated strongly with plaque counts ($R = 0.999$), and Bland-Altman analysis demonstrated excellent agreement within 95% confidence limits, supporting dPCR as a practical alternative to plaque assays. The findings confirm ethanol's limited virucidal capacity against MS2 and HOCl's effectiveness at low concentrations.

PMID 42577465 · DOI 10.3389/fpubh.2026.1850944 · [PubMed record](#)

4. New design of a chimeric enzyme based on vanadium-dependent bromoperoxidase and glucose oxidase to highlight the microbicidal properties of the reaction products: HOBr and HOCl.

2026 · Journal of biotechnology · Water, sanitation & biosecurity · Journal article / other
Authors: Amalric, Valentin; Gounel, Sébastien; Thureau, Aurélien; Pécastaings, Gilles; Branham, Paul J; Agarwal, Vinayak; Stines-Chaumeil, Claire

The formation of the chimera increased the specificity of ccVHPO1 inside the chimera, towards KBr or H_2O_2 , compared to the enzyme alone with the SpyCatcher. Finally, we showed a significant increase in the microbicidal effect between a coupled enzymatic system with the glucose oxidase (the two enzymes are free in solution) compared to the chimera system, which is completely bactericidal at concentrations around 20 nM.

PMID 42567274 · DOI 10.1016/j.jbiotec.2026.08.002 · [PubMed record](#)

5. Hypochlorite detection via the irreversible imine-bond cleavage by a practical fluorescent sensor: applications to smartphone-assisted environmental water and food bioimaging.

2026 · Bioorganic chemistry · Food & agriculture · Animal study
Authors: Lee, Ayin; Batsaikhan, Otgontsetseg; Lee, Han-Seul; Kim, Ki-Tae; Kim, Cheal

BHMT-Cl was readily applied for the sensitive detection and quantification of ClO^- in diverse environmental water samples and demonstrated portability through smartphone-based analysis and test kits. Overall, BHMT-Cl showed strong potential as a versatile tool for monitoring ClO^- in biological and environmental matrix.

PMID 42556267 · DOI 10.1016/j.bioorg.2026.110331 · [PubMed record](#)

6. Bactericidal and anti-inflammatory activity of defined hypochlorite solution.

2026 · PloS one · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Chapman, Christopher David; Dakin, Myles Hyla Edward; Aspinall, Richard

This hypochlorite formulation has the capability to sterilize a wound, and by altering the cytokine profile reduce inflammation and scarring, and improve wound healing. CONCLUSIONS: These findings, taken with the burn survival study, suggest that the increased survival rate after application of hypochlorite could be due to the combined effect of elimination of infective pathogens, and the differential degradation of interleukin-6 and interleukin-10 at the...

PMID 42497178 · DOI 10.1371/journal.pone.0352576 · [PubMed record](#)

7. Boranil-phenothiazine conjugates with dual-state emission for ratiometric tracking of HClO in food samples and injured liver cells.

2026 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Food & agriculture · Human observational / experimental
Authors: Hai, Xue; Zhao, Yucheng; Meng, Xinjia; Jiao, Junrong; Zhang, Jian; Shao, Xiangmin; Wang, Jianhong; Wang, Jiamin

Owing to its significantly twisted molecular structure, HC-SN effectively suppresses π - π stacking and exhibits prominent dual-state emission characteristics, achieving exceptional photoluminescence quantum efficiencies across both solvated and solid phases. These results suggest that HC-SN provides a practical and versatile platform for HClO monitoring in food safety analysis and related biological systems.

PMID 42480401 · DOI 10.1016/j.saa.2026.128473 · [PubMed record](#)

8. A novel borondifluoro indolenine-functionalized red-shift ratiometric fluorescent probe for detection of hypochlorous acid in drug-induced liver injury.

2027 · Talanta · Water, sanitation & biosecurity · Human observational / experimental
Authors: Yang, Linlin; Wang, Guangnian; Xin, Fei; Xie, Fan; Wang, Chenhan; Cui, Shaoli; Li, Lili; He, Guangjie; Ren, Wenjie

Hypochlorous acid (HClO), a key indicator of oxidative stress, has been demonstrated to be closely linked to the onset and progression of DILI. This structural and electronic adjustment enables a red shift in the fluorescence emission wavelength-from the red region toward the NIR region-upon recognition, thereby improving the accuracy of ratiometric signals in vivo.

PMID 42391699 · DOI 10.1016/j.talanta.2026.130225 · [PubMed record](#)

9. Unlocking HClO detection via an AIE "off-on-off" fluorescent switch.

2026 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Food & agriculture · Human observational / experimental
Authors: Zhang, Zhixin; Wang, Xiangyi; Zeng, Xianchuan; Zhu, Yingkai; Chen, Yuping; Fan, Baolei; He, Youling; Li, Yan; Zhang, Fei; Ye, Long

Solvent-dependent assays confirm its AIE characteristics: the fluorescence intensity increases 15-fold in solvent mixtures with 99% water fraction. Theoretical calculations further reveal an increased dipole moment and hydrophobicity (log P) further altered electronic properties after oxidation.

PMID 42372365 · DOI 10.1016/j.saa.2026.128322 · [PubMed record](#)

10. From live cells to real-world samples: A PET-based ultrafast and photostable turn-on fluorescent probe for on-site quantification and in vivo visualization of HClO.

2027 · Talanta · Water, sanitation & biosecurity · Human observational / experimental
Authors: Zhang, Tieshan; Wang, Lu; Zhou, Zicheng; Zuo, Shuangmeng; Wu, Jian; Zuo, Yujing; Jiang, Pengcheng; Yu, Haitao; Qi, Yanyu

CUM-DMTC displays exceptional selectivity, anti-interference capability, and photostability-the fluorescence intensity increases by only 0.9% after continuous irradiation for 9000 s. Furthermore, the probe exhibits low cytotoxicity and remarkable intracellular photostability (supporting continuous scanning for over 30 min), and successfully visualizes HClO in HeLa cells and live zebrafish, highlighting its strong potential for real-time bioimaging...

PMID 42364587 · DOI 10.1016/j.talanta.2026.130199 · [PubMed record](#)

11. Impact of Chemical Aging on Venison Processing Knife Topography and Recoverable Chronic Wasting Disease Prion Seeding Activity.

2026 · Pathogens (Basel, Switzerland) · Food & agriculture · Human observational / experimental
Authors: Bryant, Damani N; Lurndahl, Nicole A; Ellis-Cramer, Maddy; Gresch, Sarah C; Schwabenlander, Marc D; Larsen, Peter A; Wolf, Tiffany M; Lichtenberg, Stuart S

We found that hypochlorous acid, sodium hypochlorite, and potassium peroxymonosulfate corrode the surfaces of steel knives, resulting in significant physical alterations. Our results indicate decreased recoverable prion seeding activity from knife surfaces aged with 40% bleach.

PMID 42347257 · DOI 10.3390/pathogens15060645 · [PubMed record](#)

12. Bactericidal, fungicidal, and antiviral activity of highly purified hypochlorous acid water.

2026 · Journal of microorganism control · Water, sanitation & biosecurity · Journal article / other
Authors: Mokudai, Takayuki; Iwasawa, Atsuo; Kikuchi, Kenji; Niwano, Yoshimi

Strong antiviral activity was observed against adenoviruses, influenza virus, norovirus, and others, although some enteroviruses (e.g., coxsackievirus A6 and B5) were resistant. Overall, HP-HAW demonstrates promising disinfectant properties comparable to those of HAW without RO membrane filtration; however, its limited efficacy against certain pathogens should be considered for practical applications.

PMID 42270376 · DOI 10.4265/jmc.31.2_67 · [PubMed record](#)

13. A cellulose-based near-infrared fluorescent probe for rapid hypochlorous acid detection, ferroptosis monitoring, and in vivo imaging.

2026 · Carbohydrate polymers · Food & agriculture · Human observational / experimental
Authors: Chen, Yanyu; Li, Shen; Liu, Keyin; Chen, Yunling; Kong, Fangong

It demonstrated sensitive imaging of exogenous and endogenous HClO, confirming its utility in monitoring dynamic changes in HClO levels during ferroptosis. These results demonstrate the promising utility of TC-NR for the quantitative analysis of HClO, offering a powerful tool for applications spanning from environmental monitoring to biomedical research.

PMID 42173566 · DOI 10.1016/j.carbpol.2026.125438 · [PubMed record](#)

14. Problems with the iodometric titration method used to evaluate the disinfecting activity of sodium hypochlorite.

2026 · Free radical research · Water, sanitation & biosecurity · Journal article / other
Authors: Fukui, Koji; Okada, Yuta; Sugiyama, Kenta; Kishimoto, Ayuta; Kohno, Masahiro

These findings indicate that OCI(-) and HOCl may not be directly measured by the KI method. Our results suggest that the conventional KI-based evaluation of disinfecting efficacy may need to be reconsidered.

PMID 42143403 · DOI 10.1080/10715762.2026.2673600 · [PubMed record](#)

15. Influence of Hypochlorous Acid Obtained From an Electrolytic Device on the Mechanical Properties of Root Dentin.

2026 · Clinical and experimental dental research · Veterinary & livestock · Animal study
Authors: Souza, Matheus Albino; Farina, Carolina Bianchi; Longhi, Anna Vithoria da Costa; Dallepiane, Felipe Gomes; Pizzi, Camila Yasmin Monteiro; Piccolo, Nathan Mateus; Zart, Ana Beatriz Canabarro; Trindade, Bianca Gonçalves; Rissardo, Leonardo Scarparo; Ziglioli, Natália Ulmi; Arenhardt, Vincenzo Ghisleni; Steier, Liviu; de Figueiredo, José Antônio Poli

RESULTS: The highest microhardness was observed in DW, 250 ppm HClO and 500 ppm HClO, with no statistical differences between them ($p > 0.05$). CONCLUSION: It was concluded that HClO preserved the mechanical properties of root dentin.

PMID 42046840 · DOI 10.1002/cre2.70332 · [PubMed record](#)

16. From Antibiosis to HOCL Antisepsis: Far-Forward Infection Control in Modern Warfare.

2026 · Journal of special operations medicine : a peer reviewed journal for SOF medical professionals · Water, sanitation & biosecurity · Human observational / experimental
Authors: Rasmussen, Eric D; Makarov, Vasyil

Laboratory, clinical, and humanitarian field data on its application to wounds consistently show rapid microbial reduction and biofilm disruption, leading to measurably enhanced wound healing. For those providing care in resource-limited settings, the use of HOCl demonstrates how infection prevention can move beyond pathogen-specific therapy toward safe and effective antisepsis.

PMID 42024812 · DOI 10.55460/J.Spec.Oper.Med.2026.KPUM-MM54 · [PubMed record](#)

17. A novel fluorescent probe based on 3-hydroxyphthalic anhydride for the differential detection of ClO(-), Al(3+) and Zn(2+) and its application in biological imaging.

2026 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Food & agriculture · Human observational / experimental
Authors: Liu, Bo; Wu, Liangqiang; Xu, Hai; Li, Zhixue; Shen, Renshun; Fan, Zixuan; Bai, Yutong; Xu, Dejun; Yang, Qingbiao; Song, Yan

The probe also has good biocompatibility. Biological experiments have proven that the probe BHD has low cytotoxicity and can achieve the visualization imaging of ClO(-)/Al(3+)/Zn(2+) in living cells, providing a new tool for environmental monitoring and biomedical research.

PMID 42008964 · DOI 10.1016/j.saa.2026.127902 · [PubMed record](#)

18. Determination of the susceptibility of onychomycosis agents isolated in Sakarya to octenidine dihydrochloride and hypochlorous acid.

2026 · European journal of clinical microbiology & infectious diseases : official publication of the European Society of Clinical Microbiology · Water, sanitation & biosecurity · Human observational / experimental

Authors: Gül, Merve; Çiftçi, İhsan Hakkı; Erman, Gülay; Yaşar, Ahmet Can; Aydemir, Özlem; Kılıbaşı, İmdat; Köroğlu, Mehmet

Flow cytometry-based viability analyses showed that the results obtained using the tube dilution method were more consistent. Since OCT-D and HOCl demonstrated MIC values far below their commercially available concentrations and exhibited high fungicidal activity, further studies suggest that these agents may be strong alternatives for topical treatment.

PMID 41995953 · DOI 10.1007/s10096-026-05477-6 · [PubMed record](#)

19. Stoichiometric hydrogen peroxide versus hypochlorite generation via dual-cell continuous flow system enables singlet oxygen-dominated phenol oxidation.

2026 · Water science and technology : a journal of the International Association on Water Pollution Research · Water, sanitation & biosecurity · Journal article / other

Authors: Wan, Zihao; Hong, Hui; Wu, Zelin; Wang, Jie; Xi, Chenyi; Xie, Shiwei; Zhang, Na

Furthermore, the (1)O(2)-dominated oxidation pathway suppressed the formation of chlorinated byproducts by 24-48% compared to a conventional single-cell electrochemical method. Overall, this engineered dual-cell architecture effectively overcomes the intrinsic bottlenecks of conventional electro-oxidation, establishing a robust, (1)O(2)-driven paradigm for the safe and selective pretreatment of refractory wastewaters.

PMID 41983983 · DOI 10.2166/wst.2026.248 · [PubMed record](#)

20. Red-Emissive Carbon Dots from Sustainable Biomass for Selective Sensing and Imaging of Hypochlorous Acid in Swimming Pool Water and Cells.

2026 · Analytical chemistry · Water, sanitation & biosecurity · Human observational / experimental

Authors: Zhang, Mengying; Guan, Yuwei; Su, Shan; Zhang, Congpeng; Cheng, Yong; Wei, Yun

Through the combination of density functional theory calculations and experiments, the structure of L-CDs was speculated, and the oxidation and chlorination reactions with HClO were revealed from the perspectives of molecular structure and electron orbitals. This study introduced a new method for the sensitive detection of HClO, offering further insight into the mechanism of HClO detection by CDs.

PMID 41949999 · DOI 10.1021/acs.analchem.5c08114 · [PubMed record](#)

21. AIE-based dual-mode chemosensor for hypochlorite detection in water: Environmental and biological applications in diverse water samples, zebrafish, artemia, and plants.

2026 · Bioorganic chemistry · Water, sanitation & biosecurity · Animal study

Authors: Kim, Seoyeon; Lee, Yun-Seo; Lee, Sooseong; Lee, Jae Jun; Yun, Kijeong; Kim, Ki-Tae; Kim, Cheal

The quantitative analyses for the identification of ClO(-) in real environmental samples including drinking water, tap water, seawater, river water, and sewage were successfully achieved using THP-2·Cl. Interestingly, THP-2·Cl could visualize ClO(-) through fluorescence in various biological system, such as live zebrafish, artemia, fresh onion tissue and celery.

PMID 41924845 · DOI 10.1016/j.bioorg.2026.109815 · [PubMed record](#)

22. Disruption of pulmonary surfactant function under oxidative stress: structural and biophysical insights.

2026 · Journal of colloid and interface science · Veterinary & livestock · Animal study

Authors: Cejas, Jimena Del P; Cañadas, O; Ledesma, A; Rosa, A S; Collada, A; Blanco-Rivero, A; Pérez-Gil, J; Disalvo, E A; Frías, María de Los A

Functional assays confirmed impaired reduction of surface tension during quasi-static cycling, partially alleviated under dynamic cycling, suggesting exclusion or depuration of oxidized components from the interface. Together, these findings demonstrate that neutrophil-derived oxidants progressively compromise pulmonary surfactant by targeting lipid-protein cooperativity, leading to early interfacial dysfunction followed by structural reorganization.

PMID 41905308 · DOI 10.1016/j.jcis.2026.140353 · [PubMed record](#)

23. Dual-channel fluorescent probe for in-situ differential detection of HClO and H(2)S in crops and food.

2026 · Food chemistry · Food & agriculture · Human observational / experimental

Authors: Liu, Wei; Zhang, Rumeng; Chen, Yutong; Gu, Wuyan; Du, Haijiang; Han, Zhixiang; Gao, Zhiheng; Wang, Kun; Long, Lingliang

The probe was effectively used for real-time imaging in live cells, zebrafish, and plants under stress. This work establishes a versatile, field-deployable tool for investigating HClO-H(2)S crosstalk in agriculture and enhancing food safety surveillance.

PMID 41791160 · DOI 10.1016/j.foodchem.2026.148712 · [PubMed record](#)

24. Elevated Antibacterial Activity of a Polygalacturonic + Caprylic Acids Wound Ointment Compared with Hypochlorous Acid in a Three-Dimensional Wound Biofilm Model.

2026 · Pathogens (Basel, Switzerland) · Water, sanitation & biosecurity · Human observational / experimental
Authors: Gerges, Bahgat; Rosenblatt, Joel; Truong, Y-Lan; Jiang, Ying; Raad, Issam

PG + CAP produced a significantly greater reduction in viable organisms when compared to HOCL ($p \leq 0.05$) against all tested bacterial isolates. PG + CAP was highly effective against biofilms of all resistant bacterial isolates and is a promising option that merits further study for treating chronic wounds contaminated with bacterial biofilms.

PMID 41754440 · DOI 10.3390/pathogens15020188 · [PubMed record](#)

25. Rationally constructed nanoprobe based on the molecular docking strategy for rapid hypochlorous acid detection in foods and biosystems.

2026 · Food chemistry · Veterinary & livestock · Human observational / experimental
Authors: Ouyang, Min; Zhang, Xueyi; Lin, Qinlu; Zhou, Liyi

Hypochlorous acid (HClO) is not only often used as an effective preservative in the food industry, but also is an important reactive oxygen species in organisms. Impressively, DBH-1 has been successfully used for the detection of HClO in food samples, living cells, zebrafish, and mouse models with satisfactory results.

PMID 41713346 · DOI 10.1016/j.foodchem.2026.148505 · [PubMed record](#)

26. A deprotection-oxidation cascade-regulated dual-responsive near-infrared fluorescent probe for individual and sequential detection of H(2)S/HClO with applications in food safety monitoring.

2026 · Analytica chimica acta · Food & agriculture · Human observational / experimental
Authors: Yang, Jie; Fu, Chao; Zhou, Yicong; Zhang, Hua; Song, Xiangzhi; Li, Dandan; Liu, Chuanxiang

Furthermore, cellular studies revealed the probe's capability to detect elevated levels of both H(2)S and HClO in HeLa cells. SIGNIFICANCE AND NOVELTY: This novel single-probe system enables the individual and sequential detection of two distinct analytes in a single assay.

PMID 41708239 · DOI 10.1016/j.aca.2026.345191 · [PubMed record](#)

27. An oxidative cleavage-based HCR-CRISPR/Cas12a biosensor for highly sensitive detection of hypochlorous acid.

2026 · The Analyst · Food & agriculture · Human observational / experimental
Authors: Liu, Xin; Wang, Xiangyue; He, Shaoying; Li, Mingxi; Lu, Chunhua; Xing, Chao

Hypochlorous acid (HClO) is a critical disinfectant in public health and water treatment, yet its excessive presence in environmental matrices poses significant risks to human health (e.g., respiratory irritation, tissue damage) and aquatic ecosystems (e.g., biodiversity loss). The dual-lock strategy minimizes nonspecific activation in CRISPR/Cas12a systems, significantly enhancing sensitivity and specificity.

PMID 41615337 · DOI 10.1039/d5an01299f · [PubMed record](#)

28. Antibiofilm and antimetabolic effects of disinfectants on Pseudomonas aeruginosa strains isolated from cosmetic manufacturing environments.

2026 · Applied microbiology and biotechnology · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Korzekwa, Kamila; Kowalczyk-Chrzastowska, Daria; Szmurło, Aleksandra; Wernecki, Maciej; Ulatowska-Jaruga, Agnieszka; Buzalewicz, Igor; Wojnicz, Dorota

The results showed that hypochlorous acid is the most effective disinfectant in inhibiting biofilm formation. Results showed a significant reduction in contamination levels in water passing through the installation, from an uncountable level to below $0.1 \times 10(1)$ CFU mL⁻¹.

PMID 41586898 · DOI 10.1007/s00253-026-13719-y · [PubMed record](#)

29. Polyhexanide, Povidone-Iodine, and Hypochlorous Acid Show High In Vitro Antimicrobial Efficacy Against Pathogens Commonly Associated With Equine Infectious Keratitis.

2026 · Veterinary ophthalmology · Veterinary & livestock · In vitro / laboratory
Authors: Stolle, Leonie Maria; Oltmanns, Hilke; Meißner, Jessica; Heun, Frederik; Schieder, Ann-Kathrin; Wolff, Hinrich Tönjes; Ohnesorge, Bernhard; Busse, Claudia

In accordance with the One Health approach, these findings highlight their potential in treating infectious ocular surface disease either as an alternative or alongside topical antibiotics. Further in vivo and clinical studies are required to investigate the translatability of their in vitro effectiveness to clinic cases.

PMID 41552904 · DOI 10.1111/vop.70141 · [PubMed record](#)

30. Practical and versatile hypochlorite sensor using a xanthene scaffold: Integrating theoretical analysis with environmental and biological applications.

2026 · Bioorganic chemistry · Food & agriculture · Animal study

Authors: Lee, Jae Jun; Batsaikhan, Otgontsetseg; Kim, Soyeon; Choi, Yoonseo; Kim, Ki-Tae; Kim, Cheal

In addition, bioimaging experiments using zebrafish confirmed ClO(-)-induced fluorescence quenching in living organisms, while edible plant-based sensing demonstrated its utility in tracking ClO(-) uptake through root absorption. These results suggest that HCC serves as a highly sensitive and versatile ClO(-) sensor with potential applications in environmental monitoring, biological imaging, and food safety assessment.

PMID 41478198 · DOI 10.1016/j.bioorg.2025.109455 · [PubMed record](#)

31. Pervaporation of hypochlorous acid using a hollow fiber membrane made from silicone rubber and its application for indoor disinfection.

2025 · Journal of microorganism control · Water, sanitation & biosecurity · Journal article / other

Authors: Sakurai, Ayaka; Shimada, Chisato; Fukuzaki, Satoshi

An exponential dependence of the steady-state HOCl((g)) concentration on the steady-state HOCl((aq)) concentration was observed. Operation of the SR hollow fiber membrane fed with weakly acidic hypochlorite solutions (i.e., 500 mg/L) in a 75 m(3) room resulted in a uniform distribution of 7-10 ppb HOCl((g)), thereby exerting a moderate bactericidal effect against *Staphylococcus aureus* cells.

PMID 41391858 · DOI 10.4265/jmc.30.4_115 · [PubMed record](#)

32. Evaluation of test methods and the efficacy of hypochlorous acid water atomization against *Pseudomonas aeruginosa* in hospital rooms.

2026 · Infection, disease & health · Water, sanitation & biosecurity · Human observational / experimental

Authors: Takahashi, Mikio; Simooki, Osamu

RESULTS: In the pipetting method, no reduction in viable bacteria was observed following atomization of 40 ppm hypochlorous acid water, whereas a significant bactericidal effect ($p < 0.001$) was detected at 300 ppm. Conversely, in the pooling method, a significant reduction in viable bacteria ($p < 0.01$) was observed at 40 ppm, with bacterial counts falling below the detection limit at 300 ppm, clearly demonstrating a strong bactericidal effect.

PMID 41339195 · DOI 10.1016/j.idh.2025.10.001 · [PubMed record](#)

33. Isoform-specific oxidative modifications of tropoelastin by HOCl and MPO alter protein self-assembly.

2025 · Redox report : communications in free radical research · Water, sanitation & biosecurity · Human observational / experimental

Authors: Mikkelsen, Karoline Lindgaard; Nybo, Tina; Davies, Michael J; Rogowska-Wrzesinska, Adelina

RESULTS: TE2 exhibited chlorination at multiple tyrosine residues, particularly 3,5-dichlorotyrosine, while showing minimal cysteine oxidation. These isoform-specific patterns translated into functional differences: TE2 demonstrated enhanced coacervation, whereas TE6 showed reduced assembly capacity, consistent with structural destabilization.

PMID 41312739 · DOI 10.1080/13510002.2025.2592409 · [PubMed record](#)

34. Dissecting HOCl Action in Chronic Wound Biofilms: Proteomic Insights From a Host-Relevant Model of *Pseudomonas aeruginosa*.

2025 · MicrobiologyOpen · Food & agriculture · Human observational / experimental

Authors: Robins, Lori I; Gafken, Philip; Lin, Chenwei; Jones, Lisa; Hooper, Sarah E

HOCl treatment significantly reduced biofilm viability and altered the abundance of 330 proteins. These findings indicate a shift toward survival phenotypes and weakened pathogenicity.

PMID 41307276 · DOI 10.1002/mbo3.70181 · [PubMed record](#)

35. Furan-modulated ClO(-) probe with typical turn-on fluorescence response, high signal-to-noise ratio and reactivity for applications in food samples, test strips, live cells and zebrafish.

2026 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Food & agriculture · Human observational / experimental

Authors: Xu, Chenggong; Sun, Hao; Xin, Zhongxiang; Rui, Wenjuan; Li, Shuo; Zhou, Yifan; Dan, Wenjia; Dai, Jiangkun

Moreover, with the assistance of electron-withdrawing diaminomaleonitrile (DAMN), Probe C also demonstrated higher reactivity toward ClO(-) due to the increased electron cloud density around the reaction site, and the reaction equilibrium can be achieved within 4 min. Eventually, Probe C with high specificity and photostability was successfully applied to the accurate determination of ClO(-) in food samples, and demonstrated satisfactory performance in...

PMID 41265347 · DOI 10.1016/j.saa.2025.127215 · [PubMed record](#)

36. Cell phenotyping reveals chemical water disinfection treatment-induced molecular and morphological perturbations.

2025 · Journal of hazardous materials · Water, sanitation & biosecurity · Human observational / experimental

Authors: Zhang, Xin; Harir, Mourad; Schick, Joel A; Lucio, Marianna; Gomes, Inês B; Simões, Manuel; Schmitt-Kopplin, Philippe

Previous studies suggest that OXONE (potassium peroxymonosulfate) at ten times the minimum bactericidal concentration (MBC) provides more effective biofilm control compared to conventional chlorination and may serve as a promising alternative disinfectant. DBPs analysis showed a 7.2-fold increase in CHOCI-DBPs under Ca(OCl)₂ at 10 ×MBC, predominantly in saturated/low-unsaturation structures, while OXONE increased sulfur-containing DBPs by 1.59-fold...

PMID 41265268 · DOI 10.1016/j.jhazmat.2025.140504 · [PubMed record](#)

37. Real-time and continuous monitoring of hypochlorous acid using a wearable sensor based on boronic acid nanofibers and gold nanoparticles.

2026 · Biosensors & bioelectronics · Veterinary & livestock · Human observational / experimental

Authors: Thirupathi, Murugan; Velusamy, Nithya; Lin, Pei-Ying; Ho, Ja-An Annie

The sensor employs a screen-printed carbon electrode (SPCE) modified with polyaminophenylboronic acid (PAPBA) nanofibers and gold nanoparticles (AuNPs), which enhance conductivity and specificity. Its practical utility was demonstrated by analyzing HOCl levels in pool water, floor cleaner, and sanitizer, as well as directly on plant leaves and pig skin, highlighting adaptability for smart farming and bioscience research.

PMID 41252932 · DOI 10.1016/j.bios.2025.118210 · [PubMed record](#)

38. A circular crRNA-triggered CRISPR/Cas12a fluorescent platform for detection of myeloperoxidase activity.

2026 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Veterinary & livestock · Human observational / experimental

Authors: Gao, Yuan; Dong, Peng; Lin, Huan; Tian, Jing

The sensor also maintained stable responses over 8 weeks, indicating strong structural integrity of the circular crRNA-PS. Furthermore, the system was applied for inhibitor screening, yielding IC₅₀ values of 127.2 μM for SHA and 0.81 μM for 4-ABAH.

PMID 41240694 · DOI 10.1016/j.saa.2025.127149 · [PubMed record](#)

39. The smartphone-assisted fluorescent and colorimetric dual-mode sensor based on novel graphitic carbon nitride quantum dots for environmental sensing and bioimaging of hypochlorite.

2026 · Biosensors & bioelectronics · Veterinary & livestock · Human observational / experimental

Authors: Sun, Xincheng; Ji, Yuxin; Meng, Yachu; Zhang, Xiaoran; Zhu, Jingling; Li, Jun; Shuang, Shaomin; Dong, Chuan

This functionality was complemented by its successful application in complex real-world samples, including tap water, swimming pool water, and 84 disinfectants, demonstrating robust practical utility. g-C(3)N(4) QDs were applied to visualize ClO⁻ in cells, zebra fish and a tumor-bearing mouse model. Moreover, g-C(3)N(4) QDs was expected as a potential tool for early diagnosis of cancer via monitoring ClO⁻.

PMID 41166933 · DOI 10.1016/j.bios.2025.118155 · [PubMed record](#)

40. Effects of hydrogen-rich hypochlorous acid water on broiler drinking water bacterial level, growth performance, antioxidant capacity, and intestinal environment.

2025 · Poultry science · Veterinary & livestock · Animal study

Authors: Li, Jian; Liu, Chang; Peng, Chonglian; Wang, Yang; Li, Baoming; Yang, Li; Peng, Han; Zheng, Weichao

Compared with controls, HRHAW showed no significant impact on the feed-gain ratio but significantly improved breast meat tenderness (39.15 %) and antioxidant capacity (SOD: 6.52 %-27.54 %; GSH-PX: 8.54 %-50.97 %). In summary, HRHAW successfully integrates the antioxidant benefits of HRW with the antimicrobial efficacy of HAW, significantly reducing the bacterial content in drinking water and enhancing the antioxidant capacity of broilers, thereby...

PMID 41151446 · DOI 10.1016/j.psj.2025.106009 · [PubMed record](#)

41. Impact of surface roughness on the effectiveness of commercial disinfectants against wet biofilms.

2025 · Journal of applied microbiology · Water, sanitation & biosecurity · Journal article / other

Authors: Stallings, Kayley; Buckley, David; Teska, Peter; Jiang, Xiuping

Biofilm reductions following three disinfectant treatments ranged from 3.23 to 6.22 logs (*P. aeruginosa*) and 2.92-5.62 logs (*S. aureus*) for all coupon types, with surface roughness having no significant impact on disinfection efficacy. A 6-log reduction was achieved only with CL against *P. aeruginosa* on nonscratched HDPE.

PMID 41129390 · DOI 10.1093/jambio/ixaf263 · [PubMed record](#)

42. Synergistic antibacterial effect of hydroxyl radicals generated by the combination of hypochlorous acid and UV irradiation.

2025 · PloS one · Veterinary & livestock · Journal article / other
Authors: Lee, Hwa Yong; Lee, Han Bit; Kim, Younghee

In contrast, combined exposure to HOCl and UV irradiation demonstrated a 10% increase in bacterial reduction and halved the required exposure time, regardless of HOCl concentration. These findings highlight the synergistic bactericidal potential of HOCl and UV irradiation and support their applicability in airborne bacterial disinfection under realistic environmental conditions.

PMID 41091726 · DOI 10.1371/journal.pone.0334003 · [PubMed record](#)

43. Trapping DNA Radicals With DMPO Reduces Hypochlorous Acid-Induced 8-oxo-7,8-dihydro-2'-deoxyguanosine and Mutagenesis in Lung Epithelial Cells.

2025 · Oxidative medicine and cellular longevity · Food & agriculture · In vitro / laboratory
Authors: Lopez, C M; Ramirez, D C; Gomez Mejiba, S E

By trapping DNA radicals, DMPO also blocks the translocation of p53 to the cell nucleus, suggesting that by trapping DNA radicals with DMPO, end-oxidation products are prevented, and the cell response to genomic damage is blunted. Trapping DNA radicals to reduce the accumulation of HOCl-induced mutagenic end-oxidation products will provide new therapeutic avenues to reduce genotoxic damage during PNI.

PMID 41049128 · DOI 10.1155/omcl/8868348 · [PubMed record](#)

44. Rapid Activation of Amino Acids with Cyanide and Hypochlorite.

2025 · Journal of the American Chemical Society · Food & agriculture · Journal article / other
Authors: Marshall, Luke K; Yi, Ruiqin; Brown, Joshua J; Fahrenbach, Albert C

Studies with L-alanine suggest that racemization of the amino acids does not occur significantly during the reaction. The findings herein build upon prior work involving NCCl in prebiotic ribonucleotide synthesis and activation, highlighting its potential as a general chemical activator for the prebiotic condensation of life's molecular building blocks.

PMID 41036577 · DOI 10.1021/jacs.5c12639 · [PubMed record](#)

45. Magnetic nanoparticle SERS sensor for rapid and selective detection of ClO(-) in drinking water.

2025 · Mikrochimica acta · Food & agriculture · Journal article / other
Authors: Wang, Liu; Wang, Mingli

The substrate also demonstrates good uniformity, reproducibility, and selectivity. Detection in actual drinking water samples indicates the potential application of this detection strategy in food safety.

PMID 41032103 · DOI 10.1007/s00604-025-07586-z · [PubMed record](#)

46. Virus inactivation effect of hypochlorite solution containing nitrate ions.

2025 · Analytical sciences : the international journal of the Japan Society for Analytical Chemistry · Water, sanitation & biosecurity · Journal article / other
Authors: Satake, Erina; Ishiyama, Maho; Sekiguchi, Masaki; Sasaki, Atsushi; Yano, Shigekazu; Endo, Masatoshi

Under acidic conditions (pH 6), the formation of NH₂Cl was limited due to the rapid consumption of free chlorine and insufficient generation of NH₂Cl, resulting in reduced virucidal efficacy; however, increasing the amount of NH₄⁺(+)-N led to improved inactivation effects. These results demonstrate that optimizing pH and nitrogen sources can improve the efficacy of low-concentration HClO solutions by generating NH₂Cl in situ, offering a safer and more...

PMID 41028557 · DOI 10.1007/s44211-025-00831-8 · [PubMed record](#)

47. Rapid inactivation of aerosolised influenza virus using low-concentration gaseous hypochlorous acid.

2025 · Scientific reports · Water, sanitation & biosecurity · Human observational / experimental
Authors: Narihata, Koki; Minamiguchi, Masaru; Hata, Miki; Ueda, Mitsuhiko; Yoshida, Shinji; Sakoda, Yoshihiro

A stronger inactivation effect was noted at 50% compared to 30% relative humidity, with a 3.06-fold increase in effectiveness. These findings underscore the effectiveness of HOCl(g) against aerosolised H1N1 influenza A virus and its potential for infection control.

PMID 41023359 · DOI 10.1038/s41598-025-19020-8 · [PubMed record](#)

48. The Use of Hypochlorous Acid in the Treatment of Periorbital Necrotizing Fasciitis.

2026 · Ophthalmic plastic and reconstructive surgery · Food & agriculture · Human observational / experimental
Authors: Siktberg, Jonathan; Mawn, Louise A

Periorbital necrotizing fasciitis (PONF) is a severe skin and soft tissue infection that corrupts the body's natural immune response, leading to extensive tissue necrosis that can result in exenteration or death. Further investigation into hypochlorous acid treatment in periorbital necrotizing fasciitis is warranted.

PMID 40990206 · DOI 10.1097/IOP.0000000000003061 · [PubMed record](#)

49. Activity of HOCl-generating e-bandage with clinically available hydrogels against *Staphylococcus aureus* and *Acinetobacter baumannii* biofilms.

2025 · Microbiology spectrum · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Dagsuyu, Eda; Kies, Paige; Karau, Melissa J; Patel, Robin; Beyenal, Haluk

Results of this study inform the selection of clinically available hydrogels that may be suitable for use with a 1.77 cm(2) HOCl-producing e-bandage. IMPORTANCE: In this study, it was shown that some clinically available hydrogels, combined with a 1.77 cm(2) HOCl-generating electrochemical bandage, deliver time-dependent antimicrobial activity against methicillin-resistant *Staphylococcus aureus* and *Acinetobacter baumannii* biofilms, offering a potential...

PMID 40965148 · DOI 10.1128/spectrum.01762-25 · [PubMed record](#)

50. Disinfection effects of slightly acidic hypochlorous electrolyzed water on high-frequency contact surfaces in intensive care units: A prospective study.

2026 · Journal of occupational and environmental hygiene · Water, sanitation & biosecurity · Randomized controlled trial
Authors: Gao, Huihui; Li, Haiwei; Xu, Qiaoxia; Li, Shuyan; Jiang, Yi

The pass rates did not significantly differ (5 min, $p = 1.000$; 4 hr, $p = 0.626$; 8 hr, $p = 0.380$). The use of SAEW showed comparable results in ICU high-frequency contact surface disinfection to the use of TCCA containing 500 mg/L of chlorine, indicating it is effective for disinfecting high-frequency surfaces in ICUs.

PMID 40953487 · DOI 10.1080/15459624.2025.2555298 · [PubMed record](#)

51. Engineering a dual-response fluorescent probe for bioimaging of hypochlorous acid and hydrazine in foods, plants, cells and bacteria.

2026 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Food & agriculture · Journal article / other
Authors: Fang, Haoran; Qiao, Zixiao; Sui, Xinlin; Quinto, Maurizio; He, Wenmeng; Zhao, Wei; Wang, Beibei

The probe was then employed to recognize HClO and hydrazine in plants, food samples, living cells, roots of *Arabidopsis thaliana*, *Pseudomonas aeruginosa* and onion epidermal cells. These findings demonstrated the promising potential of the proposed probe in the detection of HClO and hydrazine in food safety and environmental monitoring.

PMID 40934562 · DOI 10.1016/j.saa.2025.126911 · [PubMed record](#)

52. Dual-optical response probe to HSO(3)(-) and HClO via ICT and solvatochromic effects for food and cellular applications.

2026 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Food & agriculture · Human observational / experimental
Authors: Zhang, Xiufeng; Xu, Yiping; Shi, Lei; Bai, Ruiyang; Zhu, Chenxin; Yuan, Xinyu; Zhang, Siyun; Sun, Hongxia; Lang, Yunhe

Therefore, the development of reliable analytical methods to detect HSO(3)(-) and HClO levels in food products is of significant importance. Furthermore, the probe was successfully adapted into a portable test strip format, demonstrating reliable quantification in real samples (recovery: 88.97-104.88 %).

PMID 40889450 · DOI 10.1016/j.saa.2025.126857 · [PubMed record](#)

53. A ratiometric AIE probe with sequential activation for selective dual detection and imaging of fluoride and hypochlorous acid.

2025 · Analytical and bioanalytical chemistry · Food & agriculture · Human observational / experimental
Authors: Wei, Mingjie; Long, Ruiqing; Liu, Rong; Zheng, Linxin; Wang, Simiao; Jiang, Yu; Gu, Biao; Niu, Li

The design overcomes traditional limitations through a unique cascade activation mechanism: initial F(-)-induced desilylation generates a red-emitting SA-S intermediate, which subsequently undergoes HClO-specific oxidation to produce green-fluorescent SA-SO, creating two well-resolved emission peaks ($\Delta\lambda = 98$ nm) that effectively eliminate spectral interference-a critical advancement in dual-analyte detection technology. Remarkably, SA-S-TBM demonstrates...

PMID 40826235 · DOI 10.1007/s00216-025-06065-x · [PubMed record](#)

54. Mitigating *Legionella* spp. risk in an Australian healthcare facility using on-site electrochemical water disinfection.

2025 · Journal of water and health · Food & agriculture · Human observational / experimental

Authors: Hem, Sopheak; Drigo, Barbara; Vasileiadis, Sotirios; Brunetti, Gianluca; Smith, Euan; Ferro, Sergio; Lombi, Enzo; Ashbolt, Nicholas J; Donner, Erica

Furthermore, *Legionella* spp. colony counts were compared to quantitative polymerase chain reaction (qPCR) results. By the third sampling event (22 days post-commissioning), water quality consistently improved, with no culture-positive *Legionella* counts observed thereafter. qPCR analysis confirmed these results, proving more sensitive and reliable than traditional methods.

PMID 40742217 · DOI 10.2166/wh.2025.395 · [PubMed record](#)

55. Long-term performance of low-cost free chlorine sensors to monitor on-site water reuse.

2025 · Water science and technology : a journal of the International Association on Water Pollution Research · Water, sanitation & biosecurity · Human observational / experimental

Authors: Herold, Gaétan; Rodino, Francesca; Prévotau, Antonin; Carrara, Sandro; Reynaert, Eva

This work demonstrates the successful design and validation of low-cost chlorine amperometric sensors for long-term monitoring using Prussian blue-coated screen-printed carbon electrodes. The findings encourage further research to improve durability and scalability to optimise the sensors for applications where low-cost sensing solutions are needed without personnel on-site for regular sensor maintenance and calibration.

PMID 40739827 · DOI 10.2166/wst.2025.090 · [PubMed record](#)

56. An in vitro study of the effects of pathophysiologically relevant levels of oxidative damage on cortical bone tissue quality.

2025 · Journal of the mechanical behavior of biomedical materials · Veterinary & livestock · In vitro / laboratory

Authors: Iranmanesh, Faezeh; Dapaah, Daniel Y; Tupy, Jindra; Montesano, John; Willett, Thomas L

Thermo-analytical tests including differential scanning calorimetry (DSC) and hydrothermal isothermal tension (HIT) tests, providing measures of collagen nativity and connectivity, revealed negative correlations with carbonyl content ($r = -0.46$, $p = 0.0038$). This suggests that oxidative damage of bone collagen is important towards understanding the degradation of bone quality in aging and various diseases.

PMID 40663912 · DOI 10.1016/j.jmbbm.2025.107108 · [PubMed record](#)

57. Thiocoumarin Ethenylene-Bridge Dicyanoisophorone Skeleton: A Strategy for Ratiometric Fluorescent Detection of Hypochlorous Acid.

2025 · Organic letters · Food & agriculture · Human observational / experimental

Authors: Yuan, Mengyao; Du, Yongyu; Xu, Kuoxi; Wang, Yuan

The probe was successfully applied for simultaneous detection of HClO in beverage and food samples. Moreover, the probe facilitated high-contrast imaging of both endogenous and exogenous HClO in live cells and in vivo mouse models, offering a powerful tool for elucidating HClO-associated physiological and pathological mechanisms.

PMID 40643442 · DOI 10.1021/acs.orglett.5c01943 · [PubMed record](#)

58. Hypochlorous acid and taurine chloramine co-mediate the innate arm of anti-Vibrio immunity in oyster hemocytes.

2025 · Free radical biology & medicine · Water, sanitation & biosecurity · Animal study

Authors: Wu, Siwei; Bai, Jing; Zhang, Xiangyu; Mao, Fan; Luo, Huazeng; Zhou, Ziyuan; Tao, Wensi; Wang, Wei; Yu, Ziniu; Wong, Nai-Kei; Zhang, Yang

In molecular imaging and flow cytometry, rapid production of HOCl was observed following *V. parahaemolyticus* challenge. Overall, our work demonstrated for the first time how phagocyte-derived HOCl and TauCl act as immune effectors within an intimately overlapping window of host defense, with theoretical implications for understanding ROS metabolism and immunomodulation in broader disease contexts.

PMID 40541803 · DOI 10.1016/j.freeradbiomed.2025.06.027 · [PubMed record](#)

59. Evaluation of commercially available produce antimicrobial washes to improve the quality and microbial safety of fresh produce.

2025 · International journal of food microbiology · Food & agriculture · Journal article / other
Authors: Mina, Hansel A; Buckley, David A; Burnett, Jack; Deering, Amanda J

Results showed that all antimicrobial washes significantly reduced pathogens at both temperatures ($p < 0.05$). Highlighting the significance of postharvest antimicrobial washes in reducing the contamination and cross-contamination of fresh produce with foodborne pathogens at the retail level.

PMID 40526997 · DOI 10.1016/j.ijfoodmicro.2025.111318 · [PubMed record](#)

60. Pro-inflammatory properties of M1 phenotypes of human macrophages: prolongation of myeloperoxidase-mediated oxidative stress.

2025 · Free radical research · Food & agriculture · Human observational / experimental
Authors: Yurkanova, Maria D; Kosheleva, Nastasia V; Teplova, Arina A; Timashev, Peter S; Vlasova, Irina I

In this study, we compared the production of hydrogen peroxide by two phenotypes of pro-inflammatory human M1 macrophages and neutrophils activated with phorbol-12-myristate 13-acetate. The total level of H₂O₂ production measured in the presence of horseradish peroxidase differed significantly between two types of macrophages.

PMID 40525586 · DOI 10.1080/10715762.2025.2519528 · [PubMed record](#)

61. A ratiometric fluorescent probe for sensitive detection of benzoyl peroxide and hypochlorite in food.

2025 · Food chemistry · Food & agriculture · Journal article / other
Authors: Cui, Shun-Qiang; Liang, Xin-Yi; Cai, Zhi-Qiang; Yuan, Hou-Qun; Zhang, Qiu-Yu; Xia, Yi-Fan; Sandra, A K I M A N A; Guo, Ling-Yi; Wang, Ran; Zhao, Shi-Yu; Li, Yan-Xia; Bao, Guang-Ming

N-CDs@Eu-MOFs successfully quantified both analytes in five real food matrices, showing recovery rates of 91.94-108.33 % for BPO and 91.25-107.22 % for ClO₂⁻, confirming its reliability in real-world applications. This instrument-free approach combines laboratory-grade accuracy with on-site practicality, significantly advancing food safety monitoring.

PMID 40517657 · DOI 10.1016/j.foodchem.2025.145116 · [PubMed record](#)

62. Hypochlorite-Driven Oxidative Dissolution Boosts Neurodevelopmental Toxicity of Cadmium Sulfide Nanoparticles in Zebrafish.

2025 · Environmental science & technology · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Ye, Xiaolin; Xie, Yizhen; Liang, Zhenda; Wang, Shengqing; Zhou, Li; Wang, Xiaohong; Martyniuk, Christopher J; Yan, Bing

Metabolomic profiling and protein expression analyses revealed that cadmium disrupts the synthesis, metabolism, and receptor interactions of monoamine neurotransmitters. This study shows a previously underappreciated mechanism by which oxidative transformation under disinfection-relevant conditions enhances MSNP toxicity, offering critical insights into the ecological and health risks associated with metal sulfide nanoparticles in aquatic systems.

PMID 40509697 · DOI 10.1021/acs.est.4c14507 · [PubMed record](#)

63. Kinetic stability and transformation pathway of halogenated nitrophenols in drinking water.

2025 · Journal of hazardous materials · Water, sanitation & biosecurity · Journal article / other
Authors: Ge, Jiacheng; Chen, Xiaoyan; Du, Zhenqi; Zhou, Yingying; Qu, Ruixin; Cui, Jiangdong; Ding, Shunke; Chu, Wenhai

The introduction of nitro group onto HNPs significantly diminishes the electron density of the benzene ring, thereby reducing their inherent reactivity compared with other aromatic DBPs. These results suggest that HNPs and their transformation products exhibit relatively high persistence and exposure risks.

PMID 40482509 · DOI 10.1016/j.jhazmat.2025.138812 · [PubMed record](#)

64. Efficient phosphonate degradation by Ti(4)O(7) electrode under realistic conditions: Key contribution of HOCl and long-term stability.

2025 · Chemosphere · Water, sanitation & biosecurity · Journal article / other
Authors: He, Lingyu; Luo, Jiayu; Hu, Haiyang; Zhang, Xin; Lei, Yang

Using phosphorus-containing scale inhibitors (i.e., phosphonates) in cooling water poses a significant challenge to water pollution and eutrophication during discharge. The results revealed that cathode scaling does not profoundly affect the conversion of organic phosphorus to phosphate in the Ti(4)O(7)-AO system.

PMID 40472602 · DOI 10.1016/j.chemosphere.2025.144510 · [PubMed record](#)

65. Histones in neutrophil extracellular traps (NETs) contain oxidative post-translational modifications induced by the myeloperoxidase oxidant hypochlorous acid.

2025 · Redox biology · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Hemmling, Helen; Hallberg, Line A E; Hägglund, Per; Hawkins, Clare L

Chlorination of histone H4 Tyr-88 was also observed in the nuclear and cytoplasmic cell extracts of stimulated cells and could be decreased on treatment of the neutrophils with the MPO inhibitor AZD5904. These findings provide the first evidence that HOCl modifies proteins within NETs, particularly histone H4, which may be relevant in disease.

PMID 40456203 · DOI 10.1016/j.redox.2025.103696 · [PubMed record](#)

66. High-performance ratiometric fluorescent probe for rapid, visual and ultrasensitive monitoring/bioimaging of hypochlorite in real-life samples and living systems.

2025 · Journal of hazardous materials · Veterinary & livestock · Human observational / experimental
Authors: Wang, Tao; Yin, Pengcheng; Jiang, Biaobiao; Niu, Qingfen

Thus, the development of effective and precise detection tools for ClO(-) is of great significance to better understand its complicated roles in environments and biosystems. This study provided an effective method for visual monitoring and bioimaging of ClO(-) levels in various environments, foods and living biosystems.

PMID 40398030 · DOI 10.1016/j.jhazmat.2025.138656 · [PubMed record](#)

67. Mutation in Staphylococcus aureus that supports gain of function in susceptibility both to hypochlorous acid and to human neutrophils.

2025 · Journal of leukocyte biology · Food & agriculture · Human observational / experimental
Authors: Teghanemt, Athmane; Schilcher, Katrin; Kavanaugh, Jeffery S; Horswill, Alexander R; Nauseef, William M

In addition, the mutant resisted killing by human PMNs, suggesting that MazF contributes to the susceptibility of *S. aureus* to HOCl-mediated damage, the ability of *S. aureus* to recover from HOCl attack, or both. Taken together, these data suggest that in the absence of mazF expression, USA300 methicillin-resistant *S. aureus* better resisted, repaired, or both resisted and repaired the sublethal damage produced by HOCl alone or by antimicrobial elements in...

PMID 40388361 · DOI 10.1093/jleuko/qiaf057 · [PubMed record](#)

68. A dual-functional fluorescence probe bearing thiocoumarin ethylene-bridge dicyanopyrone skeleton for detection hydrogen sulfide and hypochlorous acid.

2025 · Journal of hazardous materials · Food & agriculture · Human observational / experimental
Authors: Yuan, Mengyao; Du, Yongyu; Liu, Mengjie; Wang, Yanjin; Xu, Kuoxi

CS has been applied for simultaneous detection of H₂S and HClO in beverage and food samples. Furthermore, the specific response property of CS for visualization of endogenous and exogenous HClO in cells and mice made it as a powerful tool for investigating a diverse array of HClO-related physiological and pathological processes.

PMID 40373417 · DOI 10.1016/j.jhazmat.2025.138621 · [PubMed record](#)

69. Generation, fate and transport of volatile chlorine compounds following hypochlorite discharges to municipal sewers.

2025 · Chemosphere · Water, sanitation & biosecurity · Human observational / experimental
Authors: Sun, Xiaoyu; Parker, Wayne

Simulations with a sewer model revealed that with a fixed hypochlorite loading, peak headspace NCl₃ concentrations decreased as wastewater flow increased due to changes in Cl/N ratio. Increased air flow reduced headspace NCl₃ concentrations immediately downstream of the discharge due to dilution but had little effect further downstream.

PMID 40318526 · DOI 10.1016/j.chemosphere.2025.144451 · [PubMed record](#)

70. A phenothiazine-based ratiometric fluorescent probe for detecting hypochlorite (ClO(-)) and its application in foods and water samples.

2025 · Food chemistry · Food & agriculture · Human observational / experimental
Authors: Shen, Siyi; Yuan, Yuehua; Song, Jinping; Zhu, Yongjun; Wang, Yuzhen; Yue, Chaoyi; Du, Mengqing; Wei, Jiyuan; Feng, Feng; Tian, Maozhong

It shows the merits of rapid ratiometric response (within 10 s), high selectivity and very large Stokes shift (190 nm). We not only successfully prepared paper test strips for efficient qualitative naked eye ClO(-) detection, but also demonstrated its potential for the valid detection of ClO(-) in natural water samples, beverages and foods.

PMID 40311560 · DOI 10.1016/j.foodchem.2025.144547 · [PubMed record](#)

71. Effectiveness of sanitizers on different biofilm-forming microorganisms associated with the poultry drinking water system.

2025 · Poultry science · Veterinary & livestock · Animal study
Authors: Ogundipe, Tolulope T; Obe, Tomi

Overall, PAB demonstrated the greatest potential as a DWS sanitizer, showing superior efficacy against planktonic and biofilm cells compared to PB and HB. This research highlights the importance of targeted microbial profiling and sanitizer efficacy testing for pre-harvest pathogen control, providing valuable insights for enhancing food safety in poultry production systems.

PMID 40279691 · DOI 10.1016/j.psj.2025.105122 · [PubMed record](#)

72. A fluorescent chemoprobe based on carbazole for hypochlorite with fast response: Design and its applications in test strips, water samples and living cells.

2025 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Water, sanitation & biosecurity · Human observational / experimental
Authors: Savran, Tahir; Karuk Elmas, Sukriye Nihan; Arslan, Fatma Nur; Sadi, Gökhan; Yilmaz, Ibrahim

TBCP showed outstanding selectivity for ClO(-) over other competing analytes via a fluorescent response change from colorless to orange, and its response mechanism was based on a deprotonation phenomenon. Furthermore, DFT calculations were performed successfully for TBCP and TBCP + ClO(-) complex.

PMID 40262362 · DOI 10.1016/j.saa.2025.126243 · [PubMed record](#)

73. Involvement of purinergic signalling in the vasomotor response to hypochlorous acid in porcine coronary artery.

2025 · Purinergic signalling · Veterinary & livestock · Animal study
Authors: Baghdadi, Ashwaq; Dunn, William R; Ralevic, Vera

Relaxation to exogenous ATP was inhibited by 8-SPT but not by suramin suggesting that suramin block of HOCl responses may involve inhibition of membrane channels and endogenous ATP release. These findings advance our understanding of inflammation by showing that HOCl evokes endothelium-dependent vasorelaxation and contraction in coronary arteries which may involve P1 receptors implicating endogenous adenosine, possibly generated from rapid metabolism of...

PMID 40238052 · DOI 10.1007/s11302-025-10086-7 · [PubMed record](#)

74. A dual-responsive ratiometric fluorescent probe for the detection of hypochlorite and hydrazine in environmental samples, live cells, and plant tissues.

2025 · Analytical methods : advancing methods and applications · Food & agriculture · Human observational / experimental
Authors: Banik, Dipanjan; Banerjee, Shilpita; Halder, Satyajit; Ganguly, Rajdeep; Karak, Anirban; Ghosh, Pintu; Jana, Kuladip; Mahapatra, Ajit Kumar

Probe PIID, which showed a strong yellow-orange emission at 640 nm with a massive Stokes shift of 220 nm, exhibited excellent fluorescence change from yellow-orange to green (526 nm) in the presence of ClO(-) and from yellow-orange to blue (424 nm) in the presence of hydrazine in an aqueous-THF solvent system. Not only that, the probe exhibits excellent selectivity over other ROS (reactive oxygen species) and amines with a very fast response time of 40...

PMID 40197602 · DOI 10.1039/d5ay00153f · [PubMed record](#)

75. In-situ quantitative detection of hypochlorous acid in food samples by employing a near-infrared fluorescent probe in association with a portable optical data acquisition system.

2025 · Analytica chimica acta · Veterinary & livestock · Journal article / other
Authors: Wang, Yuqing; Zhang, Rumeng; Liu, Wei; Gu, Wuyan; Wang, Kun; Faheem, Muhammad; Wei, Jie; Qian, Jing; Long, Lingliang

HCIO also helps preserve vegetables and fruits by reducing ethylene production, delaying rotting, decreasing cell membrane permeability, inhibiting polyphenol oxidase activity, and postponing discoloration. It also exhibits significant colorimetric changes after sensing reaction, substantially enhancing detection reliability.

PMID 40074461 · DOI 10.1016/j.aca.2025.343844 · [PubMed record](#)

76. Taurine supplementation alleviates asthma airway inflammation aggravated by HOCl exposure.

2025 · Journal of hazardous materials · Water, sanitation & biosecurity · Animal study
Authors: Chen, Yingjun; Yi, Shiting; Wang, Qian; Li, Yanwen; Lin, Sitong; Liang, Shixiu

Further fecal metabolomics analysis revealed that HOCl drinking water exposure significantly enhanced the arachidonic acid metabolism pathway. Finally, treatment with taurine, a HOCl neutralizer, showed that taurine could significantly alleviate the asthma airway inflammation aggravated by HOCl exposure.

PMID 40058197 · DOI 10.1016/j.jhazmat.2025.137796 · [PubMed record](#)

77. Boosting hypochlorite's disinfection power through pH modulation.

2025 · BMC microbiology · Water, sanitation & biosecurity · Journal article / other
Authors: Sil, Timir Baran; Malyshev, Dmitry; Aspholm, Marina; Andersson, Magnus

Our results demonstrate that hypochlorite is largely ineffective at pH levels above 11.0, showing less than 1-log reduction in spore viability. A pH of 9.5 offers a balance, significantly improving shelf life compared to previously suggested pH ranges 7.0-8.0 while maintaining effective spore inactivation.

PMID 40021972 · DOI 10.1186/s12866-025-03831-w · [PubMed record](#)

78. Reactions of oxazepam with two typical water treatment oxidants in aqueous solutions: Results based on density functional theory.

2025 · Chemosphere · Water, sanitation & biosecurity · Journal article / other
Authors: Zhang, Ling-Ling; Dai, Hong-Yu; Peng, Tao; Liu, Xiao-Yuan; Zhou, Zhi-Cheng; Xu, Chao; Yang, Bin; Ying, Guang-Guo

The results showed that oxazepam is a chiral molecule with two enantiomers in equal proportions. The kinetics rate constants obtained by the density functional theory (DFT) calculation were 0.16 and 1.78×10^{11} M⁻¹ s⁻¹ for the reactions of oxazepam with HOCl (k(HOCl), M⁻¹ s⁻¹) and $\cdot\text{OH}$ (k($\cdot\text{OH}$), M⁻¹ s⁻¹) respectively, which are basically consistent with the experimental results.

PMID 39914085 · DOI 10.1016/j.chemosphere.2025.144182 · [PubMed record](#)

79. Construction of a flavonol-based colorimetric and fluorescent probe with large Stokes shift for detecting hypochlorous acid in foodstuffs and imaging in living cells, zebrafish and plants tissues.

2025 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Food & agriculture · Human observational / experimental
Authors: Xu, Tongtong; Liang, Yueyin; Gong, Shuai; Meng, Zhiyuan; Zhang, Yan; Huang, Shun; Liu, Tianqi; Wang, Shifa; Wang, Zhonglong

The excessive addition of hypochlorous acid (HClO) during food preservation can reduce the nutritional value of foodstuffs, and its abnormal levels in organisms will affect normal physiological and pathological activities. HTTPC exhibited outstanding biocompatibility and low cytotoxicity, and it could successfully achieve the real-time fluorescence imaging of HClO fluctuations within live HeLa cells, zebrafish and onion tissues.

PMID 39893736 · DOI 10.1016/j.saa.2025.125800 · [PubMed record](#)

80. Inactivation Effects of Hypochlorous Acid, Chlorine Dioxide, and Ozone on Airborne SARS-CoV-2 and Influenza A Virus.

2025 · Food and environmental virology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Imoto, Yasuo; Matsui, Hidehito; Ueda, Chihiro; Nakajima, Eri; Hanaki, Hideaki

The concentrations of hypochlorous acid, chlorine dioxide, and ozone in the air reached an approximately 2-log reduction of SARS-CoV-2 infectivity titer within 10 min at 0.02, 1.0, and 1.0 ppm, respectively. These findings demonstrate that hypochlorous acid, chlorine dioxide, and ozone are effective in inactivating SARS-CoV-2 and influenza A virus in the air.

PMID 39752095 · DOI 10.1007/s12560-024-09626-y · [PubMed record](#)

81. In Vitro and In Vivo Translational Insights into the Intraoperative Use of Antiseptics and Lavage Solutions Against Microorganisms Causing Orthopedic Infections.

2024 · International journal of molecular sciences · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Dudek, Bartłomiej; Brodyna, Malwina; Karoluk, Michał; Frankiewicz, Mariusz; Migdał, Paweł; Szustakiewicz, Konrad; Matys, Tomasz; Wiater, Adrian; Junka, Adam

The results show that polyhexanide-based solutions outperformed povidone-iodine in biofilm eradication in most tests applied, particularly on complex surfaces, whereas iodine demonstrated higher cytotoxicity in applied in vitro and in vivo tests. These findings highlight the importance of careful antiseptic selection and rinsing protocols to balance infection control efficacy with tissue compatibility in orthopedic applications.

PMID 39684431 · DOI 10.3390/ijms252312720 · [PubMed record](#)

82. A selenium-based fluorescent sensor for the reversible detection of ClO(-) and H(2)S in foods.

2025 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Food & agriculture · Human observational / experimental
Authors: Shen, Siyi; Tian, Maozhong; Xia, Wenhui; Song, Jinping; Wang, Yuzhen; Wei, Jiyan; Wang, Xiaohui; Yuan, Yuehua; Feng, Feng

The experimental results show that the suggested method has high precision and accuracy for the detection of ClO(-) and H(2)S. The applications in real water samples, beverages and cell imaging verified that the IPSe was capable of monitoring the changes in the concentration of ClO(-)/H(2)S, which indicates that it is of great meaning to survey the biological functions of ClO(-) and H(2)S via IPSe.

PMID 39674110 · DOI 10.1016/j.saa.2024.125570 · [PubMed record](#)

83. Efficient removal of manganese ions from waters using hypochlorite-modified granular activated carbon.

2025 · Journal of environmental management · Water, sanitation & biosecurity · Journal article / other
Authors: Chang, Ying-Ju; Huang, Chihpin; Chang, Jo-Shu; Lee, Duu-Jong

The mechanistic studies show that the chemical complexation with the C=C bonds on the carbon's surface from ClO(-)-modification principally contributes to the enhanced Mn(2) adsorption. Jar tests demonstrate that 5% NaClO-modified activated carbon can completely remove 0.3 mg/L Mn(2+) or over 98% of 1 mg/L Mn(2) in the presence of competing Fe(2) ions.

PMID 39657478 · DOI 10.1016/j.jenvman.2024.123577 · [PubMed record](#)

84. Electrolyzed Saline Prevents Virus Transmission in Dental Procedures: An In Vitro Study.

2025 · Journal of dental research · Veterinary & livestock · In vitro / laboratory
Authors: Munjaković, H; Mikuletić, T; Zayed, N; Kolenc, M; Manevski, D; Triglav, T; Steyer, A; Teughels, W; Seme, K; Fidler, A; Gašperšič, R

Attenuation was achieved by substituting the USS coolant with one of the effective, pretested antiseptics. EOS demonstrated strong virucidal activity against both enveloped and nonenveloped viruses and was able to absolutely prevent airborne transmission of EAV and FCV through dental spray in the splatter and droplet/aerosol samples.

PMID 39639474 · DOI 10.1177/00220345241296071 · [PubMed record](#)

85. A dual-functional rhodamine B and azo-salicylaldehyde derivative for the simultaneous detection of copper and hypochlorite: synthesis, biological applications and theoretical insights.

2024 · Analytical methods : advancing methods and applications · Veterinary & livestock · Animal study
Authors: S, Vishnu; Das, Avijit Kumar; Bylappa, Yatheesharadhya; Nag, Anish; Dolai, Malay

The probe BBS underwent hypochlorite-mediated oxidation, followed by hydrolysis, resulting in the formation of rhodamine B itself, which is detectable by the naked eye via the color and fluorescence enhancement by 11-fold with a high quantum yield and a detection limit of 1.96 µM. Additionally, the structural optimization of BBS and the BBS-Cu(II) complex was demonstrated using DFT, and the interactions of the BBS-Cu(II) complex with BSA and ct-DNA were...

PMID 39508779 · DOI 10.1039/d4ay01758g · [PubMed record](#)

86. A colorimetric fluorescent probe for reversible detection of HSO(3)(-)/H(2)O(2) and effective discrimination of HSO(3)(-)/ClO(-) and its application in food and bioimaging.

2025 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Food & agriculture · Human observational / experimental
Authors: Gao, Yuexing; Peng, Yan; Shi, Lei; Zhang, Siyun; Bai, Ruiyang; Lang, Yunhe; He, Yonggui; Zhang, Buyue; Zhang, Ziyi; Zhang, Xiufeng

In view of the significant role of reactive sulfur species (RSS) and reactive oxygen species (ROS) in maintaining the redox homeostasis of organisms, we proposed a colorimetric fluorescent probe (HTN) for reversible detection of HSO(3)(-)/H(2)O(2) and effective discrimination of HSO(3)(-)/ClO(-). Meantime, HTN has good biocompatibility and can target mitochondria to achieve reversible detection of HSO(3)(-)/H(2)O(2) and effective discrimination of...

PMID 39481270 · DOI 10.1016/j.saa.2024.125275 · [PubMed record](#)

87. Dual action electrochemical bandage operated by a programmable multimodal wearable potentiostat.

2025 · Biosensors & bioelectronics · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Bozyel, Ibrahim; Fleming, Derek; Won-Jun, Kim; Rosen, Peter F; Gelston, Suzanne; Ozdemir, Dilara; Kies, Paige; Koscianski, Christina; Karau, Melissa; Ay, Suat U; Patel, Robin; Beyenal, Haluk

The H(2)O(2)-generating e-bandage, more so than the HOCl-generating e-bandage, was associated with improved healing of infected wounds. Finally, we demonstrated the PMWP's usability in a murine wound infection model.

PMID 39342698 · DOI 10.1016/j.bios.2024.116791 · [PubMed record](#)

88. A novel ratiometric colorimetric sensor for detecting hypochlorite and ascorbic acid based on cascade reaction.

2025 · Analytical biochemistry · Food & agriculture · Journal article / other
Authors: Sun, Miaowen; Liu, Yanzhu; Shi, Lingge; Dou, Haomiao; Ma, Feiyan; Xu, Guangda; Zhao, Longshan

Interestingly, in the presence of Fe(3)O(4)-MOF-5(Fe) and hypochlorite, TMB complexes in acidic environments were oxidized to blue oxidized TMB and further diazotized to produce yellow-green diazotized TMB, resulting in the hypochlorite concentration-dependent ratiometric variation for the absorbance at 652 and 450 nm (A(450)/A(652)). Moreover, the diazotized TMB was restored to colorless TMB due to the reducibility of AA, and the detection limit of...

PMID 39322174 · DOI 10.1016/j.ab.2024.115678 · [PubMed record](#)

89. Enhanced electrolytic production of hypochlorous acid using phosphorus-modified carbon felt electrodes: A study in disinfectant synthesis.

2024 · Chemosphere · Food & agriculture · Journal article / other

Authors: Ren, Shuoqi; Zhang, Qiwei; Yuan, Mu; Cui, Chongwei; Qiu, Shan; Deng, Fengxia

A low-cost phosphorus-modified carbon felt electrode (P@CF) with high chlorine evolution reaction activity was synthesized to address the reduced efficiency of CER and the solution's pH increase. The prepared disinfectant was also compared to a commercially available hypochlorite disinfectant, showing similar disinfection effects on *E. coli* for both.

PMID 39306113 · DOI 10.1016/j.chemosphere.2024.143367 · [PubMed record](#)

90. HOCl-producing electrochemical bandage is active in murine polymicrobial wound infection.

2024 · Microbiology spectrum · Water, sanitation & biosecurity · Animal study

Authors: Fleming, Derek; Bozyel, Ibrahim; Koscianski, Christina A; Ozdemir, Dilara; Karau, Melissa J; Cuello, Luz; Anoy, Md Monzurul Islam; Gelston, Suzanne; Schuetz, Audrey N; Greenwood-Quaintance, Kerry E; Mandrekar, Jayawant N; Beyenal, Haluk; Patel, Robin

For wounds infected with MRSA alone, polarized e-bandage treatment reduced bacterial load by 1.1 log(10) CFU/g ($P = 0.0048$) and 1.3 log(10) CFU/g ($P = 0.0048$) compared with non-polarized e-bandage and Tegaderm only, respectively. Effectiveness of the HOCl-producing e-bandage in reducing pathogen load while minimizing tissue toxicity and avoiding the need for systemic antibiotics underscores its potential as a tool in managing complex wound infections.

PMID 39162542 · DOI 10.1128/spectrum.00626-24 · [PubMed record](#)

91. AIE-based fluorescent probe designed with xanthone as a π -bridge for detecting of ClO(-) in pericarp and living cells.

2025 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Food & agriculture · Human observational / experimental

Authors: Chao, Mingzhen; Zhang, Haitao; Hu, Qingfei; Ma, Shanghong; Cui, Xiubin; Yu, Xin

In this paper, the four fluorescent probes HON(x) (HON(1), HON(2), HON(3) and HON(4)) were prepared based on oxyanthracene through the introduction of different substituents, and their photophysical properties were investigated, among which the AIE effect of HON(1) was the most significant, and therefore the fluorescent "turn-off" ClO(-) probe HON(1)-CN was chosen to be prepared by constructing the ClO(-) recognition site hydrazone bond at HON(1). The...

PMID 39154404 · DOI 10.1016/j.saa.2024.124984 · [PubMed record](#)

92. Identifying initial transformation products during chlorination of the indole moiety and unveiling their formation mechanisms.

2024 · Environmental science. Processes & impacts · Water, sanitation & biosecurity · Journal article / other

Authors: Huan, MengXue; Liu, Yong Dong; Zhong, Rugang

The results indicate that 3-Cl-Trp+ is initially formed after the Cl(+) of HOCl attacks the indole moiety, and nucleophilic addition with nucleophilic agents (H(2)O and OCl(-)) is thermodynamically preferred over deprotonation to generate 2-X-3-Cl-indoline moiety (X = OH and OCl), which is in contrast to indole. The results are helpful to expand our understanding of the intrinsic reactivity of aromatic ring towards chlorination by hypochlorous acid.

PMID 39132965 · DOI 10.1039/d4em00196f · [PubMed record](#)

93. A ratiometric fluorescent probe for selective detection of hypochlorite (ClO(-)) and gallium (III) (Ga(3+)) ions in environmental and food samples.

2024 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Food & agriculture · Human observational / experimental

Authors: Pan, Yan; Liang, Zhongding; Li, Lin; Yan, Liqiang; Wu, Xiongzhi

However, their inherent toxicity poses significant risks to environmental preservation and human well-being. The probe offers a convenient and effective tool for the detection of ClO(-) and Ga(3+), demonstrating its potential application value in environmental monitoring and food safety.

PMID 39116591 · DOI 10.1016/j.saa.2024.124927 · [PubMed record](#)

94. A self-assembled nanoprobe for rapid detection of hypochlorite in pure water and its application in living cells, food and environmental systems.

2024 · Talanta · Food & agriculture · Human observational / experimental

Authors: Liang, Tianyu; Chen, Xinyu; Liu, Shuling; Li, Hanyang; Du, Tianli; Li, Yang; Tian, Mingyu; Wu, Chengyan; Sun, Xiaofei; Qiang, Taotao; Zhong, Keli; Tang, Lijun

Herein, this study introduces a water-soluble fluorescent nanoprobe Nano-SJD, effectively detect ClO(-) in both food samples and living cells. To further improve the water solubility, SJD was assembled with an amphiphilic copolymer (mPEG-DSPE) to prepare a water soluble fluorescent nanoprobe Nano-SJD.

PMID 39067201 · DOI 10.1016/j.talanta.2024.126597 · [PubMed record](#)

95. [An in vitro experiment on the stability and irritant of hypochlorous acid in oral cavity].

2024 · Shanghai kou qiang yi xue = Shanghai journal of stomatology · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Liu, Zhao-Chen; Sun, Pei; Pan, Ke-Qing; Wang, Pei-Yan; Zhang, Hui; Yuan, Chang-Qing; Deng, Jing

METHODS: Samples of HClO solution with different production processes were prepared, to detect the changes of physicochemical indexes of each sample over time under simulated clinical conditions (shielded from light at 20-25 °C, open the cover for 5 minutes every day), including free available chlorine, oxidation-reduction potential and pH. RESULTS: Under simulated conditions, the free available chlorine (FAC) of HClO solution decayed with time, and the...

PMID 39005089 · [PubMed record](#)

96. A First-in-Human Randomized Clinical Study Investigating the Safety and Tolerability of Stabilized Hypochlorous Acid in Patients with Chronic Leg Ulcers.

2024 · Advances in wound care · Water, sanitation & biosecurity · Randomized controlled trial

Authors: Fazli, Magnus Mustafa; Kirketerp-Møller, Klaus; Sonne, David Peick; Balchen, Torben; Gundersen, Glenn; Jørgensen, Elin; Bjarnsholt, Thomas

The SBE treatment reduced bioburden in wounds compared to baseline, with 98% and 49% median reduction after SBE or placebo treatment, respectively. A dose-dependent trend in absolute wound size reduction was observed in the MAD groups with a median (min, max) change of -2.99 (-14.25, -1.5) cm(2) in the once-daily and -10.48 (-17.95, -0.38) cm(2) in the twice-daily group, respectively.

PMID 38780759 · DOI 10.1089/wound.2024.0040 · [PubMed record](#)

97. Evaluation of treatment of methicillin-resistant Staphylococcus aureus biofilms with intermittent electrochemically generated H(2)O(2) or HOCl.

2024 · Antimicrobial agents and chemotherapy · Water, sanitation & biosecurity · Human observational / experimental

Authors: Anoy, Md Monzurul Islam; Kim, Won-Jun; Gelston, Suzanne; Fleming, Derek; Patel, Robin; Beyenal, Haluk

Finally, intermittent treatment with HOCl (i.e., interspersed with periods of e-bandage non-polarization) for various intervals showed similar effects (approximately 6 log CFU/cm(2) reduction vs. non-polarized control) to continuous treatment with HOCl for 3 hours, followed by 3 hours of non-polarization. These findings suggest that timing and sequencing of HOCl and H(2)O(2) treatments are crucial for maximizing biofilm control when using an e-bandage...

PMID 38771032 · DOI 10.1128/aac.01722-23 · [PubMed record](#)

98. Assessing the stability and sporicidal efficacy of oxidizing disinfectants.

2024 · The Journal of hospital infection · Water, sanitation & biosecurity · Human observational / experimental

Authors: Brown, L; Marshall, A; Conway, L; Otter, J; Norville, P; Clarke, J

FINDINGS: Performance of chlorine-releasing agents (sodium dichloroisocyanurate, chlorine dioxide and hypochlorous acid) was concentration dependent, with 1000 ppm chlorine showing reduced stability and efficacy in dirty conditions. CONCLUSION: These results have implications for clinical practice, as ineffective environmental decontamination may increase the risk of transmission of pathogens that can cause healthcare-associated infections.

PMID 38705474 · DOI 10.1016/j.jhin.2024.04.010 · [PubMed record](#)

99. Antimicrobial action, cytotoxicity and erosive potential of hypochlorous acid obtained from an electrolytic device compared with sodium hypochlorite.

2024 · Clinical oral investigations · Veterinary & livestock · In vitro / laboratory

Authors: Souza, Matheus Albino; Steier, Liviu; Vanin, Gabriele Nichetti; Zanella, Mylena Lazareti; Pizzi, Camila Monteiro; Ferreira, Eduarda Rizzon; Dallepiane, Felipe Gomes; Piccolo, Nathan Mateus; da Silva Koch, Jordana; Souza, Kellyn Rocca; Costa, Ubirajara Maciel da; Dos Santos, Vanessa Valgas; Palatynska-Ulatowska, Aleksandra; de Figueiredo, José Antônio Poli

RESULTS: The highest bacterial reduction was observed in experimental groups, with no statistical differences between them ($p > 0.05$). CLINICAL RELEVANCE: The use of 500 ppm hypochlorous acid may reduce unfavorable behavior of sodium hypochlorite whilst maintaining its antimicrobial action.

PMID 38683234 · DOI 10.1007/s00784-024-05675-6 · [PubMed record](#)

100. Antibacterial efficacy of silver nanoparticles, sodium hypochlorite, chlorhexidine, and hypochlorous acid on dentinal surfaces infected with *Enterococcus faecalis*.

2024 · Microscopy research and technique · Water, sanitation & biosecurity · Human observational / experimental

Authors: Oncu, Aysenur; Celikten, Berkan; Aydin, Betül; Amasya, Gulin; Tuncay, Erkan; Eskiler, Gamze Guney; Açıkk, Leyla; Sevimay, Fatma Semra

Also, 2% CHX showed greater percentage of dead cells compared with the AgNP and HOCl groups. The 200 ppm HOCl group showed the lowest percentage of dead cells ($p < .05$). Although the antibacterial effect of AgNPs is not as high as NaOCl and CHX, it has considerable bactericidal activity against *E. faecalis* and can be improved by further studies.

PMID 38683025 · DOI 10.1002/jemt.24590 · [PubMed record](#)

101. Elevated levels of iodide promote peroxidase-mediated protein iodination and inhibit protein chlorination.

2024 · Free radical biology & medicine · Water, sanitation & biosecurity · Human observational / experimental

Authors: Jokumsen, Kathrine V; Huhle, Valerie H; Hägglund, Per M; Davies, Michael J; Gamon, Luke F

LC-MS analyses revealed dose-dependent iodination of anastellin and albumins by LPO/H₂O₂ with increasing I⁻. Anastellin dimerization was inhibited by increasing I⁻, but less marked changes were observed with albumins.

PMID 38663830 · DOI 10.1016/j.freeradbiomed.2024.04.230 · [PubMed record](#)

102. Taming Janus-Faced Quinoline-Derived Fluorescent Probes for Dual-Channel Distinguishable Visualization of HSO₃(-) and HClO in Dried Foods and Living Cells.

2024 · Journal of agricultural and food chemistry · Food & agriculture · Human observational / experimental

Authors: Xu, Zi Yi; Wang, Rong; Xiao, Qi; Luo, Hong Qun; Li, Nian Bing

Probe QTE not only shows ratiometric variation toward HSO₃(-) with little cross talk but also performs turn-off signal toward HClO. Furthermore, the HSO₃(-) content in dried food samples has been appraised by QTE with satisfactory results.

PMID 38630689 · DOI 10.1021/acs.jafc.4c00375 · [PubMed record](#)

103. Hemicyanine-Phenothiazine Based Highly Selective Ratiometric Fluorescent Probes for Detecting Hypochlorite Ion in Fruits, Vegetables and Beverages.

2025 · Journal of fluorescence · Food & agriculture · Journal article / other

Authors: Zhang, Jinyang; Wang, Zhe; Zhang, Rui; Lei, Xueli; Wang, Guangtu; Zou, Ping

Moreover, Both Probe1 and Probe2 have shown good specificity and stability, with high fluorescence intensity and long duration (Feng et al. in Adv Sci. 131(14):4595-4599, 2019; Baruah et al. in J Mater Chem B, 2022).

PMID 38607530 · DOI 10.1007/s10895-024-03694-w · [PubMed record](#)

104. Detection and application of hypochlorous acid in both aqueous environments and living organisms.

2024 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Water, sanitation & biosecurity · Human observational / experimental

Authors: Zhang, Qian; Zhang, Di; Zhu, Zeyu; Jiang, Yuliang

Excessive addition of hypochlorous acid (OCl(-)) as a disinfectant in drinking water can result in severe consequences. Employing fluorescence analysis, the design and synthesis of specific fluorescent probes for simultaneous detection of OCl(-) in water environments and living organisms holds strategic significance in ensuring the safety of drinking water and mitigating potential risks caused by its abnormal concentrations.

PMID 38581774 · DOI 10.1016/j.saa.2024.124225 · [PubMed record](#)

105. Virucidal efficacy of hypochlorous acid water for aqueous phase and atomization against SARS-CoV-2.

2024 · Journal of water and health · Water, sanitation & biosecurity · Human observational / experimental

Authors: Kubo, Makoto; Eda, Ryotaro; Maehana, Shotaro; Fuketa, Hiroshi; Shinkai, Norihiro; Kawamura, Naohisa; Kitasato, Hidero; Hanaki, Hideaki

HOCl atomization for several hours significantly reduced the SARS-CoV-2 attached to plastic plates. These results indicate that HOCl solution with elimination containing NaCl and other ions may have high virucidal efficacy against SARS-CoV-2.

PMID 38557574 · DOI 10.2166/wh.2024.348 · [PubMed record](#)

106. Dual-Channel/Localization Single-Molecule Fluorescence Probe for Monitoring ATP and HOCl in Early Diagnosis and Therapy of Rheumatoid Arthritis.

2024 · Analytical chemistry · Food & agriculture · Animal study

Authors: Qu, Wangbo; Tian, Ruowei; Yang, Bin; Guo, Taiyu; Wu, Zhou; Li, Yong; Geng, Zhirong; Wang, Zhilin

Rheumatoid arthritis (RA), a common chronic inflammatory illness, is still incurable, reducing the sufferers' quality of life significantly. Surprisingly, the probe RhFNMB demonstrated remarkable detection ability in the diagnosis and treatment of *Pseudomonas aeruginosa*-induced abdominal inflammation in mice.

PMID 38551643 · DOI 10.1021/acs.analchem.3c05342 · [PubMed record](#)

107. Anti-biofilm effectiveness of protocols for cleaning complete dentures in hospitalized patients: a randomized controlled trial.

2024 · Journal of applied oral science : revista FOB · Water, sanitation & biosecurity · Randomized controlled trial

Authors: Gomes, Anna Clara Gurgel; Maciel, Janaina Gomes; Garcia, Amanda Aparecida Maia Neves; Coelho, Letycia Accioly Simões; Rodrigues, Giulia Murcia; Porto, Vinicius Carvalho; Polyzois, Grigorios; Klein, Marlise Inêz; Soares, Simone; Urban, Vanessa Migliorini; Neppelenbroek, Karin Hermana

RESULTS: All 17 protocols significantly reduced the percentage area of denture biofilm and microbial and fungal load ($P < 0.05$). The highest percentage reductions in the area of denture biofilm were observed for 1% hypochlorite solution with or without brushing and for 2% chlorhexidine solution and microwave irradiation only in association with brushing ($P < 0.05$).

PMID 38537031 · DOI 10.1590/1678-7757-2022-0381 · [PubMed record](#)

108. Identification of reaction sites and chlorinated products of purine bases and nucleosides during chlorination: a computational study.

2024 · Organic & biomolecular chemistry · Food & agriculture · Human observational / experimental

Authors: Zhang, Fuhao; Mo, Yonghang; Cao, Xiaomin; Zhou, Yingying; Liu, Yong Dong; Zhong, Rugang

The results indicate that anion salt forms of all purine compounds play significant roles in chlorination except for adenosine. Combining kinetics and thermodynamics, the numerical simulation results show that N9 is the most reactive site for purine bases to form the main initial chlorinated product, while for purine nucleosides N1 and exocyclic N(2)/N(6) are the most reactive sites to produce the main products controlled by kinetics and thermodynamics...

PMID 38516867 · DOI 10.1039/d3ob02111d · [PubMed record](#)

109. Simultaneous determination of environmental endocrine disruptors bisphenol A and 4-nitrophenol bleached from food-contacting materials using the spin-ladder compound La(2)Cu(2)O(5) modified glassy carbon electrode.

2024 · Chemosphere · Food & agriculture · Human observational / experimental

Authors: Mayil Vealan, S B; Chinnathambi, Sekar

Notably, this study marks the first utilization of La(2)Cu(2)O(5) for simultaneous electrochemical detection of BPA and 4-NP, demonstrating its potential in this field. Importantly, our results underscore the leaching of BPA into water from thin and thick plastics at elevated temperatures (40 °C-80 °C), emphasizing the utility of the proposed sensor for rapid and simultaneous detection of BPA and 4-NP in environmental and food matrices.

PMID 38417491 · DOI 10.1016/j.chemosphere.2024.141559 · [PubMed record](#)

110. Uses of gaseous hypochlorous acid for controlling microorganisms in indoor spaces.

2023 · Journal of microorganism control · Food & agriculture · Review
Authors: Fukuzaki, Satoshi

Recently, the scope of objects to be treated with hypochlorite solution has been expanded to indoor spaces, and the use of gaseous hypochlorous acid ($\text{HOCl}(\text{g})$) has been studied intensively. This review describes the mechanisms of actions of hypochlorous acid as liquid-based and gaseous disinfectants and provides the evidence for the safety and effectiveness of $\text{HOCl}(\text{g})$ for controlling microorganisms in indoor spaces.

PMID 38233168 · DOI 10.4265/jmc.28.4_165 · [PubMed record](#)

111. HOCl-producing electrochemical bandage for treating *Pseudomonas aeruginosa*-infected murine wounds.

2024 · Antimicrobial agents and chemotherapy · Water, sanitation & biosecurity · Animal study
Authors: Fleming, Derek; Bozyel, Ibrahim; Ozdemir, Dilara; Otero, Judith Alvarez; Karau, Melissa J; Anoy, Md Monzurul Islam; Koscianski, Christina; Schuetz, Audrey N; Greenwood-Quaintance, Kerry E; Mandrekar, Jayawant N; Beyenal, Haluk; Patel, Robin

Forty-eight hours of polarized e-bandage treatment resulted in mean biofilm reductions of 1.4 log(10) CFUs/g ($P = 0.0107$) vs non-polarized controls and 2.2 log(10) CFU/g ($P = 0.004$) vs Tegaderm-only controls. Amikacin improved CFU reduction in Tegaderm-only ($P = 0.0045$) and non-polarized control groups ($P = 0.0312$) but not in the polarized group ($P = 0.3876$).

PMID 38214514 · DOI 10.1128/aac.01216-23 · [PubMed record](#)

112. N-aminomorpholine-functionalized bromine-doped carbon dots for hypochlorous acid detection in foods and imaging in live cells.

2024 · Food chemistry · Food & agriculture · Human observational / experimental
Authors: Zhao, Chengda; Yuan, Pengxiang; Wang, Dan; Li, Shiyao; Yao, Huan; Yang, Liu-Pan; Wang, Li-Li; Du, Fangfang

In addition, extremely low cytotoxicity and outstanding biocompatibility enable the nanoprobe to be used primarily for lysosome tracking and rapidly visualizing HClO in live cells. Thus, this study provides a new pathway to design unconventional nanoprobe for food safety assessment and subcellular organelle-specific imaging HClO.

PMID 38181668 · DOI 10.1016/j.foodchem.2023.138284 · [PubMed record](#)

113. Construction of optical dual-mode sensing platform based on green emissive carbon quantum dots for effective detection of ClO(-) and cellular imaging.

2024 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Food & agriculture · Journal article / other
Authors: Chen, Huajie; Li, Dai; Zheng, Yutao; Wang, Kui; Zhang, He; Feng, Zhipeng; Huang, Bolin; Wen, Huiyun; Wu, Jiyong; Xue, Weiming; Huang, Saipeng

More importantly, G-CQDs demonstrated good water solubility, optical stability and excellent biocompatibility, which offered a promising analysis approach in cell imaging and exogenous ClO(-) detection in living cells. G-CQDs illustrated bright prospect and great potential in practical application of ClO(-) associated disease prevention and early clinical diagnosis.

PMID 38157745 · DOI 10.1016/j.saa.2023.123733 · [PubMed record](#)

114. Bleached enamel reversal using grape seed extract, green tea, curcumin-activated photodynamic therapy, and Er: YAG on microleakage and bond integrity of composite material bonded to the enamel surface.

2024 · Photodiagnosis and photodynamic therapy · Food & agriculture · Human observational / experimental
Authors: Almohareb, Thamer; Al Ahdal, Khold; Maawadh, Ahmed M; Al Deeb, Laila; Alshamrani, Ahoud S; Alrahlah, Ali

RESULTS: Group 2 (SA) (20.11 ± 5.79 nm) exhibited minimum value of microleakage and highest SBS (10.22 ± 1.62 MPa). The use of reversal agents CP, GTE and GSE improves bond values with a decrease in microleakage scores. However, future studies are still warranted to conclude the outcomes of the existing study.

PMID 38145770 · DOI 10.1016/j.pdpdt.2023.103943 · [PubMed record](#)

115. Effects of alpha-tocopherol antioxidant on fracture strength and adhesion of endodontically treated teeth restored after dental bleaching.

2024 · European journal of oral sciences · Veterinary & livestock · Animal study
Authors: Marcomini, Natália; Albaricci, Maria Carolina da Costa; Costa, Joatan Lucas de Sousa Gomes; Besegato, João Felipe; Godoy, Eduardo Fernández; Dantas, Andréa Abi Rached; Kuga, Milton Carlos

No statistically significant difference regarding fracture strength was observed among groups. Alpha-tocopherol, preferably at 15%, effectively reverses the deleterious effects, of bleaching, on hybrid layer formation and bond strength to dentin.

PMID 38115770 · DOI 10.1111/eos.12965 · [PubMed record](#)

116. Dual-channel versatile molecular sensing platform for individual and successive HClO and H₂S detection: Applicable in toxic alerts of environmental samples and living organisms.

2024 · Journal of hazardous materials · Food & agriculture · Human observational / experimental

Authors: Chen, Song; Liu, Xiangbao; Li, Qi; Fu, Shuang; Zhang, Hongguang; Li, Shuang; Wang, Luan; He, Chuan; Chen, Wenqiang; Hou, Peng

Additionally, NACou demonstrated efficacy for sensing HClO/H₂S in HeLa cells, plants and zebrafish through distinct fluorescent channels, yielding satisfactory results. Importantly, the thin-film sensing platform with the visible fluorescence change can enable rapid assays for water quality and food safety monitoring, showcasing significant practical application value.

PMID 38103299 · DOI 10.1016/j.jhazmat.2023.133253 · [PubMed record](#)

117. From Oxidized Fatty Acids to Dimeric Species: In Vivo Relevance, Generation and Methods of Analysis.

2023 · Molecules (Basel, Switzerland) · Food & agriculture · Review

Authors: Leopold, Jenny; Prabutzki, Patricia; Engel, Kathrin M; Schiller, Jürgen

There is increasing evidence that oligomeric products are also generated upon these processes. Second, the different opinions on whether dimeric fatty acids are considered as "friends" or "foes" are discussed.

PMID 38067577 · DOI 10.3390/molecules28237850 · [PubMed record](#)

118. Gas-Phase and Surface-Initiated Reactions of Household Bleach and Terpene-Containing Cleaning Products Yield Chlorination and Oxidation Products Adsorbed onto Indoor Relevant Surfaces.

2023 · Environmental science & technology · Water, sanitation & biosecurity · Human observational / experimental

Authors: Deeleepejananan, Cholaphan; Grassian, Vicki H

Furthermore, high-resolution mass spectrometry (HRMS) shows that the gas-phase reaction products of HOCl/Cl₂ and limonene readily adsorb on both SiO₂ and TiO₂. Transmission Fourier-transform infrared (FTIR) spectroscopy of adsorption and desorption of bleach and terpene oxidation products indicates that these chlorine- and oxygen-containing products strongly adsorb on both SiO₂ and TiO₂ surfaces for days, providing potential sources of human...

PMID 38010858 · DOI 10.1021/acs.est.3c06656 · [PubMed record](#)

119. New diamond coatings for a safer electrolytic disinfection.

2023 · Environmental science and pollution research international · Water, sanitation & biosecurity · Journal article / other

Authors: Gimenes Vernasqui, Laís; de Oliveira Santiago Santos, Gessica; Isidro, Julia; Oliveira Silva, Taynara; de Vasconcelos Lanza, Marcos Roberto; Saez, Cristina; Gomes Ferreira, Neidenei; Rodrigo Rodrigo, Manuel Andres

Results obtained are compared to those obtained by using a standard electrode (STD) that was evaluated as a standard in previous research showing outstanding performance for this application. These findings demonstrate the appropriateness of the strategy followed in this work to obtain safer electro-disinfection technologies for the reclaiming of treated wastewater.

PMID 37875760 · DOI 10.1007/s11356-023-30407-w · [PubMed record](#)

120. A unique phenothiazine-based fluorescent probe using benzothiazolium as a reactivity regulator for the specific detection of hypochlorite in drinking water and living organisms.

2024 · Talanta · Water, sanitation & biosecurity · Human observational / experimental

Authors: Fang, Jie; Li, Xiang; Gao, Chao; Gao, Shihao; Li, Wei; Seidu, Mohammed Awal; Zhou, Hongjun

According to the results, only benzothiazolium moiety reasonably adjusted the electron cloud density at sulfur atom of phenothiazine core for the specific oxidation with ClO⁻, thus endowing the prepared probe PT-BT with a perfect selectivity for ClO⁻. These results strongly manifested that probe PT-BT was a promising tool for detecting ClO⁻ in drinking water and living organisms.

PMID 37832451 · DOI 10.1016/j.talanta.2023.125299 · [PubMed record](#)

121. Bifunctional near-infrared fluorescent probe for the selective detection of bisulfite and hypochlorous acid in food, water samples and in vivo.

2023 · Analytica chimica acta · Food & agriculture · Journal article / other

Authors: Shang, Zhuye; Meng, Qingtao; Zhang, Run; Zhang, Zhiqiang

Utilization of QZB-based test strip to semi-quantitatively detect HSO₃⁻ and HOCl in real-world water samples by the "naked-eye" colorimetry are then demonstrated. Additionally, the applications of QZB for imaging HSO₃⁻ and HOCl in vivo are successfully demonstrated.

PMID 37827680 · DOI 10.1016/j.aca.2023.341783 · [PubMed record](#)

122. Expression of RcrB confers resistance to hypochlorous acid in uropathogenic Escherichia coli.

2023 · Journal of bacteriology · Water, sanitation & biosecurity · Human observational / experimental

Authors: Crompton, Mary E; Gaessler, Luca F; Tawiah, Patrick O; Polzer, Lisa; Camfield, Sydney K; Jacobson, Grady D; Naudszus, Maren K; Johnson, Colton; Meurer, Kennadi; Bennis, Mehdi; Roseberry, Brendan; Sultana, Sadia; Dahl, Jan-Ulrik

IMPORTANCE Bacterial infections pose an increasing threat to human health, exacerbating the demand for alternative treatments. Thus, this novel HOCl stress defense system could potentially serve as an attractive drug target to increase the body's own capacity to fight UTIs.

PMID 37791752 · DOI 10.1128/jb.00064-23 · [PubMed record](#)

123. Characterization of Olive Oil Volatile Compounds after Elution through Selected Bleaching Materials-Gas Chromatography-Mass Spectrometry Analysis.

2023 · Molecules (Basel, Switzerland) · Food & agriculture · Journal article / other

Authors: Al-Dabbas, Maher M; Al-Jaloudi, Rawan; Abdullah, Mai Adnan; Abughoush, Mahmoud

The results showed that volatile compounds were quantitatively and qualitatively affected by the type of adsorbents used for the elution of olive oil and the smoking points of eluted oils. These results highlighted some information regarding the characteristics of volatile compounds that result after the physical elution of olive oil through selected adsorbents.

PMID 37764219 · DOI 10.3390/molecules28186444 · [PubMed record](#)

124. The Use of Hypochlorous Acid, Test-and-removal, and Cross-fostering to Eradicate Mouse Pathogens in an Animal Facility.

2023 · Journal of the American Association for Laboratory Animal Science : JAALAS · Veterinary & livestock · Animal study

Authors: Shih, Hsin-Yi; Chen, Ying-Chun; Liao, Ching-Fong

After finding unexpected infections, we were able to identify all infected mice by widespread screening. Over the 12 y in which we managed this AF, we refined our husbandry methods and our approach to the detection and eradication of pathogens by using HOCl fog and solution, the test-and-removal, and cross-fostering.

PMID 37758477 · DOI 10.30802/AALAS-JAALAS-22-000115 · [PubMed record](#)

125. Microbiological analysis concerning the antibacterial effect of atomized Ionless® hypochlorous acid water in a nursery school environment.

2024 · Journal of infection and chemotherapy : official journal of the Japan Society of Chemotherapy · Water, sanitation & biosecurity · Human observational / experimental

Authors: Miura, Miho; Gotoh, Kenji; Tanamachi, Chiyoko; Katayama, Hideki; Fuketa, Hiroshi; Tomoike, Hideki; Kawamura, Naohisa; Watanabe, Hiroshi; Mihashi, Mutsuko

After a 3-h atomization, ≥99.99% of *S. aureus* was eliminated on petri dishes; furthermore, a significant disinfection effect was observed on environmental bacteria at least 1 h after atomization. For rubber and textile toys, the significant disinfection effect was observed 1 h after atomization, and for plastic toys, the effect was observed 3 h after atomization.

PMID 37758000 · DOI 10.1016/j.jiac.2023.09.024 · [PubMed record](#)

126. Fracture strength and hybrid layer formation of endodontically-treated teeth after dental bleaching photoactivated with violet LED.

2023 · Photodiagnosis and photodynamic therapy · Veterinary & livestock · In vitro / laboratory

Authors: de Almeida, Eran Nair Mesquita; Victorino, Keli Regina; Besegato, João Felipe; Costa, Joatan Lucas de Sousa Gomes; Leandrin, Thais Piragine; Vitória, Matheus Sousa; de Andrade, Marcelo Ferrarezi; Kuga, Milton Carlos

RESULTS: No differences on fracture strength among the groups were observed ($p > 0.05$). HP and HP-BL showed alterations on hybrid layer formation compared to C group ($p < 0.05$), but not for HP-VL ($p > 0.05$).

PMID 37748699 · DOI 10.1016/j.pdpdt.2023.103813 · [PubMed record](#)

127. Antimicrobial Coatings for Medical Textiles via Reactive Organo-Selenium Compounds.

2023 · Molecules (Basel, Switzerland) · Water, sanitation & biosecurity · Journal article / other

Authors: Hoque, Ejajul; Tran, Phat; Jacobo, Unique; Bergfeld, Nicholas; Acharya, Sanjit; Shamshina, Julia L; Reid, Ted W; Abidi, Nouredine

The resulting textiles exhibited potent bactericidal activity against *S. aureus* (99.99% reduction), although only moderate activity was observed against *E. coli*. Fabrics treated with reactive organo-selenium compounds also exhibited fungicidal activities against *C. albicans*, and much higher antifungal activity was observed when organo-selenium compounds were applied to the cationized cotton in comparison to the bleached cotton.

PMID 37687210 · DOI 10.3390/molecules28176381 · [PubMed record](#)

128. In vitro activity of hypochlorous acid generating electrochemical bandage against monospecies and dual-species bacterial biofilms.

2023 · Journal of applied microbiology · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Kletzer, Joseph; Raval, Yash S; Mohamed, Abdelrhman; Mandrekar, Jayawant N; Greenwood-Quaintance, Kerry E; Beyenal, Haluk; Patel, Robin

After 12 hours, average CFU reductions of 7.75 ± 1.37 and $7.74 \pm 0.60 \log_{10}$ CFU/cm² were observed for monospecies and dual-species biofilms, respectively. After 12 hours, >99.999% reduction in cell viability was observed for both monospecies and dual-species biofilms.

PMID 37667489 · DOI 10.1093/jambio/lxad194 · [PubMed record](#)

129. Hybrid light applied with 37% carbamide peroxide bleaching agent with or without titanium dioxide potentializes color change effectiveness.

2023 · Photodiagnosis and photodynamic therapy · Veterinary & livestock · Animal study

Authors: Guedes, Rafaela de Almeida; Carlos, Natália Russo; Turssi, Cecilia Pedroso; França, Fabiana Mantovani Gomes; Vieira-Junior, Waldemir Francisco; Kantovitz, Kamila Rosamilia; Bronze-Uhle, Erika Soares; Lisboa-Filho, Paulo Noronha; Basting, Roberta Tarkany

BACKGROUND: The effectiveness of dental color change was assessed by incorporating titanium dioxide (TiO₂) into 37% carbamide peroxide bleaching agent associated with hybrid light. RESULTS: Generalized mixed linear models for repeated measures ($\alpha = 5\%$) showed significant decrease in Vita Classical scores and a* and b* values, as well as an increase in L* and $\Delta W(ID)$ values for all the groups.

PMID 37640206 · DOI 10.1016/j.pdpdt.2023.103762 · [PubMed record](#)

130. Antimicrobial efficacy of chlorine agents against selected oral pathogens.

2023 · Clinical oral investigations · Water, sanitation & biosecurity · Journal article / other

Authors: Almhöjd, Ulrica Scherdin; Lehrkinder, Anna; Roos-Jansåker, Ann-Marie; Lingström, Peter

In live/dead analysis, 60-min exposure to a 2-fold concentration of agents resulted in two-log *Aggregatibacter actinomycetemcomitans* inhibition by CHX (35 mmol/L) whilst *Streptococcus mutans* was more susceptible, in 0.8 and 8.8 mmol/L, after 10 min to CHX and Dakin's respectively. CLINICAL RELEVANCE: Effective antimicrobial agents are crucial in controlling pathogen-induced oral infections increasing clinical possibilities to combat oral biofilms.

PMID 37606720 · DOI 10.1007/s00784-023-05190-0 · [PubMed record](#)

131. Fabrication of CdS quantum dots with egg white and application in the assay of hypochlorous acid and myeloperoxidase activity and inhibition.

2023 · Analytical methods : advancing methods and applications · Food & agriculture · Journal article / other

Authors: Xia, Xiaodong

This study reported a simple and efficient fluorescence assay of HOCl and MPO activity and inhibition. The developed synthesis method can be applied to large-scale synthesis of CdS QDs, and the strategy to sense HOCl and MPO activity and inhibition has potential biomedical applications such as clinical diagnosis and drug screening.

PMID 37591805 · DOI 10.1039/d3ay01148h · [PubMed record](#)

132. Boronate-Based Oxidant-Responsive Derivatives of Acetaminophen as Proinhibitors of Myeloperoxidase.

2023 · Chemical research in toxicology · Water, sanitation & biosecurity · Human observational / experimental

Authors: Pierzchała, Karolina; Piłta, Jakub; Piłta, Marlena; Rola, Monika; Zielonka, Jacek; Sikora, Adam; Marcinek, Andrzej; Michalski, Radosław

AMBB showed lower MPO inhibitory activity ($IC_{50} > 0.3$ mM) than acetaminophen ($IC_{50} = 0.14$ mM) toward MPO-dependent HOCl generation. Finally, based on the determined reaction kinetics and the observed inhibitory effects of two plasma components, uric acid and albumin, on the extent of AMBB oxidation by ONOO(-) and HOCl, we conclude that ONOO(-) is the most likely potential activator of AMBB in human plasma.

PMID 37534491 · DOI 10.1021/acs.chemrestox.3c00140 · [PubMed record](#)

133. 0.01% Hypochlorous Acid Treats *Aspergillus fumigatus* Keratitis in Rats by Reducing Fungal Load and Inhibiting the Inflammatory Response.

2023 · Translational vision science & technology · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Zhao, Kai; Hu, Fen; Zhang, Zhaowei; Yin, Xiaoyue; Wang, He; Li, Mingxin

The optical density of the 0.01% HClO group was significantly lower than that of the phosphate-buffered saline control group ($P < 0.01$), and no visible mycelium was observed using a fluorescence microscope. 0.01% HClO reduced the severity of *A. fumigatus* keratitis in rats by decreasing the clinical score, fungal loading (periodic acid-Schiff, plate count, and fungal fluorescence staining), and inhibiting neutrophil infiltration and activity...

PMID 37531113 · DOI 10.1167/tvst.12.8.3 · [PubMed record](#)

134. GYY4137, a hydrogen sulfide donor, protects against endothelial dysfunction in porcine coronary arteries exposed to myeloperoxidase and hypochlorous acid.

2023 · Vascular pharmacology · Veterinary & livestock · Animal study
Authors: Harper, Andrew; Chapel, Maïke; Hodgson, Grace; Malinowski, Krzysztof; Yates, Imogen; Garle, Michael; Ralevic, Vera

BACKGROUND AND AIMS: Myeloperoxidase (MPO) and its principal reaction product hypochlorous acid (HOCl) are part of the innate immune response but are also associated with endothelial dysfunction, thought to involve a reduction in nitric oxide (NO) bioavailability. CONCLUSIONS: MPO plus H_2O_2 , and HOCl, impair coronary artery endothelium-dependent vasorelaxation via inhibition of NO.

PMID 37500030 · DOI 10.1016/j.vph.2023.107199 · [PubMed record](#)

135. Fabrication of a paper-based facile and low-cost microfluidic device and digital imaging technique for point-of-need monitoring of hypochlorite.

2023 · The Analyst · Food & agriculture · Human observational / experimental
Authors: Debnath, Snehasish; Ghosh, Riya; Pragti; Mukhopadhyay, Suman; Baskaran, Kamesh Viswanathan; Chatterjee, Pabitra B

The probes showed high selectivity and fast response (<10 s) toward OCl^- with an excellent linear relationship in the concentration range of 0–100 μM . The rapid response time, biocompatibility, low cytotoxicity, 100% aqueous solubility, ratiometric feature, and exclusive OCl^- selectivity over other competitive ROS/RNS successfully lead to the application of the probes for bioimaging of exogenous as well as endogenous OCl^- in normal cells (HEK293)...

PMID 37486009 · DOI 10.1039/d3an00533j · [PubMed record](#)

136. Kinetics and mechanism of triclocarban degradation by the chlorination process: Theoretical calculation and experimental verification.

2023 · Chemosphere · Water, sanitation & biosecurity · Journal article / other
Authors: Peng, Tao; Xu, Chao; Yang, Bin; Gu, Feng-Long; Ying, Guang-Guo

Results showed that hypochlorous acid (HOCl)/hypochlorite (OCl^-) reacted with TCC via Cl-substitution, OH-substitution and C–N bond cleavage pathways. Explicit water molecules participated in the chlorination reaction by transmitting the proton and connecting with TCC, $HOCl/OCl^-$ and other H_2O molecules, and obviously reduced the energy barrier of chlorination.

PMID 37467851 · DOI 10.1016/j.chemosphere.2023.139551 · [PubMed record](#)

137. New dual-responsive fluorescent sensor for hypochlorite and cyanide sensing and its imaging application in live cells and zebrafish.

2023 · Talanta · Food & agriculture · Human observational / experimental
Authors: Ma, Wenwen; Chen, Ruiming; Hu, Tingting; Xing, Shu; Zhou, Guanglian; Qin, Xiaoxu; Ren, Huijun; Zhang, Zhengyang; Chen, Jianbin; Niu, Qingfen

The detecting ability of 3TM has been examined to various testing substances containing amino acids, reactive oxygen species, cations and anions, showing its high selectivity, excellent sensitivity, short response time (ClO^- : 30 s, CN^- : 100 s), and broad pH working range (4–10). Sensor 3TM displayed sharp turn-on fluorescence increasement (555 nm, 435 nm) and sensitive fluorescence color changes caused by CN^-/ClO^- , which is ascribed to the...

PMID 37418961 · DOI 10.1016/j.talanta.2023.124910 · [PubMed record](#)

138. The effect of a preparation containing glycocholic acid on the biocidal efficacy of sodium hypochlorite in a biofilm laboratory model.

2023 · Australian endodontic journal : the journal of the Australian Society of Endodontology Inc · Water, sanitation & biosecurity · Journal article / other

Authors: Haddad, Yoseif; Chan, Wing Chuan; Ha, William Nguyen; Conde, Antonio; Estevez, Roberto; Lopez, Alejandro Peña; Gates, Georgia Charlotte; Rossi-Fedele, Giampiero

No significant differences were observed in the pairwise comparisons between 1%, 4% NaOCl and 4% NaOCl+KB for the outcome CFUs/mL. Only 4% NaOCl presented with negative cultures in all samples, whereas 1% NaOCl and 4% NaOCl+KB had similar results (54% vs.

PMID 37403810 · DOI 10.1111/aej.12771 · [PubMed record](#)

139. Effects of experimental bleaching gels containing co-doped titanium dioxide and niobium pentoxide combined with violet light.

2023 · Clinical oral investigations · Veterinary & livestock · Animal study

Authors: Matos, Iago César Ribeiro Teles; Kury, Matheus; de Melo, Priscila Borges Gobbo; de Souza, Leticia Vasconcelos Silva; Esteban Florez, Fernando Luis; Cavalli, Vanessa

RESULTS: No changes in the gel's color, odor, or translucency were observed. CLINICAL RELEVANCE: Low-concentrated HP gels containing NF₂TiO(2) or Nb(2)O(5) and light-irradiated stand as a possible alternative to in-office bleaching.

PMID 37369816 · DOI 10.1007/s00784-023-05113-z · [PubMed record](#)

140. Substrate-dependent metabolomic signatures of myeloperoxidase activity in airway epithelial cells: Implications for early cystic fibrosis lung disease.

2023 · Free radical biology & medicine · Food & agriculture · In vitro / laboratory

Authors: Kim, Susan O; Shapiro, Joseph P; Cottrill, Kirsten A; Collins, Genoah L; Shanthikumar, Shivanthan; Rao, Padma; Ranganathan, Sarath; Stick, Stephen M; Orr, Michael L; Fitzpatrick, Anne M; Go, Young-Mi; Jones, Dean P; Tirouvanziam, Rabindra M; Chandler, Joshua D

We noted methionine sulfoxide and dehydromethionine were significantly increased in GOX/MPO- or GOX/MPO/Br(-)-treated cells, and analyzed them as potential biomarkers of lung damage in bronchoalveolar lavage fluid from 5-year-olds with CF (n = 27). Both metabolites were associated with increasing bronchiectasis, neutrophils, and MPO activity.

PMID 37356776 · DOI 10.1016/j.freeradbiomed.2023.06.021 · [PubMed record](#)

141. Electrochemically synthesized green fluorescent carbon dots for quantitation of hypochlorite and carbendazim.

2023 · Journal of food and drug analysis · Food & agriculture · Journal article / other

Authors: Lo, Kuan-Min; Lin, Yu-Shen; Liou, Je-Wen; Chiu, Tai-Chia; Hu, Cho-Chun

Practicalities of the luminescent probes were separately validated by the quantitation of the two analytes in real sample matrix with recoveries ranging from 96.3 to 108.9% and the relative standard deviation values below 5.51%. Our results show the potential of the sensitive, selective, and simple CD probe for water and food quality control.

PMID 37335167 · DOI 10.38212/2224-6614.3445 · [PubMed record](#)

142. Microstructural effect of different concentrations of hydrogen peroxide photoactivated with LED/laser.

2023 · Photodiagnosis and photodynamic therapy · Veterinary & livestock · Animal study

Authors: Manzoli, Tatiane Miranda; Costa, Joatan Lucas de Sousa Gomes; Besegato, João Felipe; Zaniboni, Joissi Ferrari; Galvani, Lucas David; Dantas, Andréa Abi Rached; Kuga, Milton Carlos

RESULTS: HP6_L showed higher pH and greater stability between the initial and final evaluations, while the other groups showed similar pH with reduced values in the intragroup evaluation. CONCLUSIONS: Although HP6_L showed higher alkalinity and pH stability, none of the protocols reduced the microhardness and surface roughness of bovine enamel.

PMID 37201771 · DOI 10.1016/j.pdpdt.2023.103613 · [PubMed record](#)

143. Carbocyanine-Based Optical Sensor Array for the Discrimination of Proteins and Rennet Samples Using Hypochlorite Oxidation.

2023 · Sensors (Basel, Switzerland) · Veterinary & livestock · Human observational / experimental

Authors: Shik, Anna V; Stepanova, Irina A; Doroshenko, Irina A; Podrugina, Tatyana A; Beklemishev, Mikhail K

An approach to extending the functionality of the sensor arrays is using a kinetic factor by conducting indicator reactions that proceed at measurable rates. As reducing agents to visualize these products, carbocyanine dyes IR-783 and Cy5.5-COOH are added to the reaction mixture at pH 5.3, and different spectral characteristics are registered every several minutes (absorbance in the visible region and fluorescence under excitation by UV (254 and 365 nm)...

PMID 37177503 · DOI 10.3390/s23094299 · [PubMed record](#)

144. Point-of-Care and Dual-Response Detection of Hydrazine/Hypochlorite-Based on a Smart Hydrogel Sensor and Applications in Information Security and Bioimaging.

2023 · Molecules (Basel, Switzerland) · Food & agriculture · Journal article / other
Authors: Du, Man; Zhang, Yue; Xu, Zhice; Dong, Zhipeng; Zhao, Shuchun; Du, Hongxia; Zhao, Hua

Furthermore, the portable test kit has been applied to the detection of N(2)H(4) and ClO(-) in a real-world environment and food samples, and a series of good results have been achieved. Attractively, we demonstrated that XBT-CN@hydrogel was successfully applied as an encryption ink in the field of information security.

PMID 37175308 · DOI 10.3390/molecules28093896 · [PubMed record](#)

145. The bleaching effect of office bleaching agents containing S-PRG filler evaluated by pH value and electron spin resonance.

2023 · Clinical oral investigations · Veterinary & livestock · Animal study
Authors: Akabane, Kodai; Hiraishi, Noriko; Shimojima, Mika; Nassar, Mohammad; Qi, Feng; Otsuki, Masayuki; Shimada, Yasushi

RESULTS: The results of ΔE and WI(D) showed that the addition of S-PRG filler increased the bleaching effect, but there was no significant difference between the groups with 5% and 10% S-PRG filler. The S-PRG filler groups showed a significantly higher reduction in Mn(+2) compared to the 0% group, with no significant difference between the 5% and 10% S-PRG groups.

PMID 37133698 · DOI 10.1007/s00784-023-05031-0 · [PubMed record](#)

146. Chemical oxygen demand and tannin/lignin removal from paper mill wastewater by electrocoagulation combined with peroxide and hypochlorite treatments.

2024 · Environmental technology · Water, sanitation & biosecurity · Journal article / other
Authors: Caglak, Abdulkadir; Sari-Erkan, Hanife; Onkal Engin, Guleda

The primary findings of the investigation indicated that the integration of electrocoagulation with peroxide and hypochlorite treatments exhibited efficacy in removing COD, tannin/lignin, colour, phenol, and turbidity from paper mill wastewater. In future studies, it would be useful to conduct research to increase COD removal efficiency in addition to tannin/lignin removal in EC-Ca(OCl)(2) process.

PMID 37105959 · DOI 10.1080/09593330.2023.2206529 · [PubMed record](#)

147. Influence of violet LED and fluoride-containing carbamide peroxide bleaching gels on early-stage eroded/abraded teeth.

2023 · Photodiagnosis and photodynamic therapy · Food & agriculture · Journal article / other
Authors: Palandi, Samuel da Silva; Kury, Matheus; Cavalli, Vanessa

RESULTS: The gels' pH was neutral and CP20 and CP45 exhibited no differences in $\Delta E(00)$ and $\Delta WI(D)$ ($p > 0.05$) but LED increased these parameters for CP20_F and CP45. Erosion/abrasion significantly decreased mean kg/mm(2), and the LED group was the only one not increasing microhardness after bleaching ($p > 0.05$).

PMID 37059164 · DOI 10.1016/j.pdpdt.2023.103568 · [PubMed record](#)

148. Visualizing stimulus-responsive dual-ligand fluorescent probes for hypochlorite: A novel strategy for real application in tap water.

2023 · Luminescence : the journal of biological and chemical luminescence · Water, sanitation & biosecurity · Journal article / other
Authors: Han, Jianhong; Wang, Yuting; Ren, Zehua; Zhang, Lianke; Hu, Shuting; Li, Yumei; Liu, Pai

GMP can be oxidized by ClO(-) and damage its structure, resulting in fluorescence quenching of CPNPs. The two-ligand CPNPs sensor has a rapid fluorescent response, significant fluorescent color change, and high sensitivity, with a linear range of 2-18 μM and a detection limit of 0.14 μM .

PMID 37057382 · DOI 10.1002/bio.4500 · [PubMed record](#)

149. Hypochlorous acid-activated near-infrared fluorescent probe for in vivo/exogenous detection and dairy toxicity evaluation.

2023 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Veterinary & livestock · Human observational / experimental
Authors: Wang, Xiao; Wang, Xuechuan; Lu, Qiangqiang; Sun, Xiaolong; Han, Qingxing

Oxidative stress has been reported to be closely associated with many diseases, and an excessive overdose of hypochlorite (ClO(-)) can also induce stress-related diseases. Thus, we present a potential method for developing an efficient and reliable detection of ClO(-) in early stage using near-infrared dyes.

PMID 37037175 · DOI 10.1016/j.saa.2023.122661 · [PubMed record](#)

150. Can all highly concentrated in-office bleaching gels be used as a single-application?

2023 · Clinical oral investigations · Food & agriculture · In vitro / laboratory

Authors: da Silva, Karine Letícia; Favoreto, Michael William; Centenaro, Gabrielle Gomes; Bernardi, Laís Giacomini; Borges, Christiane Philippini Ferreira; Reis, Alessandra; Loguercio, Alessandro D

A significant BE was observed in all in-office bleaching gels ($p < 0.0001$ for $\Delta E(ab)$ and $\Delta E(00)$), with a significant difference between them ($p < 0.0001$). PO, OB, TB, WP, and WB showed a higher BE when compared to DW, PB, and WA ($p < 0.0001$).

PMID 37017758 · DOI 10.1007/s00784-023-04980-w · [PubMed record](#)

151. Comparison of antibiofilm activity of low-concentrated hypochlorites vs polyhexanide-containing antiseptic.

2023 · Frontiers in cellular and infection microbiology · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Paleczny, Justyna; Junka, Adam Felix; Krzyżek, Paweł; Czajkowska, Joanna; Kramer, Axel; Benkhail, Hicham; Myka-Zagrodzińska, Ewa; Bartoszewicz, Marzenna

The results obtained by static biofilm models indicate that low-concentrated chlorine-based and releasing solutions display none to moderate antibiofilm activity, while data obtained by means of the Bioflux model, providing flow conditions, indicate the moderate antibiofilm activity of substances compared with the polyhexanide antiseptic. Considering in vitro data presented in this manuscript, the earlier reported favorable clinical results of...

PMID 37009512 · DOI 10.3389/fcimb.2023.1119188 · [PubMed record](#)

152. Rapid and ratiometric fluorescent detection of hypochlorite by glutathione functionalized molybdenum disulfide quantum dots.

2023 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Food & agriculture · Journal article / other

Authors: Zhong, Yaping; Guo, Lijuan; Zou, Yibiao; Chen, Yu; Lu, Zhentan; Wang, Dong

Hypochlorite can fast oxidize curcumin and weaken the inner filter effect, thus the fluorescence of curcumin at 540 nm decreased and the fluorescence of G-MoS(2) QDs at 430 nm increased. The standard spike recovery tests on milk and tap water samples showed satisfactory results, which extended the application of G-MoS(2) QDs in the field of ratiometric fluorescence detection assays.

PMID 36963221 · DOI 10.1016/j.saa.2023.122649 · [PubMed record](#)

153. Lignin and spent bleaching clay into mono-aromatic hydrocarbons by a cascade dual catalytic pyrolysis system: Critical role of spent bleaching clay.

2023 · International journal of biological macromolecules · Food & agriculture · Journal article / other

Authors: Wan, Zhen; Li, Zhihe; Yi, Weiming; Zhang, Andong; Li, Guo; Wang, Shaoqing

It was observed that, when the temperature was 550 °C, the CSBC-to-HZSM-5 ratio was 1:1, and when the raw materials-to-catalyst ratio was 1:2, the highest bio-oil yield was 21.35 wt%. Meanwhile, the introduction of CSBC inhibited the generation of graphite-like coke as indicated by HZSM-5.

PMID 36870660 · DOI 10.1016/j.ijbiomac.2023.123879 · [PubMed record](#)

154. Hypochlorous acid inactivates oral pathogens and a SARS-CoV-2-surrogate.

2023 · BMC oral health · Water, sanitation & biosecurity · Human observational / experimental

Authors: Tazawa, Kento; Jadhav, Rutuja; Azuma, Mariane Maffei; Fenno, J Christopher; McDonald, Neville J; Sasaki, Hajime

One week of storage of HOCl solution degraded HOCl and increased the minimum growth inhibition volume ratio. This study indicates that the HOCl solution can be used as therapeutic water or mouthwash and may ultimately reduce the risk of airborne infection in dental practice.

PMID 36803460 · DOI 10.1186/s12903-023-02820-7 · [PubMed record](#)

155. The microstructure and thermal properties of pulsed electric field pretreated oxidized starch.

2023 · International journal of biological macromolecules · Food & agriculture · Journal article / other

Authors: Li, Ying; Wang, Jin-Hua; Wang, Er-Chun; Tang, Zhong-Sheng; Han, Yu; Luo, Xiu-Er; Zeng, Xin-An; Woo, Meng-Wai; Han, Zhong

Compared with native starch, the peak gelatinization temperature ($T(p)$) of PEF-assisted oxidized starch (POS) was reduced by 10.3 °C, while that of the oxidized starch without PEF treatment (NOS) was only reduced by 7.4 °C. In addition, PEF treatment further reduces the viscosity and improve the thermal stability of the starch slurry.

PMID 36801303 · DOI 10.1016/j.ijbiomac.2023.123721 · [PubMed record](#)

156. Efficient microwave-assisted mineralization of oxytetracycline driven by persulfate and hypochlorite over Cu-biochar catalyst.

2023 · Bioresource technology · Water, sanitation & biosecurity · Journal article / other

Authors: Zhang, Qiaozhi; Sun, Yuqing; Xu, Weijian; Cao, Yang; Wu, Chunfei; Wang, Chi-Hwa; Tsang, Daniel C W

Microwave (MW)-assisted catalytic degradation of organic pollutants draws increasing attention owing to its high efficiency in wastewater treatment. The interactions between CuBC and MW were revealed by correlating the physiochemical characteristics to the MW absorption ability.

PMID 36731614 · DOI 10.1016/j.biortech.2023.128698 · [PubMed record](#)

157. In vitro effectiveness of different dental bleaching protocols using violet LED.

2023 · Photodiagnosis and photodynamic therapy · Veterinary & livestock · In vitro / laboratory

Authors: Bachiega-Silva, Bruno; Mayer-Santos, Eric; Jurema, Ana Luiza Barbosa; Caneppele, Taciana Marco Ferraz; Brugnera-Junior, Aldo; de Freitas, Patrícia Moreira

Regarding the comparison of ΔE_{00} between groups, results showed statistical difference between groups, with $G1 \geq G2$, $G5$, $G6 \geq G3$, $G4$. CONCLUSION: Bleaching protocols with less time (15 min) or no exposure to 35% HP (violet LED, 4x/week) could promote bleaching results as those obtained by the conventional technique using 35% HP for 45 min, with no enamel surface changes, showing to be a promising alternative to tooth bleaching.

PMID 36640856 · DOI 10.1016/j.pdpdt.2022.103245 · [PubMed record](#)

158. A dual-responsive fluorescent turn-on sensor for sensitively detecting and bioimaging of hydrazine and hypochlorite in biofluids, live-cells, and plants.

2023 · Analytica chimica acta · Food & agriculture · Human observational / experimental

Authors: Chen, Ruiming; Hu, Tingting; Xing, Shu; Wei, Tao; Chen, Jianbin; Li, Tianduo; Niu, Qingfen; Zhang, Zhengyang; Ren, Huijun; Qin, Xiaoxu

The mechanisms for sensing $N(2)H(4)$ and $ClO(-)$ were investigated with support of spectral measurements and DFT investigation. Moreover, PT was utilized to visualize exogenous $N(2)H(4)$ and $ClO(-)$ in living plants and live-cells, demonstrating this sensor utilized as a powerful tool to detect $N(2)H(4)$ and $ClO(-)$ in biological fields.

PMID 36628730 · DOI 10.1016/j.aca.2022.340735 · [PubMed record](#)

159. Superoxide: The enigmatic chemical chameleon in neutrophil biology.

2023 · Immunological reviews · Water, sanitation & biosecurity · Review

Authors: Kettle, Anthony J; Ashby, Louisa V; Winterbourn, Christine C; Dickerhof, Nina

Depending on its environment and reaction partners, superoxide can act as an oxidant, a reductant, a nucleophile, or an enzyme substrate. This work will undoubtedly lead to fascinating discoveries in host defense and give a richer understanding of superoxide's varied biology.

PMID 36609987 · DOI 10.1111/imr.13183 · [PubMed record](#)

160. Ratiometric and colorimetric probes with large stokes shift for sensing of exogenous hypochlorite in potato sprouts and industrial effluents.

2023 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Food & agriculture · Journal article / other

Authors: Assiri, Mohammed A; Waseem, Muhammad Tahir; Hamad, Asad; Imran, Muhammad; Farooq, Umar; Shahzad, Sohail Anjum

While probe 2 exhibited turn-off fluorescent response towards $ClO(-)$ with limit of detection (LOD) of 86.7 nM, structurally alike probe 1 showed excellent ratiometric response with low detection limit (36.3 nM), large Stokes shift (353 nm), and 'fast' response time (15 s). $(1)H$ NMR titration experiments favored spiroring opening of probe 1 upon the reaction with $ClO(-)$. Further, fabrication of probe coated fluorescent paper strips and recognition of...

PMID 36603278 · DOI 10.1016/j.saa.2022.122298 · [PubMed record](#)

161. Physicochemical evaluation of hydrogen peroxide bleaching gels containing titanium dioxide catalytic agent, and their influence on dental color change associated with violet LED.

2023 · Photodiagnosis and photodynamic therapy · Veterinary & livestock · Animal study

Authors: Carlos, Natália Russo; Basting, Rosanna Tarkany; Amaral, Flávia Lucisano Botelho do; França, Fabiana Mantovani Gomes; Turssi, Cecilia Pedroso; Kantovitz, Kamila Rosamilia; Bronze-Uhle, Erika Soares; Lisboa Filho, Paulo Noronha; Cavalli, Vanessa; Basting, Roberta Tarkany

All groups showed a significant decrease in Vita Classical color scores ($p = 0.0037$). The color change in HP35 was more effective than in HP7, but the VL boosted the bleaching effectiveness of HP7, whereas $TiO(2)$ did not increase bleaching effectiveness.

PMID 36572111 · DOI 10.1016/j.pdpdt.2022.103254 · [PubMed record](#)

162. An improved method for the detection of myeloperoxidase chlorinating activity in biological systems using the redox probe hydroethidine.

2023 · Free radical biology & medicine · Water, sanitation & biosecurity · Human observational / experimental
Authors: Vigder, Niv; Suarna, Cacang; Corcilius, Leo; Nadel, James; Chen, Weiyu; Payne, Richard; Tumanov, Sergey; Stocker, Roland

Quantification of 2-Cl-HE plus 2-Cl-E(+) improved the sensitivity of the HE-based method compared with measurement of only 2-Cl-E(+). Overall, the present study describes an improved method for the detection of MPO/chlorinating activity in biological systems of health and disease.

PMID 36565892 · DOI 10.1016/j.freeradbiomed.2022.12.014 · [PubMed record](#)

163. Amino acid buffered hypochlorite facilitates debridement of porcine infected burn wounds.

2023 · Burns : journal of the International Society for Burn Injuries · Veterinary & livestock · Animal study
Authors: Alexander P, Larsson; Jonathan, Rakar; Gunnar, Kratz; Johan P E, Junker

RESULTS: After one week, but not after two and three weeks, the curette and AABH groups had higher debrided weights compared to control ($p < 0.05$). CONCLUSION: Our results indicate that AABH facilitates wound debridement and could be a helpful addition to an effective treatment modality for removal of necrotic tissue in full-thickness burns.

PMID 36543728 · DOI 10.1016/j.burns.2022.11.011 · [PubMed record](#)

164. Myeloperoxidase-derived hypochlorous acid targets human airway epithelial plasmalogens liberating protein modifying electrophilic 2-chlorofatty aldehydes.

2023 · Redox biology · Food & agriculture · Human observational / experimental
Authors: Shakya, Shubha; Pyles, Kelly D; Albert, Carolyn J; Patel, Rakesh P; McCommis, Kyle S; Ford, David A

Further, proteomics and over-representation analysis using the ω -alkyne analog of the 2-ClFALD molecular species, 2-chlorohexadecanal (2-ClHDyA) showed cell adhesion molecule binding and cell-cell junction enriched categories similar to that observed previously in endothelial cells. Collectively, these studies demonstrate, for the first time, a novel plasmalogen molecular species distribution in airway epithelial cells that are targeted by...

PMID 36508858 · DOI 10.1016/j.redox.2022.102557 · [PubMed record](#)

165. Elevated levels of chloramines and chlorine detected near an indoor sports complex.

2023 · Environmental science. Processes & impacts · Water, sanitation & biosecurity · Journal article / other
Authors: Angelucci, Andrea A; Crilley, Leigh R; Richardson, Rob; Valkenburg, Thalassa S E; Monks, Paul S; Roberts, James M; Sommariva, Roberto; VandenBoer, Trevor C

No appreciable levels of NHCl(2) and NCl(3) were observed outdoors, suggesting the indoor pool was not likely to be the primary source of the observed ambient chloramines, as prior measurements made in indoor pool atmospheres indicate that NCl(3) would be expected to dominate. Instead, these observations point to indoor cleaning and/or cleaning product emissions as the probable source of NH(2)Cl and Cl(2) where the measured levels provide indirect...

PMID 36484250 · DOI 10.1039/d2em00411a · [PubMed record](#)

166. In Vitro Activity of a Hypochlorous Acid-Generating Electrochemical Bandage against Yeast Biofilms.

2023 · Antimicrobial agents and chemotherapy · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Kletzer, Joseph; Raval, Yash S; Mohamed, Abdelrhman; Mandrekar, Jayawant N; Greenwood-Quaintance, Kerryl E; Beyenal, Haluk; Patel, Robin

Time-dependent decreases in the biofilm CFU counts were observed for all isolates with e-bandage treatment. The results suggest that the described HOCl-producing e-bandage could serve as a potential alternative to traditional antifungal wound biofilm treatments.

PMID 36472429 · DOI 10.1128/aac.01166-22 · [PubMed record](#)

167. 3-Aminophenylboronic acid-functionalized molybdenum disulfide quantum dots for fluorescent determination of hypochlorite.

2022 · Mikrochimica acta · Food & agriculture · Journal article / other
Authors: Zhong, Yaping; Guo, Lijuan; Lu, Zhentan; Wang, Dong

The proposed fluorescent detection assay was simple and fast, taking only 5 min at room temperature. Satisfactory results were obtained in the standard spike recovery tests on tap water and milk samples, which indicate high potential in constructing fluorescent bio-detection assays.

PMID 36471018 · DOI 10.1007/s00604-022-05598-7 · [PubMed record](#)

168. Preparation of nanocellulose crystal from bleached pulp with an engineering cellulase and co-production of ethanol.

2023 · Carbohydrate polymers · Food & agriculture · Journal article / other
Authors: Yang, Tiantian; Li, Xuezhi; Guo, Yingjie; Zhao, Jian; Qu, Yinbo

The result showed that the CNC yield reached 7.35 % (w/w) by hydrolysis at 10 % solid content, and the final ethanol concentration was 13.27 mg/mL in fermentation liquor. This work provided a reference for realizing high-efficient application of cellulose in the pulp.

PMID 36436849 · DOI 10.1016/j.carbpol.2022.120291 · [PubMed record](#)

169. The Assessment of Activity of Antiseptic Agents against Biofilm of Staphylococcus aureus Measured with the Use of Processed Microscopic Images.

2022 · International journal of molecular sciences · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Krasowski, Grzegorz; Migda, Paweł; Woroszyło, Marta; Fijałkowski, Karol; Chodaczek, Grzegorz; Czajkowska, Joanna; Dudek, Bartłomiej; Nowicka, Joanna; Oleksy-Wawrzyniak, Monika; Kwieć, Bartłomiej; Paleczny, Justyna; Brożyna, Malwina; Junka, Adam

The results indicated significantly higher activity of polyhexanide and povidone-iodine than hypochlorite against staphylococcal biofilm. Taking into account the fact that in vitro results of the efficacy of antiseptic agents against staphylococcal biofilm are frequently applied to back up their use in hospitals and ambulatory units, our work should be considered an important tool; providing reliable, quantitative data in this regard.

PMID 36362310 · DOI 10.3390/ijms232113524 · [PubMed record](#)

170. Chlorination-induced pK(a) decrease: an improved strategy to design ratiometric hypochlorite fluorescent probes with ideally high selectivity.

2022 · The Analyst · Water, sanitation & biosecurity · Animal study
Authors: Han, Shaohui; Ding, Binghui; Xiong, Haiqing; Zuo, Bojun; Ye, Yong; Li, Haipu; Song, Xiangzhi

This probe displayed a ratiometric fluorescence change (from 509 nm to 628 nm) toward ClO⁻ and was successfully applied to image intracellular ClO⁻ in living cells with two-photon excitation. Using Naph-DFOB as a useful tool, the investigation of lipopolysaccharide (LPS)-induced acute lung injury in a mouse model was effectively performed.

PMID 36345932 · DOI 10.1039/d2an01476a · [PubMed record](#)

171. Disinfectant resistance of Salmonella in in vitro contaminated poultry house models and investigation of efficient disinfection methods using these models.

2022 · The Journal of veterinary medical science · Veterinary & livestock · In vitro / laboratory
Authors: Ohashi, Ikuyo; Kobayashi, Sota; Tamamura-Andoh, Yukino; Arai, Nobuo; Takamatsu, Daisuke

Salmonella was not efficiently removed from the models even by cleaning with a surfactant at 25/65°C and disinfection with quaternary ammonium compound or hypochlorous acid at 25°C; on the contrary, viable Salmonella cells increased in some tests under these conditions, suggesting that these models successfully simulate the highly persistent characteristics of Salmonella in farms. However, the persistent bacterial cells were markedly decreased by soaking...

PMID 36328590 · DOI 10.1292/jvms.22-0311 · [PubMed record](#)

172. The Lesson Learned from the COVID-19 Pandemic: Can an Active Chemical Be Effective, Safe, Harmless-for-Humans and Low-Cost at a Time? Evidence on Aerosolized Hypochlorous Acid.

2022 · International journal of environmental research and public health · Water, sanitation & biosecurity · Human observational / experimental
Authors: Benedusi, Mascia; Tamburini, Elena; Sicurella, Mariaconcetta; Summa, Daniela; Ferrara, Francesca; Marconi, Peggy; Cervellati, Franco; Costa, Stefania; Valacchi, Giuseppe

Our data showed that HOCl at the dose of 300 ppm did not affect cellular and tissue viability, not their morphology. Overall, this study showed that nebulized HOCl can prevent virus and bacteria growth without affecting lung and skin tissues, making this compound a perfect candidate to sanitize indoor environments.

PMID 36293740 · DOI 10.3390/ijerph192013163 · [PubMed record](#)

173. A converged approach of electro-biological process for decolorization and degradation of toxic synthetic dyes.

2022 · Environmental monitoring and assessment · Food & agriculture · Journal article / other
Authors: Annamalai, Sivasankar; Muthukumar, Venkatesan; Alkhulaifi, Manal M

UV-Vis, TOC, chemical oxygen demand, and NMR analyses revealed that the biodegradation process with electrooxidation enhanced the mineralization of the synthetic dye solutions. Among the three RB-19 concentrations, the highest removal percentage was noticed at 100 mg L⁻¹ (100%) with energy consumption and energy costs equal to 5.44 kWh m⁻³ and 0.65 USD m⁻³, respectively.

PMID 36271209 · DOI 10.1007/s10661-022-10583-x · [PubMed record](#)

174. In Vitro and In Vivo Antimicrobial Activity of Hypochlorous Acid against Drug-Resistant and Biofilm-Producing Strains.

2022 · Microbiology spectrum · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Palau, Marta; Muñoz, Estela; Lujan, Enric; Larrosa, Nieves; Gomis, Xavier; Márquez, Ester; Len, Oscar; Almirante, Benito; Abellà, Jordi; Colominas, Sergi; Gavaldà, Joan

IMPORTANCE Currently, drug-resistant infections are increasing and there are fewer antibiotics available to treat them. Therefore, there is an urgent need to find new antibiotics and nonantimicrobial strategies to treat these infections.

PMID 36190404 · DOI 10.1128/spectrum.02365-22 · [PubMed record](#)

175. Activity of a hypochlorous acid-producing electrochemical bandage as assessed with a porcine explant biofilm model.

2023 · Biotechnology and bioengineering · Veterinary & livestock · Animal study

Authors: Tibbits, Gretchen; Mohamed, Abdelrhman; Gelston, Suzanne; Flurin, Laure; Raval, Yash S; Greenwood-Quaintance, Kerryl E; Patel, Robin; Beyenal, Haluk

Needle-type microelectrodes were used to assess HOCl concentrations in explant tissue as a result of e-bandage treatment; toxicity associated with e-bandage treatment was evaluated. Eukaryotic cell viability was reduced by an average of 71% and 65% in fresh and day 3-old explants, respectively, when compared to explants exposed to nonpolarized e-bandages.

PMID 36168277 · DOI 10.1002/bit.28248 · [PubMed record](#)

176. Violet LED associated with high concentration hydrogen peroxide: Effects on bleaching efficacy, pH, and temperature.

2022 · Photodiagnosis and photodynamic therapy · Veterinary & livestock · Animal study

Authors: Manzoli, Tatiane Miranda; Costa, Joatan Lucas de Sousa Gomes; Besegato, João Felipe; Gelio, Mariana Bena; Galvani, Lucas David; Bordini, Ester Alves Ferreira; Kuga, Milton Carlos; Dantas, Andréa Abi Rached

Groups HP35VR and HP35V showed an increase in temperature in relation to HP35R ($p < 0.05$). CONCLUSIONS: Violet LED improved the bleaching efficacy of 35% HP in a time-saving manner without negatively affecting the pH and temperature of 35% HP.

PMID 36162757 · DOI 10.1016/j.pdpdt.2022.103133 · [PubMed record](#)

177. Malate synthase contributes to the survival of Salmonella Typhimurium against nutrient and oxidative stress conditions.

2022 · Scientific reports · Veterinary & livestock · Journal article / other

Authors: Sarkhel, Ratanti; Apoorva, Shekhar; Priyadarsini, Swagatika; Sridhar, Hari Balaji; Bhure, Sanjeev Kumar; Mahawar, Manish

Further, Δ ms strain showed defective colonization in poultry spleen and liver. In short, our data demonstrate that the MS contributes to the virulence of S.

PMID 36155623 · DOI 10.1038/s41598-022-20245-0 · [PubMed record](#)

178. COVID-19, Overzealous Sanitizer Use, and Hair Discoloration: Case Reports.

2022 · Acta dermatovenerologica Croatica : ADC · Food & agriculture · Case report

Authors: Sadat Sadati, Maryam; Nozari, Farnoosh

In addition, DDAC is also associated with cell growth inhibition and stress oxidative induction (7). Previous data suggested that an increase in pro-oxidants and a decrease in antioxidants play an important role in hair discoloration.

PMID 36153721 · [PubMed record](#)

179. Mapping the modification of histones by the myeloperoxidase-derived oxidant hypochlorous acid (HOCl).

2022 · Free radical biology & medicine · Water, sanitation & biosecurity · Journal article / other
Authors: Hallberg, Line A E; Thorsen, Nicoline W; Hartsema, Els A; Häggglund, Per M; Hawkins, Clare L

Chlorination and dichlorination of Tyr, but not Trp residues, is also observed. These results could have implications for the development of chronic inflammatory diseases, given the key role of Lys residues in regulating histone function.

PMID 36152914 · DOI 10.1016/j.freeradbiomed.2022.09.016 · [PubMed record](#)

180. Effects of stabilized hypochlorous acid on oral biofilm bacteria.

2022 · BMC oral health · Water, sanitation & biosecurity · Human observational / experimental
Authors: Aherne, Olivia; Ortiz, Roberto; Fazli, Magnus M; Davies, Julia R

RESULTS: Low concentrations of HOCl (5 ppm), stabilized with 0.14% or 2% HAc, significantly reduced viability in multi-species biofilms representing supra- and sub-gingival oral communities, after 5 min, without causing erosion of HA surfaces. Gram-positive and Gram-negative bacteria showed no significant differential susceptibility to stabilized HOCl.

PMID 36127658 · DOI 10.1186/s12903-022-02453-2 · [PubMed record](#)

181. Group II truncated haemoglobin Yjbl prevents reactive oxygen species-induced protein aggregation in *Bacillus subtilis*.

2022 · eLife · Veterinary & livestock · In vitro / laboratory
Authors: Imai, Takeshi; Tobe, Ryuta; Honda, Koji; Tanaka, Mai; Kawamoto, Jun; Mihara, Hisaaki

Yjbl was localised to the cell surface or the biofilm matrix, and the sensitivity of planktonically grown cells to generators of reactive oxygen species was significantly increased upon yjbl disruption, suggesting that Yjbl pleiotropically protects labile cell-surface proteins from oxidative damage. These findings provide new insights into the role of truncated haemoglobin and the importance of hydroperoxide removal from proteins in the survival of...

PMID 36125244 · DOI 10.7554/eLife.70467 · [PubMed record](#)

182. Hypochlorous acid produced at the counter electrode inhibits catalase and increases bactericidal activity of a hydrogen peroxide generating electrochemical bandage.

2022 · Bioelectrochemistry (Amsterdam, Netherlands) · Food & agriculture · Journal article / other
Authors: Anoy, Md Monzurul Islam; Gelston, Suzanne; Mohamed, Abdelrhman; Flurin, Laure; Raval, Yash S; Greenwood-Quaintance, Kerry; Patel, Robin; Lewandowski, Zbigniew; Beyenal, Haluk

Previously, an electrochemical bandage (e-bandage) that uses a three-electrode system to produce hydrogen peroxide (H₂O₂) electrochemically on its working electrode was developed as a potential strategy for treating biofilms; it showed activity in reducing biofilms in an agar biofilm model. In addition to H₂O₂ generation, the previously described H₂O₂-generating e-bandage generates HOCl on the counter electrode, enhancing its biocidal activity.

PMID 36115186 · DOI 10.1016/j.bioelechem.2022.108261 · [PubMed record](#)

183. Quantitative Measurements of the Depth of Enamel Demineralization before and after Bleach: An In Vitro Study.

2022 · BioMed research international · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Naim, Sara; Spagnuolo, Gianrico; Osman, Essam; Mahdi, Syed Sarosh; Battineni, Gopi; Qasim, Syed Saad B; Cernera, Mariangela; Rifai, Hasna; Jaafar, Nada; Maalouf, Elie; Zogheib, Carina Mehanna

RESULTS: Mineral loss occurred after the first bleaching session; the Canary System™ detected a decalcification in the first bleaching session (532 ± 322 μm) compared to the other sessions (p ≤ 0.05), while no significant change was detected between the second and the third sessions (p > 0.05). CONCLUSION: Based on the findings of the present study, under in vitro conditions, it was possible to measure the demineralization extent of bleached enamel with...

PMID 36065254 · DOI 10.1155/2022/2805343 · [PubMed record](#)

184. Decontamination efficacy of common liquid disinfectants against non-spore-forming biological agents in soil matrices.

2022 · Journal of applied microbiology · Veterinary & livestock · Journal article / other

Authors: Richter, William R; Sunderman, Michelle M; Fulton, Megan L; Willenberg, Zachary; Serre, Shannon; Oudejans, Lukas; Wood, Joseph; Calfee, Michael W

The sodium persulfate (Klozur One) performance was the most consistent across all soil types and pre-spike contact times, resulting in greater efficacy with increased post-spike time. SIGNIFICANCE AND IMPACT OF THE STUDY: These results provide information for the performance of three disinfectants in soil against non-spore-forming select agents.

PMID 36056613 · DOI 10.1111/jam.15802 · [PubMed record](#)

185. Chloride Enhances DNA Reactivity with Chlorine under Conditions Relevant to Water Treatment.

2022 · Environmental science & technology · Water, sanitation & biosecurity · Journal article / other

Authors: Szczuka, Aleksandra; Horton, Jordon; Evans, Kelsey J; DiPietri, Vincent T; Sivey, John D; Wigginton, Krista R

The addition of chloride was also shown to enhance the inactivation of bacteriophage T3 (dsDNA genome) by FAC but did not enhance the inactivation of bacteriophage ϕ X174 (ssDNA genome). Overall, the results suggest that Cl(2) is an important chlorinating agent of nucleic acids and viruses.

PMID 36027047 · DOI 10.1021/acs.est.2c03267 · [PubMed record](#)

186. Altered physical-chemical properties of home bleaching gels after an accelerated stability study and their effects on tooth enamel.

2022 · Clinical oral investigations · Veterinary & livestock · Animal study

Authors: Sobral-Souza, Danielle Ferreira; Gouveia, Thayla Hellen Nunes; Ortiz, Mariangela Ivette Guanipa; Condeles, André Luís; Junior, José Carlos Toledo; Franz-Montan, Michelle; Aguiar, Flávio Henrique Baggio; Lima, Débora Alves Nunes Leite

RESULTS: Groups subject to AS had lower ΔE and $\Delta E(00)$ compared to those without storage. Temperature and humidity interfere directly with the chemical stability of bleaching agents, reducing their properties.

PMID 35999386 · DOI 10.1007/s00784-022-04683-8 · [PubMed record](#)

187. Scylla, Charybdis, and navigating antimicrobial action in the neutrophil phagosome.

2022 · Journal of leukocyte biology · Water, sanitation & biosecurity · Journal article / other

Authors: Nauseef, William M

Although many features of phagocytosis have been characterized since that time, fundamental aspects of the antimicrobial action of neutrophils remain unknown. The report by Ashby et al. provides a refined and nuanced look at the interface between an ingested microbe, *Staphylococcus aureus*, and HOCl generated by the myeloperoxidase (MPO)-H₂O₂-chloride system in neutrophil phagosomes and represents a holistic approach to the analysis of bactericidal...

PMID 35929044 · DOI 10.1002/JLB.4CE0422-232R · [PubMed record](#)

188. Designing of a high-performance fluorescent small molecule enables dual-mode and ultra-sensitive fluorescence visualizing of HSO(3)(-) and HClO in dried fruit, beverage, and water samples.

2022 · Food chemistry · Veterinary & livestock · Animal study

Authors: Xu, Zi Yi; Wu, You; Wang, Xiao Hu; Chen, Jing Rong; Luo, Hong Qun; Li, Nian Bing

Evaluation of HSO(3)(-) and HClO levels in dried fruit, beverage, and water samples has been carried out with satisfactory results. Furthermore, probe BIS is used for the in vivo imaging of HSO(3)(-) in edible fish models.

PMID 35882164 · DOI 10.1016/j.foodchem.2022.133754 · [PubMed record](#)

189. Aggregation-Induced Emission Fluorophore-Incorporated Curcumin-Based Ratiometric Nanoprobe for Hypochlorite Detection in Food Matrices.

2022 · Journal of agricultural and food chemistry · Food & agriculture · Human observational / experimental

Authors: Shen, Yizhong; Nie, Chao; Zhu, Chunlei; Zheng, Zhi; Wu, Yongning

Because of the inner filter effect (IFE) from curcumin toward TPE inside the nanoprobe, the bright fluorescence of TPE aggregation at ~437 nm was effectively quenched, along with an enhanced fluorescence of curcumin at ~478 nm. Notably, the phospholipid polymer as the protection layer effectively reduced/evaded the nonspecific binding of signal reporters inside the nanoprobe, facilitating it to directly monitor the residual ClO(-) in real food matrices.

PMID 35876793 · DOI 10.1021/acs.jafc.2c03826 · [PubMed record](#)

190. Whitening efficacy of low concentration hydrogen peroxide photoactivated with blue or violet LED.

2022 · Photodiagnosis and photodynamic therapy · Veterinary & livestock · Animal study

Authors: Costa, Joatan Lucas de Sousa Gomes; Besegato, João Felipe; Zaniboni, Joissi Ferrari; Vitória, Matheus Sousa; Gelio, Mariana Bena; Kuga, Milton Carlos

RESULTS: All groups showed effective and similar results over 1 month of follow-up ($p > 0.05$), with only intragroup differences among the time intervals ($p < 0.05$). CONCLUSIONS: The use of 15% HP photoactivated with blue or violet LED showed similar whitening efficacy compared to 35% HP.

PMID 35872355 · DOI 10.1016/j.pdpdt.2022.103028 · [PubMed record](#)

191. The effect of hypochlorous acid on the filtration performance and bacterial decontamination of N95 filtering facemask respirators.

2023 · American journal of infection control · Water, sanitation & biosecurity · Human observational / experimental

Authors: Brooks, J Patrick; Lupfer, Christopher; Yang, Wang; Hao, Weixing; Kapiamba, Kashala Fabrice

RESULTS: The size-dependent filtration efficiency of HOCl-sprayed N95 FFR fabric ranged from 96% to 100%, showing no significant change. Flow resistance testing revealed almost no change compared to control.

PMID 35870660 · DOI 10.1016/j.ajic.2022.07.013 · [PubMed record](#)

192. Hypochlorous acid and white vinegar: Artifact-free COVID-19 disinfection options for photostimulable storage phosphor plates.

2022 · Oral surgery, oral medicine, oral pathology and oral radiology · Food & agriculture · Human observational / experimental

Authors: Pamukcu, Umut; Peker, Ilkay

RESULTS: Artifacts were observed only on group B images. Intraobserver reliability was perfect (ICC and kappa of 1.0) and interobserver reliability was considered excellent (ICC = 0.985) or almost perfect (kappa = 0.956).

PMID 35869016 · DOI 10.1016/j.j.oooo.2022.03.003 · [PubMed record](#)

193. Kinetics and mechanism of the reaction of hydrogen peroxide with hypochlorous acid: Implication on electrochemical water treatment.

2022 · Journal of hazardous materials · Water, sanitation & biosecurity · Journal article / other

Authors: Lu, Xiaohui; Zhou, Xiaoqun; Qiu, Wei; Wang, Ziyue; Wang, Yishi; Zhang, Haochen; Yu, Jiaxin; Wang, Da; Gu, Jia; Ma, Jun

The kinetics study showed the species-specific second order rate constants for HOCl with H_2O_2 ($k(1)$), HOCl with $HO_2(-)$ ($k(2)$) and $OCl(-)$ with H_2O_2 ($k(3)$) are $195.5 \pm 3.3 \text{ M}^{-1}\text{s}^{-1}$, $4.0 \times 10(7) \text{ M}^{-1}\text{s}^{-1}$ and $3.5 \times 10(3) \text{ M}^{-1}\text{s}^{-1}$, respectively. The density functional theory calculation showed $k(2)$ is the most advantageous thermodynamically pathway because it does not need to overcome a high energy barrier.

PMID 35816805 · DOI 10.1016/j.jhazmat.2022.129420 · [PubMed record](#)

194. Three-Dimensional Quantitative Structure and Activity Relationship of Flavones on Their Hypochlorite Scavenging Capacity.

2022 · Journal of agricultural and food chemistry · Water, sanitation & biosecurity · Journal article / other

Authors: Yang, Xin; Wang, Tian; Žuvela, Petar; Sun, Mingtai; Xu, Chunyuhan; Zheng, Hongling; Wang, Xiang; Jing, Linzhi; Du, Ke; Wang, Suhua; Wong, Ming Wah; Huang, Dejian

Four models derived from CoMFA and CoMSIA with different combinations of descriptors were built and compared; the CoMFA model, which included both steric and electrostatic fields, showed great potential ($R(2) = 0.989$; $Q(2) = 0.818$) in predictive quality according to both internal and external validation criteria. The computational results indicated that hypochlorous acid (HClO) serves as an electrophile undergoing electrophilic addition to the C6 carbon...

PMID 35815596 · DOI 10.1021/acs.jafc.2c03860 · [PubMed record](#)

195. Effects of an amino acid buffered hypochlorite solution as an adjunctive to air-powder abrasion in open-flap surface decontamination of implants failed for peri-implantitis: an ex vivo randomized clinical trial.

2023 · Clinical oral investigations · Water, sanitation & biosecurity · Randomized controlled trial

Authors: La Monaca, Gerardo; Pranno, Nicola; Mengoni, Fabio; Puggioni, Gianluca; Polimeni, Antonella; Annibali, Susanna; Cristalli, Maria Paola

RESULTS: A statistically significant difference in the concentrations of CFU/ml was found between implants of test-group 1 ($63,018.18 \pm 228,599.36$) ($p = 0.007$) and implants of test-group 2 (260.00 ± 375.80) ($p < 0.001$) compared to untreated implants (control group) ($86,846.15 \pm 266,689.44$). CONCLUSION: The additional application of amino acid buffered hypochlorite solution seemed to improve the effectiveness of implant surface decontamination with...

PMID 35802191 · DOI 10.1007/s00784-022-04608-5 · [PubMed record](#)

196. Hypochlorous Acid-Activated Multifunctional Fluorescence Platform for Depression Therapy and Antidepressant Efficacy Evaluation.

2022 · Analytical chemistry · Food & agriculture · Animal study

Authors: Wang, Xin; Wang, Ruiyuan; Ding, Qi; Wu, Wei; Che, Feida; Li, Ping; Zhang, Wen; Zhang, Wei; Liu, Zhenzhen; Tang, Bo

Therefore, more reliable diagnostic criteria and effective therapy are urgently needed. By relieving oxidative stress, inflammation, and instantaneous increasing neurotransmitters, MB-Rs elicited better antidepressant response and fewer side effects compared with clinical antidepressants.

PMID 35763564 · DOI 10.1021/acs.analchem.2c01639 · [PubMed record](#)

197. A fluorescence digital image-based method using carbon quantum dots to evaluate the compliance of a biocidal agent.

2022 · Analytical methods : advancing methods and applications · Food & agriculture · Human observational / experimental

Authors: de Almeida, João Paulo Barbosa; Dos Santos, Vagner Bezerra; do Nascimento, Gustavo Alves; Suarez, Willian Toito; de Azevedo, Walter Mendes; Ferreira, Aldebarã Fausto; Maia, Matheus Valentin

The stability study of the fluorescence emitted by the CQD solution showed a relative standard deviation lower than 5.0%. The fluorescence digital image-based (FDIB) method resulted in a linear range from 17.44 $\mu\text{mol L}^{-1}$ to 90.0 $\mu\text{mol L}^{-1}$ with an LOD of 3.30 $\mu\text{mol L}^{-1}$ for the determination of hypochlorite using a microplate made of PLA (polylactic acid) customized using a 3D printer.

PMID 35736378 · DOI 10.1039/d2ay00678b · [PubMed record](#)

198. Influence of plasma halide, pseudohalide and nitrite ions on myeloperoxidase-mediated protein and extracellular matrix damage.

2022 · Free radical biology & medicine · Water, sanitation & biosecurity · Human observational / experimental

Authors: Xu, Shuqi; Chuang, Christine Y; Malle, Ernst; Gamon, Luke F; Hawkins, Clare L; Davies, Michael J

Increasing NO(2)(-) concentrations (0.5-20 μM) diminished HOCl-mediated modification of tyrosine and methionine, whereas tryptophan loss was enhanced. These data also indicate that MPO could be a major source of nitration in vivo, and particularly at inflammatory sites where NO(2)(-) levels are often elevated.

PMID 35718304 · DOI 10.1016/j.freeradbiomed.2022.06.222 · [PubMed record](#)

199. Impact of disinfectants on the intestinal bacterial symbionts and immunity of silkworm (*Bombyx mori* L.).

2022 · Environmental science and pollution research international · Food & agriculture · Animal study

Authors: Li, Guannan; Cai, Miao; Zheng, Xi; Xie, Xiaofan; Zhu, Yong; Long, Yaohang

After egg surface sterilization, no significant difference ($P > 0.05$) in overall body weight was observed among the control, sodium hypochlorite, and formaldehyde groups. Our findings reveal that hypochlorite has a blocking effect on the symbiont transmission compared with formaldehyde.

PMID 35713834 · DOI 10.1007/s11356-022-21442-0 · [PubMed record](#)

200. Tetraphenylethylene-thiosemicarbazone based ultrafast, highly sensitive detection of hypochlorite in aqueous environments and dairy products.

2022 · Analytica chimica acta · Veterinary & livestock · Journal article / other

Authors: Erdemir, Eda; Suna, Garen; Gunduz, Simay; Ahin, Musa; Elence-Bakır, Songül; Karakuş, Erman

Furthermore, high-resolution mass spectrometry (HRMS) revealed that TPE-TSC reacted with ClO(-) by forming a carboxylic acid moiety in nearly 100% aqueous environments. More significantly, the probe detected ClO(-) in disinfectant, spiked milk samples, and spiked water samples.

PMID 35701038 · DOI 10.1016/j.aca.2022.340029 · [PubMed record](#)

201. Nitrogen doped carbon quantum dots (N-CQDs) with high luminescence for sensitive and selective detection of hypochlorite ions by fluorescence quenching.

2022 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Water, sanitation & biosecurity · Journal article / other

Authors: Qi, Hongxia; Zhai, Zizhuo; Dong, Xipeng; Zhang, Pudun

The hypochlorite (ClO(-)) ions significantly quench the fluorescence of the N-CQDs according to a pseudo-second-order kinetic model. Both of the applications in real world suggest that the as-prepared N-CQDs is a kind of promising fluorescence probe for rapid detecting ClO(-) ions in environment fields, and has potential applications in text secrecy fields.

PMID 35687990 · DOI 10.1016/j.saa.2022.121456 · [PubMed record](#)

202. Rational construction of deep-red fluorescent probe for rapid detection of HClO and its application in bioimaging and paper-based sensing.

2022 · Analytical and bioanalytical chemistry · Water, sanitation & biosecurity · Human observational / experimental
Authors: Fang, Xingliang; Jin, Xilang; Ma, Xuehao; Guan, Li; Chen, Weixing; She, Mengyao

The results showed that probe TCF-CIO exhibited excellent characteristics of long-wavelength emission (635 nm), fast response (< 1 min), and low detection limit (24 nM). The function of the paper-based sensor extended from qualitative to quantitative detection of HClO, and it is expected to become a portable device widely used in the environmental area.

PMID 35676562 · DOI 10.1007/s00216-022-04154-9 · [PubMed record](#)

203. A new-type HOCl-activatable fluorescent probe and its applications in water environment and biosystems.

2022 · The Science of the total environment · Food & agriculture · Human observational / experimental
Authors: Wang, Kun; Liu, Yilin; Liu, Caiyun; Zhu, Hanchuang; Li, Xiwei; Yu, Miaohui; Liu, Lunying; Sang, Guoqing; Sheng, Wenlong; Zhu, Baocun

The outbreak and spread of Corona Virus Disease 2019 (COVID-19) has led to a significant increase in the consumption of sodium hypochlorite (NaOCl) disinfectants. Importantly, this dual-function discrimination strategy could obtain the precision detection of cancer cells, thereby offering assistance for improving the accuracy of early cancer diagnosis.

PMID 35609703 · DOI 10.1016/j.scitotenv.2022.156164 · [PubMed record](#)

204. Impact of agitation/activation strategies on the antibiofilm potential of sodium hypochlorite/etidronate mixture in vitro.

2022 · BMC oral health · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Cai, Ming; Cai, Yanling; Yang, Ruiqi; Xu, Zhezhen; Neelakantan, Prasanna; Wei, Xi

Subsequent agitation/activation resulted in significant microbial reduction only in XPF and UAI ($P < 0.05$), both of which reduced significantly more microbial counts than SNI ($P < 0.05$). Live/Dead staining revealed that XPF and UAI showed significantly greater percentage of dead bacteria within the dentinal tubules than SNI in the coronal third ($P < 0.05$); UAI resulted in the significantly highest percentage of dead bacteria in the middle third ($P < \dots$).

PMID 35606751 · DOI 10.1186/s12903-022-02222-1 · [PubMed record](#)

205. An increase in surface hydrophobicity mediates chaperone activity in N-chlorinated RidA.

2022 · Redox biology · Water, sanitation & biosecurity · Animal study
Authors: Varatnitskaya, Marharyta; Fasel, Julia; Müller, Alexandra; Lupilov, Natalie; Shi, Yunlong; Fuchs, Kristin; Krewing, Marco; Jung, Christoph; Jacob, Timo; Sitek, Barbara; Bandow, Julia E; Carroll, Kate S; Hofmann, Eckhard; Leichert, Lars I

These results, together with structural analysis, confirm that the chaperone activity of RidA is concomitant with the loss of positive charges on the protein surface, leading to an increased overall protein hydrophobicity. Molecular modelling of RidA(HOCl) and the rational design of a RidA variant that shows chaperone activity even in the absence of HOCl further supports our hypothesis.

PMID 35598378 · DOI 10.1016/j.redox.2022.102332 · [PubMed record](#)

206. Miniaturized 3D printed electrochemical platform with optimized Fibrous carbon electrode for non-interfering hypochlorite sensing.

2022 · Chemosphere · Food & agriculture · Journal article / other
Authors: Mohan, Jaligam Murali; Amreen, Khairunnisa; Javed, Arshad; Dubey, Satish Kumar; Goel, Sanket

3D printing technology based electrochemical device can provide ease of fabrication, cost effectiveness, rapid detection and lower limit of detection. Hypochlorite has a pivotal role in supporting the growing chemical and paper industries and finds diverse uses in several clinical applications.

PMID 35568213 · DOI 10.1016/j.chemosphere.2022.134915 · [PubMed record](#)

207. Reaction Mechanisms of Histidine and Carnosine with Hypochlorous Acid Along with Chlorination Reactivity of N-Chlorinated Intermediates: A Computational Study.

2022 · Chemical research in toxicology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Han, Yuzhou; Zhou, Yingying; Liu, Yong Dong; Zhong, Rugang

The obtained results indicate that in the imidazole side chain, the pyridine-like N is the most reactive site rather than the pyrrole-like N, and the kinetic order of all of the possible reaction sites in HisRes follows pyridine-like N > imidazole C(δ) ■ imidazole C(ϵ) > pyrrole-like N, while that in Car is pyridine-like N ■ imidazole C(δ) ■ amide N. Additionally, a generally overlooked nucleophilic Cl(-) shift is also found in N-chlorinated Car/HisRes...

PMID 35436107 · DOI 10.1021/acs.chemrestox.1c00389 · [PubMed record](#)

208. Characterisation of chemical damage on tissue structures by multispectral imaging and machine learning procedures: Alkaline hypochlorite effect in *C. elegans*.

2022 · Computers in biology and medicine · Food & agriculture · Animal study
Authors: Verdú, Samuel; Fuentes, Cristina; Barat, José M; Grau, Raúl

The results showed dependence between increased alkaline hypochlorite concentration and loss of egg viability/morphology. This relation was also observed for the imaging data, which showed alterations to tissue transmittance for all the tested wavelengths for both bodies and eggs.

PMID 35427984 · DOI 10.1016/j.combiomed.2022.105477 · [PubMed record](#)

209. Inactivation of SARS-CoV-2 and influenza A virus by dry fogging hypochlorous acid solution and hydrogen peroxide solution.

2022 · PloS one · Water, sanitation & biosecurity · Human observational / experimental
Authors: Urushidani, Masahiro; Kawayoshi, Akira; Kotaki, Tomohiro; Saeki, Keiichi; Mori, Yasuko; Kameoka, Masanori

The results obtained showed that the dry fogging of hypochlorous acid solution and hydrogen peroxide solution inactivated SARS-CoV-2 and influenza A virus in CT value (the product of the disinfectant concentration and contact time)-dependent manners. The present results provide important information for the development of a strategy that inactivates SARS-CoV-2 and influenza A virus on environmental surfaces by spatial fogging.

PMID 35389997 · DOI 10.1371/journal.pone.0261802 · [PubMed record](#)

210. Neutrophil-Derived Myeloperoxidase and Hypochlorous Acid Critically Contribute to 20-Hydroxyeicosatetraenoic Acid Increases that Drive Postischemic Angiogenesis.

2022 · The Journal of pharmacology and experimental therapeutics · Water, sanitation & biosecurity · Animal study
Authors: Azcona, Juan A; Tang, Samantha; Berry, Elizabeth; Zhang, Frank F; Garvey, Radha; Falck, John R; Schwartzman, Michal Laniado; Yi, Tao; Jeitner, Thomas M; Guo, Austin M

Finally, pharmacological interference of hypoxia inducible factor (HIF) signaling results in ablation of HOCl-induced CYP4A11 transcript and significant reductions in CYP4A11 protein. The findings from this study potentially identify novel therapeutic targets for the treatment of ischemia and other diseases associated with abnormal angiogenesis.

PMID 35306474 · DOI 10.1124/jpet.121.001036 · [PubMed record](#)

211. An efficient PeT based fluorescent probe for mapping mitochondrial oxidative stress produced via the Nox2 pathway.

2022 · Journal of materials chemistry. B · Food & agriculture · Human observational / experimental
Authors: Baruah, Mousumi; Jana, Anal; Ali, Mudassar; Mapa, Koyeli; Samanta, Animesh

PM-S showed several advantages, including better chemical stability, large Stokes shifts ($>6258\text{ cm}^{-1}$), high sensitivity ($\sim 50\text{ nM}$) and specificity to mitochondria, compared to its parent pyrylium PY-S derivative. Analysis using a simple microplate reader and FACS analysis with various inhibitors and inducers supported the mechanistic understanding of Nox2, which can offer an advanced platform for monitoring the inflammatory process more efficiently.

PMID 35289831 · DOI 10.1039/d2tb00356b · [PubMed record](#)

212. Hypochlorous acid as a disinfectant for high-risk HPV: Insight into the mechanism of action.

2022 · Journal of medical virology · Food & agriculture · Human observational / experimental
Authors: Robins, Lori I; Clark, Andrew; Gafken, Philip R; Alam, Samina; Milici, Janice; Hassan, Reem; Wang, Che-Yen; Williams, Jeffrey; Meyers, Craig

Mass spectrometry analysis of trypsin-digested products of L1 capsid proteins exposed to HOCl showed that mostly conserved residues were modified by oxidation and that these changes rapidly lead to instability of the protein demonstrable on sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE). The use of homogeneous HOCl solutions for HPV decontamination provides a highly effective means of assuring the safety of nonautoclavable medical...

PMID 35277984 · DOI 10.1002/jmv.27716 · [PubMed record](#)

213. Engineering of Portable Smartphone Integrated with Liposome-Encapsulated Curcumin for Onsite Visual Ratiometric Fluorescence Imaging of Hypochlorite.

2022 · Chemistry (Weinheim an der Bergstrasse, Germany) · Food & agriculture · Human observational / experimental
Authors: Shen, Yizhong; Zhu, Chunlei; Wei, Yunlong; Chen, Huanhuan; Wu, Zeyu; Ye, Yingwang; Han, De-Man

Precisely onsite monitoring of hypochlorite (ClO⁻) is of great significance to guide its rational use, reducing/avoiding its potential threat toward food safety and human health. In addition, the sensor could monitor ClO⁻ in real samples with an onsite detection time of ~154.0 s.

PMID 35233854 · DOI 10.1002/chem.202200263 · [PubMed record](#)

214. Hydrogen Peroxide and Hypochlorite Responsive Fluorescent Nanoprobes for Sensitive Cancer Cell Imaging.

2022 · Biosensors · Food & agriculture · In vitro / laboratory
Authors: Chen, Yun; Ye, Jing; Lv, Gang; Liu, Weiwei; Jiang, Hui; Liu, Xiaohui; Wang, Xuemei

Accurate diagnosis of cancer cells directly affects the clinical treatment of cancer and can significantly improve the therapeutic effect of cancer patients. Cancer cells have a unique microenvironment with a large amount of peroxide inside, effectively differentiated from relevant microenvironment normal cells.

PMID 35200371 · DOI 10.3390/bios12020111 · [PubMed record](#)

215. Strategy for reducing cytotoxicity and obtaining esthetic efficacy with 15 min of in-office dental bleaching.

2022 · Clinical oral investigations · Veterinary & livestock · In vitro / laboratory
Authors: Ortecho-Zuta, Uxua; de Oliveira Duque, Carla Caroline; de Oliveira Ribeiro, Rafael Antonio; Leite, Maria Luísa; Soares, Diana Gabriela; Hebling, Josimeri; Briso, André Luiz Fraga; de Souza Costa, Carlos Alberto

Despite G5 showing the greatest ΔE regarding other groups ($p < 0.05$), the esthetic efficacy observed in G7 was similar to G2 ($p > 0.05$). ΔWI indicated a greater bleaching effect for groups G5, G6, and G7 ($p < 0.05$). CLINICAL SIGNIFICANCE: Coating the dental enamel with polymeric biomaterials allows safer and faster BG-35%H₂O₂ application.

PMID 35199193 · DOI 10.1007/s00784-022-04379-z · [PubMed record](#)

216. Hypochlorous acid as an antiseptic in the care of patients with suspected COVID-19 infection.

2022 · Archivos de la Sociedad Espanola de Oftalmologia · Water, sanitation & biosecurity · Human observational / experimental
Authors: Gessa Sorroche, M; Relimpio López, I; García-Delpech, S; Benítez Del Castillo, J M

CONCLUSIONS: The 0.01% hypochlorous acid could act as an effective antiseptic against SARS-CoV-2, exerting a barrier on the mucosa to prevent COVID-19 infection. We consider it necessary to assess its use in the protocol for patient health care in ophthalmology consultations, as well as to recommend its use to the general population to reduce viral load and/or prevent transmission of infection.

PMID 35152952 · DOI 10.1016/j.oftale.2021.01.010 · [PubMed record](#)

217. Rapid in vitro virucidal activity of slightly acidic hypochlorous acid water toward aerosolized coronavirus in simulated human-dispersed droplets.

2022 · Virus research · Veterinary & livestock · In vitro / laboratory
Authors: Miyaoka, Yu; Yamaguchi, Makiko; Kadota, Chisaki; Hasan, Md Amirul; Kabir, Md Humayun; Shoham, Dany; Murakami, Harumi; Takehara, Kazuaki

The results showed that IBV exposed to SAHW-100 and -200 for a few seconds decreased by 0.21 log(10) and 0.80 log(10), respectively, compared to the pre-exposed samples to SAHWs as controls. These results suggest that SAHWs have rapid in vitro virucidal activity toward aerosolized IBV.

PMID 35093473 · DOI 10.1016/j.virusres.2022.198701 · [PubMed record](#)

218. Effects of tooth bleaching protocols with violet LED and hydrogen peroxide on enamel properties.

2022 · Photodiagnosis and photodynamic therapy · Veterinary & livestock · Animal study
Authors: Costa, Joatan Lucas de Sousa Gomes; Besegato, João Felipe; Zaniaboni, Joissi Ferrari; Galvani, Lucas David; Kuga, Milton Carlos

RESULTS: 6% HP + violet LED and 35% HP showed the highest color change, while violet LED alone had the lowest results. CONCLUSIONS: The use of 6% HP + violet LED showed enhanced bleaching efficacy compared to 35% HP.

PMID 35065278 · DOI 10.1016/j.pdpdt.2022.102733 · [PubMed record](#)

219. A ratiometric fluorescent probe for sensing hypochlorite in physiological saline, bovine serum albumin and fetal bovine/calf serum.

2022 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Veterinary & livestock · Journal article / other
Authors: Fang, Shirong; Wang, Lihong; Mei, Yongtian; Zheng, Kaibo

Furthermore, P-Hc has been applied for sensing HClO/CIO(-) in physiological saline and different serums. Thus, P-Hc may provide a novel method for ratiometric fluorescent sensing HClO/CIO(-) in bio-samples.

PMID 34954481 · DOI 10.1016/j.saa.2021.120738 · [PubMed record](#)

220. Effect of ionizing radiation on human myeloperoxidase: Reaction with hydrated electrons.

2022 · Journal of photochemistry and photobiology. B, Biology · Food & agriculture · Human observational / experimental
Authors: Ramos, Daniel R; Fernández, M Isabel; Furtmüller, Paul G; Obinger, Christian; García, M Victoria; Santaballa, J Arturo; Canle, Moisés

Decay kinetics show a dependence on the wavelength, supporting that the process must occur at peripheral functional groups situated on external and readily accessible locations of the enzyme. These results are relevant to understand the mechanism of resistance of our innate anti-pathogenic defense system and also to get insight into potential strategies to regulate MPO levels as a therapeutic target in autoimmune diseases.

PMID 34864529 · DOI 10.1016/j.jphotobiol.2021.112369 · [PubMed record](#)

221. Luminescence Nanoprobe in the Near-Infrared-II Window for Ultrasensitive Detection of Hypochlorite.

2021 · Analytical chemistry · Food & agriculture · Journal article / other
Authors: Fu, Xiao; Wu, Jinmei; Xu, Huajian; Wan, Pingping; Fu, Huimin; Mei, Qingsong

In this work, we explored a novel luminescent nanoprobe in the near-infrared-II (NIR-II) window to greatly improve the hypochlorite detection limit for analysis of real milk samples, which was based on the fluorescence resonance energy-transfer process between the hypochlorite-responsive dye (FD1080) and the lanthanide-doped downconverted nanoparticles. Real milk sample detection experiments showed that the probe had good accuracy and precision.

PMID 34784176 · DOI 10.1021/acs.analchem.1c03582 · [PubMed record](#)

222. Hypochlorous Acid-Generating Electrochemical Catheter Prototype for Prevention of Intraluminal Infection.

2021 · Microbiology spectrum · Food & agriculture · In vitro / laboratory
Authors: Cano, Edison J; Flurin, Laure; Mohamed, Abdelrhman; Greenwood-Quaintance, Kerry E; Raval, Yash S; Beyenal, Haluk; Patel, Robin

E-catheters prevented infections of all four species, with an average reduction of $8.41 \pm 0.61 \log(10)$ CFU/ml at 48 h compared to controls. Here, this prototype was shown to be able to generate HOCl as well as prevent infection in a preliminary in vitro catheter model.

PMID 34704827 · DOI 10.1128/Spectrum.00557-21 · [PubMed record](#)

223. Can hypochlorous acid be a powerful sanitizer to replace alcohol for disinfection ? -Its bactericidal, degradation of the solutions under various storage condition, and steel rust effects.

2022 · Dental materials journal · Water, sanitation & biosecurity · Journal article / other
Authors: Kameda, Takashi; Oka, Shunya; Igawa, Jun-Ichi; Sakamoto, Makoto; Terada, Kazuto

Results of bactericidal effects of HA revealed that the realistic effective concentration should be 200 ppm. These results indicated that high concentration of HA generated on-site could be an effective and safe disinfectant for use immediately after generation with consideration of object materials in clinical environment, as an alternative to DA.

PMID 34690228 · DOI 10.4012/dmj.2021-146 · [PubMed record](#)

224. Rational design of an HClO-specific triggered self-immolative fluorescent turn-on sensor and its bioimaging applications.

2021 · Journal of materials chemistry. B · Veterinary & livestock · Animal study
Authors: Wang, Xiao-Bo; Zhang, Da-Long; Li, Hui-Jing; Lu, Xuhao; Liu, Quanze; Wu, Yan-Chao

Due to the interrupted π -conjugated structure of the Resorufin dye, the free sensor showed very weak absorption and fluorescence. Thus, sensor RESCLO can provide a simple and promising visual analytical tool for the detection of HClO in the environment and the early diagnosis of HClO-mediated related diseases.

PMID 34632477 · DOI 10.1039/d1tb01721g · [PubMed record](#)

225. A novel ER-targeted two-photon fluorescent probe for monitoring abnormal concentrations of HClO in diabetic mice.

2021 · Journal of materials chemistry. B · Food & agriculture · In vitro / laboratory
Authors: Zhang, Weiyao; Song, Wenhui; Lin, Weiying

Significantly, it has been verified that high glucose can indeed induce oxidative stress of the endoplasmic reticulum and produce excessive HClO. Moreover, the probe has also been successfully used in tissue imaging of diabetic mice.

PMID 34551059 · DOI 10.1039/d1tb01327k · [PubMed record](#)

226. Current status of hypochlorite technology on the wastewater treatment and sludge disposal: Performance, principals and prospects.

2022 · The Science of the total environment · Water, sanitation & biosecurity · Review

Authors: Cheng, Xiaoshi; Wang, Suna; Huang, Wenxuan; Wang, Feng; Fang, Shiyu; Ge, Ran; Zhang, Qin; Zhang, Le; Du, Wei; Fang, Fang; Feng, Qian; Cao, Jiashun; Luo, Jingyang

The results indicated that the hypochlorite approaches were not only effective in pollutants removal and membrane fouling mitigation for wastewater treatment, but also contributed to sludge dewatering and resource recovery for sludge disposal. In combination with the reasonable activators (i.e., Fe(2+) and ultraviolet), auxiliary agents, and innovative processes (i.e., hydrothermal and electro-oxidation), the operational performance of hypochlorite...

PMID 34525771 · DOI 10.1016/j.scitotenv.2021.150085 · [PubMed record](#)

227. One-step synthesis of nitrogen-doped multi-emission carbon dots and their fluorescent sensing in HClO and cellular imaging.

2021 · Mikrokhemika acta · Food & agriculture · Human observational / experimental

Authors: Wang, Chunxia; Pan, Caiwen; Wei, Zitong; Liu, Ji; Song, Zhaoyi; Ma, Wenjun; Wang, Ming; Mao, Lanqun

Theoretical calculation results also reveal that the increasing amount of amino nitrogen into their surface structures of b-CDs, g-CDs to y-CDs is responsible for reduced band gaps energy, which result in the redshifted wavelength. These CDs were employed for HClO sensing and demonstrated to multicolor cellular imaging in HeLa cells.

PMID 34498123 · DOI 10.1007/s00604-021-04973-0 · [PubMed record](#)

228. Hypochlorous acid solution is a potent antiviral agent against SARS-CoV-2.

2022 · Journal of applied microbiology · Veterinary & livestock · Human observational / experimental

Authors: Hatanaka, Noritoshi; Yasugi, Mayo; Sato, Tomoko; Mukamoto, Masafumi; Yamasaki, Shinji

When its concentration increased to 59.4 ppm, the virus titre decreased to below the detection limit (reduction of 5 logs TCID₅₀) within 10 s even in the presence of 0.1% foetal bovine serum. SIGNIFICANCE AND IMPACT OF THE STUDY: Effectiveness of HClO solution against SARS-CoV-2 was demonstrated by both suspension and carrier tests.

PMID 34480823 · DOI 10.1111/jam.15284 · [PubMed record](#)

229. Effect of Mechanical Debridement and Irrigation With Hypochlorous Acid Wound Management Solution on Methicillin-resistant Staphylococcus aureus Contamination and Healing Deep Dermal Wounds in a Porcine Model.

2021 · Wound management & prevention · Veterinary & livestock · Animal study

Authors: Davis, Stephen C; Gil, Joel; Li, Jie; Simms, Colin; Valdes, Jose; Solis, Michael; Higa, Alexander

RESULTS: The WMS effected a bacterial reduction ($P \leq .05$) of more than 2.74 ± 0.43 and 1.03 ± 0.22 Log CFU/g in all assessment days compared with baseline before and after debridement, respectively. CONCLUSION: The combination of debridement and HOCl wound irrigation can significantly reduce MRSA contamination and facilitate the healing process compared to saline irrigation.

PMID 34370678 · [PubMed record](#)

230. Hypochlorous acid initiated lipid chlorination at air-water interface.

2021 · The Science of the total environment · Water, sanitation & biosecurity · Journal article / other

Authors: Guo, Changlu; Yang, Miao; He, Jing; Kan, Guangfeng; Yu, Kai; Liu, Zhuo; Lin, Sifan; Jiang, Jie; Zhang, Hong

The mechanism was discussed in light of these observations, and it is concluded that the increased hydrophilicity of the chlorinated chain disturbed the lipid packing and attracted it toward the water phase. These results gain the knowledge of HOCl mediated lipid interface reaction at the molecule level, and would better understand the adverse health effects associated with elevated indoor pollutants.

PMID 34340067 · DOI 10.1016/j.scitotenv.2021.149320 · [PubMed record](#)

231. Melatonin interferes with COVID-19 at several distinct ROS-related steps.

2021 · Journal of inorganic biochemistry · Food & agriculture · Review

Authors: Camp, Olivia G; Bai, David; Gonullu, Damla C; Nayak, Neha; Abu-Soud, Husam M

This immune response leads to excessive production and accumulation of reactive oxygen species (ROS) that cause clinical signs characteristic of COVID-19 such as decreased oxygen saturation, alteration of hemoglobin properties, decreased nitric oxide (NO) bioavailability, vasoconstriction, elevated cytokines, cardiac and/or renal injury, enhanced D-dimer, leukocytosis, and an increased neutrophil to lymphocyte ratio. This review distinctly highlights both...

PMID 34304092 · DOI 10.1016/j.jinorgbio.2021.111546 · [PubMed record](#)

232. Valorization of high-salinity effluents for CO(2) fixation and hypochlorite generation.

2021 · Chemosphere · Water, sanitation & biosecurity · Journal article / other

Authors: Acosta-Santoyo, Gustavo; León-Fernández, Luis F; Bustos, Erika; Cañizares, Pablo; Rodrigo, M A; Llanos, Javier

The electrolytic process is combined with a reactive absorption and with a crystallization, demonstrating the formation of pure nahcolite, hypochlorite (or chlorine) and hydrogen from the waste. Carbon dioxide is captured with a current efficiency over 90% and the energy required is around 0.65 kWh kg⁻¹, which is very promising from the view point of sustainability, considering that the system can be easily powered with green energies.

PMID 34246099 · DOI 10.1016/j.chemosphere.2021.131359 · [PubMed record](#)

233. Secondary Effects of Hypochlorite Treatment on the Emerging Pollutant Candesartan: The Formation of Degradation Byproducts and Their Toxicological Profiles.

2021 · Molecules (Basel, Switzerland) · Water, sanitation & biosecurity · Animal study

Authors: Luongo, Giovanni; Saviano, Lorenzo; Libralato, Giovanni; Guida, Marco; Siciliano, Antonietta; Previtera, Lucio; Di Fabio, Giovanni; Zarrelli, Armando

On the basis of these results, a mechanism of formation starting from the parent drug is proposed. The ecotoxicity results shed new light on the increased toxicity of DPs compared with the parent compound.

PMID 34198752 · DOI 10.3390/molecules26113422 · [PubMed record](#)

234. Degradation of carbamazepine by UVA/WO(3)/hypochlorite process: Kinetic modelling, water matrix effects, and density functional theory calculations.

2021 · Environmental research · Water, sanitation & biosecurity · Journal article / other

Authors: Ding, Han; Hu, Jiangyong

Furthermore, the water matrix effects were as follows: the optimal pH was 6.2; humic acid, chloride, bicarbonate, and ammonium exhibited inhibitory effects on CBZ degradation; and sulfate ion significantly enhanced the degradation. These findings can be employed in the degradation of recalcitrant contaminants in a cost-effective manner, while being significant for the development of more effective catalysts of UV-assisted advanced oxidation processes.

PMID 34186085 · DOI 10.1016/j.envres.2021.111569 · [PubMed record](#)

235. Antibiofilm Efficacy of Polihexanide, Octenidine and Sodium Hypochlorite/Hypochlorous Acid Based Wound Irrigation Solutions against Staphylococcus aureus, Pseudomonas aeruginosa and a Multispecies Biofilm.

2022 · Advances in experimental medicine and biology · Water, sanitation & biosecurity · Human observational / experimental

Authors: Salisbury, Anne-Marie; Mullin, Marc; Chen, Rui; Percival, Steven L

Infection and the formation of biofilms have been shown to have a significant role in increased inflammation and delayed wound healing. Overall, less efficacy was observed in the drip flow bioreactor model for all 3 test solutions, which may be attributed to the continuous flow of nutrients during treatment, which may have diluted or washed away the solution.

PMID 34173213 · DOI 10.1007/5584_2021_645 · [PubMed record](#)

236. A Bacterial Inflammation Sensor Regulates c-di-GMP Signaling, Adhesion, and Biofilm Formation.

2021 · mBio · Water, sanitation & biosecurity · Animal study

Authors: Perkins, Arden; Tudorica, Dan A; Teixeira, Raphael D; Schirmer, Tilman; Zumwalt, Lindsay; Ogba, O Maduka; Cassidy, C Keith; Stansfeld, Phillip J; Guillemin, Karen

Our findings suggest that CZB domains are zinc-sensitive regulators that allow host-associated bacteria to perceive host inflammation through reactivity with HOCl. In this work, we present findings showing that many host-associated bacteria possess a bleach-sensing protein that allows them to adapt to the presence of this chemical in their environment.

PMID 34154415 · DOI 10.1128/mBio.00173-21 · [PubMed record](#)

237. Comparison of the SARS-CoV-2-inactivating activities of the differently manufactured hypochlorous acid water products with various pH.

2021 · Journal of water and health · Water, sanitation & biosecurity · Human observational / experimental
Authors: Takeda, Yohei; Matsuda, Sachiko; Jamsransuren, Dulamjav; Ogawa, Haruko

Here, we compared the SARS-CoV-2-inactivating activities of various HAW products. Our results may guide in choosing appropriate HAW products for different usage situations.

PMID 34152297 · DOI 10.2166/wh.2021.260 · [PubMed record](#)

238. Topical hypochlorous acid (HOCl) blocks inflammatory gene expression and tumorigenic progression in UV-exposed SKH-1 high risk mouse skin.

2021 · Redox biology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Jandova, Jana; Snell, Jeremy; Hua, Anh; Dickinson, Sally; Fimbres, Jocelyn; Wondrak, Georg T

Next, co-exposure studies (combining topical HOCl and UV) performed in SKH-1 hairless mouse skin revealed that the HOCl-induced cutaneous stress response blocks redox and inflammatory gene expression elicited by subsequent acute UV exposure (Nos2, Ptgs2, Hmox1, Srxn1), a finding consistent with emerging clinical evidence in support of a therapeutic role of topical HOCl formulations for the suppression of inflammatory skin conditions (e.g. atopic...

PMID 34144392 · DOI 10.1016/j.redox.2021.102042 · [PubMed record](#)

239. Efficacy of Hypochlorite in Disinfesting Nonfungal Plant Pathogens in Agricultural and Horticultural Plant Production: A Meta-Analysis.

2021 · Plant disease · Food & agriculture · Systematic review / meta-analysis
Authors: Copes, Warren E; Ojiambo, Peter S

Hypochlorite resulted in a significant ($P < 0.0001$) reduction in disease intensity or propagule viability, with a mean Hedges' g standardized difference ([Formula: see text]) of 3.01, indicating that overall, hypochlorite treatments are highly effective. These results show that although the current recommended rates for dosage and contact time for commercial bleach products are generally expected to result in effective disinfestation, the efficacy against...

PMID 34129349 · DOI 10.1094/PDIS-09-20-2046-RE · [PubMed record](#)

240. A phenothiazine coumarin based ratiometric fluorescent probe for real-time detection of lysosomal hypochlorite in living cell and zebra fish.

2021 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Veterinary & livestock · Animal study
Authors: Liu, Jiaojiao; Niu, Peixin; Rong, Yifan; Chen, Wenqiang; Liu, Xingjiang; Wei, Liuhe; Song, Xiangzhi

Upon reaction with ClO(-), this probe was subjected to a significant fluorescence change from red emission ($\lambda_{\text{max}}\text{em} = 610 \text{ nm}$) to green emission ($\lambda_{\text{max}}\text{em} = 535 \text{ nm}$) with the ratio of $I(535 \text{ nm})/I(610 \text{ nm})$ displaying a 76-fold enhancement from 0.04 to 3.03. The confocal imaging experiments for Cou-Lyso showed that this probe could detect ClO(-) in living cell and zebra fish.

PMID 34119769 · DOI 10.1016/j.saa.2021.120024 · [PubMed record](#)

241. Rational design of AIE-based fluorescent probes for hypochlorite detection in real water samples and live cell imaging.

2021 · Journal of hazardous materials · Water, sanitation & biosecurity · Human observational / experimental
Authors: Xu, Chenggong; Zhou, Yanmei; Li, Zhaohe; Zhou, Yunhao; Liu, Xiaoqiang; Peng, Xiaojun

The results showed that the substituents can not only effectively tune the photophysical properties of the probes, but also make a significant impact on their sensing performance for ClO(-). Combined with the theoretical calculation results, it can be inferred that the reactivity of the probes for ClO(-) can be greatly enhanced with the increase of electron cloud density on the C=C double bonds by the introduction of strong electron-donating group (EDG)...

PMID 34102351 · DOI 10.1016/j.jhazmat.2021.126243 · [PubMed record](#)

242. Evaluation of hydroxyl radical and reactive chlorine species generation from the superoxide/hypochlorous acid reaction as the basis for a novel advanced oxidation process.

2021 · Water research · Water, sanitation & biosecurity · Journal article / other
Authors: Liou, Sin-Yi; Dodd, Michael C

Similar trends were observed in natural waters and organic matter-amended phosphate buffer containing up to 5 mgC/L of dissolved organic carbon. Direct formation of oxyhalides, trihalomethanes (THMs), and haloacetic acids (HAAs), was minimal, though THM and HAA formation was moderately enhanced during post-chlorination of O₂(•-)/FAC-treated solutions.

PMID 34052475 · DOI 10.1016/j.watres.2021.117142 · [PubMed record](#)

243. Deletion of both methionine sulfoxide reductase A and methionine sulfoxide reductase C genes renders Salmonella Typhimurium highly susceptible to hypochlorite stress and poultry macrophages.

2021 · Molecular biology reports · Veterinary & livestock · In vitro / laboratory

Authors: Nair, Sonu S; Chauhan, Tapan Kumar Singh; Kumawat, Manoj; Sarkhel, Ratanti; Apoorva, Shekhar; Shome, Arijit; Athira, V; Kumar, Bablu; Abhishek; Mahawar, Manish

Further, Δ msrA and Δ msrA Δ msrC mutant strains showed more than 8 and 26 folds more susceptibility to poultry macrophages, respectively. Our data suggest that the deletion of both msrA and msrC genes severely affect the oxidative stress survival and intramacrophage proliferation of S.

PMID 33954903 · DOI 10.1007/s11033-021-06381-2 · [PubMed record](#)

244. The Safety and Antimicrobial Properties of Stabilized Hypochlorous Acid in Acetic Acid Buffer for the Treatment of Acute Wounds-a Human Pilot Study and In Vitro Data.

2023 · The international journal of lower extremity wounds · Water, sanitation & biosecurity · Clinical trial

Authors: Burian, Ewa A; Sabah, Lubna; Kirketerp-Møller, Klaus; Ibstedt, Elin; Fazli, Magnus M; Gundersen, Glenn

Excellent wound healing and satisfying antimicrobial properties were observed. A subsequent in vitro biofilm study also indicated good antimicrobial activity against Pseudomonas aeruginosa with a 96% mean reduction of CFU, when used for a treatment duration of 15 min ($P < .0001$), and a 50% decrease for Staphylococcus aureus ($P = .1010$).

PMID 33949232 · DOI 10.1177/15347346211015656 · [PubMed record](#)

245. Hypochlorous acid-modified human serum albumin suppresses MHC class II - dependent antigen presentation in pro-inflammatory macrophages.

2021 · Redox biology · Water, sanitation & biosecurity · Human observational / experimental

Authors: Ulfig, Agnes; Bader, Verian; Varatnitskaya, Marharyta; Lupilov, Natalie; Winkhofer, Konstanze F; Leichert, Lars I

Initially, N-chlorinated HSA inhibits antigen internalization by converting antigens into scavenger receptor (SR) ligands and competing with the modified antigens for binding to SR CD36. On the flip side, excessive retardation or complete inhibition of antigen presentation by N-chlorinated plasma proteins could contribute to chronic infection and inflammation.

PMID 33940547 · DOI 10.1016/j.redox.2021.101981 · [PubMed record](#)

246. Mechanism of cyanocobalamin chlorination by hypochlorous acid.

2021 · Journal of biological inorganic chemistry : JBIC : a publication of the Society of Biological Inorganic Chemistry · Food & agriculture · In vitro / laboratory

Authors: Dereven'kov, Ilia A; Osokin, Vladimir S; Hannibal, Luciana; Makarov, Sergei V; Khodov, Ilya A; Koifman, Oskar I

Previous work suggested that HOCl modifies the corrin ring of cobalamins to yield chlorinated species via mechanisms that are incompletely understood. Formation of C10-Cl-CNCbl-c-lactone was not observed at $\text{pH} \geq 9.9$.

PMID 33914169 · DOI 10.1007/s00775-021-01869-5 · [PubMed record](#)

247. A novel ratiometric and colorimetric chemosensor for highly sensitive, selective and ultrafast tracing of HClO in live cells, bacteria and zebrafish.

2021 · Analytica chimica acta · Water, sanitation & biosecurity · Human observational / experimental

Authors: Ding, Feng; Wen, Han; Zhuo, Ruijiang; Li, Jiawei; Zheng, Hui; Deng, Yuru; Shen, Jianliang; He, Xiaojun

Further analysis results indicated that CMTH can realize highly sensitive with low limit of detection (256 nM, among the best of its kind) and highly selective (over a bunch of interfering analytes) imaging detection of HClO in multiple organisms with low cytotoxicity, and good cell and tissue permeability as well. In particular, compared to other fluorescent HClO probes reported so far, CMTH excels in the response time to HClO (< 40 s), being the...

PMID 33896562 · DOI 10.1016/j.aca.2021.338472 · [PubMed record](#)

248. Endolysin LysSTG2: Characterization and application to control Salmonella Typhimurium biofilm alone and in combination with slightly acidic hypochlorous water.

2021 · Food microbiology · Food & agriculture · Journal article / other

Authors: Zhang, Yu; Huang, Hung-Hsin; Duc, Hoang Minh; Masuda, Yoshimitsu; Honjoh, Ken-Ichi; Miyamoto, Takahisa

These results demonstrate that LysSTG2 alone can effectively kill S. Typhimurium in biofilms in combination with SAHW, suggesting that the combined use of LysSTG2 and SAHW might be a novel and promising method for combating S.

PMID 33875220 · DOI 10.1016/j.fm.2021.103791 · [PubMed record](#)

249. *Mycobacterium smegmatis* Resists the Bactericidal Activity of Hypochlorous Acid Produced in Neutrophil Phagosomes.

2021 · Journal of immunology (Baltimore, Md. : 1950) · Water, sanitation & biosecurity · Human observational / experimental
Authors: Parker, Heather A; Dickerhof, Nina; Forrester, Lorna; Ryburn, Heath; Smyth, Leon; Messens, Joris; Aung, Htin L; Cook, Gregory M; Kettle, Anthony J; Hampton, Mark B

We measured a $t_{1/2}$ of 30 min for the survival of *M. smegmatis* inside neutrophils, which is 5 times longer than that reported for *Staphylococcus aureus* and 15 times longer than *Escherichia coli*. Live-cell imaging indicated that neutrophils generated HOCl in phagosomes containing *M. smegmatis*; however, inhibition of HOCl production did not alter the rate of bacterial killing. Collectively, these findings suggest that *M. smegmatis* can cope with the HOCl...

PMID 33753427 · DOI 10.4049/jimmunol.2001084 · [PubMed record](#)

250. Evaluation of Decontamination Efficacy of Electrolytically Generated Hypochlorous Acid for the Vesicating Agent: A Multimodel Study.

2022 · Current pharmaceutical biotechnology · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Sharma, Ajay Kumar; Shukla, Sandeep Kumar; Kalonia, Aman; Shaw, Priyanka; Khanna, Kushagra; Yashavardhan, M H; Gupta, Richa; Bhatnagar, Aseem

RESULTS: The topical application of pre-treated CEES at 5, 30 min and 1 h time points showed significant ($p < 0.001$) inhibition of blister formation. DNA damage study showed reduced mean fluorescence intensity of DSBs nearly 17-20 times, suggesting that HOCl plays a protective role against DNA damage.

PMID 33719970 · DOI 10.2174/1389201022666210311140922 · [PubMed record](#)

251. Virucidal activity of slightly acidic hypochlorous acid water toward influenza virus and coronavirus with tests simulating practical usage.

2021 · Virus research · Water, sanitation & biosecurity · Animal study
Authors: Miyaoka, Yu; Kabir, Md Humayun; Hasan, Md Amirul; Yamaguchi, Makiko; Shoham, Dany; Murakami, Harumi; Takehara, Kazuaki

With the dropping technique, IBV on carriers showed high resistance to SAHW, while AIV on plastic carrier was inactivated to an effective level (■3 log virus reduction) within 1 min. The findings we obtained concerning IBV might basically be applicable in relation to SARS-CoV-2, given the resemblance between the two viruses.

PMID 33705798 · DOI 10.1016/j.virusres.2021.198383 · [PubMed record](#)

252. A sprayable Acid-Oxidizing solution containing hypochlorous acid (AOS2020) efficiently and safely inactivates SARS-Cov-2: a new potential solution for upper respiratory tract hygiene.

2021 · European archives of oto-rhino-laryngology : official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS) : affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Giarratana, Nadia; Rajan, Balan; Kamala, Kannan; Mendenhall, Michelle; Reiner, Giorgio

RESULTS: In pre-clinical tests, the AOS2020, showed > 99.8% virucidal efficacy in < 1 min against SARS-Cov-2. CONCLUSION: These initial results indicate that this product has the potential treatment to reduce viral load in the upper respiratory tract.

PMID 33575830 · DOI 10.1007/s00405-021-06644-5 · [PubMed record](#)

253. The Responses of Bioactive Betanin Pigment and Its Derivatives from a Red Beetroot (*Beta vulgaris* L.) Betalain-Rich Extract to Hypochlorous Acid.

2021 · International journal of molecular sciences · Food & agriculture · In vitro / laboratory
Authors: Starzak, Karolina; Sutor, Katarzyna; ■wiergosz, Tomasz; Nemzer, Boris; Pietrzkowski, Zbigniew; Popenda, ■ukasz; Liu, Shi-Rong; Wu, Shu-Pao; Wybraniec, S■awomir

Recent reports suggest that betacyanin plant pigments can act as potent scavengers of inflammatory factors and are notably effective against HOCl. This suggests that it may be an important food-based candidate for management of inflammatory conditions induced by excessive HOCl production.

PMID 33503808 · DOI 10.3390/ijms22031155 · [PubMed record](#)

254. *Actinidia arguta* Pulp: Phytochemical Composition, Radical Scavenging Activity, and in Vitro Cells Effects.

2021 · Chemistry & biodiversity · Food & agriculture · In vitro / laboratory
Authors: Pinto, Diana; Sut, Stefania; Dall'Acqua, Stefano; Delerue-Matos, Cristina; Rodrigues, Francisca

Regarding in vitro scavenging capacity, the pulp revealed the highest scavenging power against NO(.) (IC(50) = 3.45 µg/mL) and HOCl (IC(50) = 12.77 µg/mL). These results emphasize the richness of *A. arguta* fruit pulp to be used in different food products.

PMID 33491874 · DOI 10.1002/cbdv.202000925 · [PubMed record](#)

255. Hypochlorite-induced aggregation of fibrinogen underlies a novel antioxidant role in blood plasma.

2021 · Redox biology · Food & agriculture · In vitro / laboratory

Authors: Mañucat-Tan, Noralyn; Zeineddine Abdallah, Rafaa; Kaur, Harsimran; Saviane, Daniel; Wilson, Mark R; Wyatt, Amy R

Hypochlorite-modified fibrinogen is stable at 37 °C as assessed by precipitation assays, and has reduced susceptibility to iron-induced (hydroxyl-mediated) precipitation compared to native fibrinogen. We propose that reaction of hypochlorite with fibrinogen in blood plasma potentially reduces the accumulation of other hypochlorite-modified species such as immunostimulatory hypochlorite-modified albumin.

PMID 33440293 · DOI 10.1016/j.redox.2020.101847 · [PubMed record](#)

256. An Integrated HOCl-Producing E-Scaffold Is Active against Monomicrobial and Polymicrobial Biofilms.

2021 · Antimicrobial agents and chemotherapy · Food & agriculture · In vitro / laboratory

Authors: Flurin, Laure; Raval, Yash S; Mohamed, Abdelrhman; Greenwood-Quaintance, Kerry E; Cano, Edison J; Beyenal, Haluk; Patel, Robin

Four hours of polarization caused an average reduction of 6.13 log(10) CFU/cm(2) (± 1.99 log(10) CFU/cm(2)) of viable cell counts of monospecies biofilms and 5.53 log(10) CFU/cm(2) (± 2.31 log(10) CFU/cm(2)) for the 12 dual-species biofilms studied. The described integrated e-scaffold reduces viable bacterial cell counts in biofilms formed by an array of antibiotic-susceptible and -resistant bacteria alone and in combination.

PMID 33397650 · DOI 10.1128/AAC.02007-20 · [PubMed record](#)

257. Distinct effects of hypochlorite types on the reduction of antibiotic resistance genes during waste activated sludge fermentation: Insights of bacterial community, cellular activity, and genetic expression.

2021 · Journal of hazardous materials · Water, sanitation & biosecurity · Journal article / other

Authors: Luo, Jingyang; Huang, Wenxuan; Zhang, Qin; Wu, Yang; Fang, Fang; Cao, Jiashun; Su, Yinglong

The extracellular polymeric substances dissolution and membrane integrity suggested that unstable NaClO had acute effects on bacteria initially, while it was ineffective to further attenuate ARGs released from hosts due to the rapid consumption of oxidative ClO(-). Furthermore, bacterial taxa-ARG network analysis indicated that Ca(ClO)(2) reduced the abundance of potential hosts, and the metabolic pathway and gene expression related to ARGs propagation...

PMID 33265039 · DOI 10.1016/j.jhazmat.2020.124010 · [PubMed record](#)

258. Role of Carbonate Species on General Acid Catalysis of Bromide Oxidation by Hypochlorous Acid (HOCl) and Oxidation by Molecular Chlorine (Cl(2)).

2020 · Environmental science & technology · Water, sanitation & biosecurity · Journal article / other

Authors: Brodfuehrer, Samuel H; Wahman, David G; Alsulaili, Abdalrahman; Speitel, Gerald E Jr; Katz, Lynn E

Previous work has shown that Br(-) oxidation by HOCl and Cl(2) formation are acid-catalyzed and Cl(2) hydrolysis is base-catalyzed, but the impact of carbonate species had not been studied. This work showed that the carbonate species have an enhanced catalytic impact with rate constants up to 1000 times larger than would be estimated by the Brønsted relationship for similar acids, which causes the oxidation by HOCl rate constant (k(HOCl)) to nearly double...

PMID 33263389 · DOI 10.1021/acs.est.0c04563 · [PubMed record](#)

259. Comparison of Skin Antiseptic Agents and the Role of 0.01% Hypochlorous Acid.

2021 · Aesthetic surgery journal · Water, sanitation & biosecurity · Human observational / experimental

Authors: Tran, Ann Q; Topilow, Nicole; Rong, Andrew; Persad, Patrice J; Lee, Michael C; Lee, James H; Anagnostopoulos, Apostolos G; Lee, Wendy W

CONCLUSIONS: CHG reduced the bacterial growth compared with HA, PI, and IPA. Our study provides a supporting role of HA to be considered as an antiseptic.

PMID 33247899 · DOI 10.1093/asj/sjaa322 · [PubMed record](#)

260. Kinetics of Bacterial Inactivation by Peroxynitric Acid in the Presence of Organic Contaminants.

2021 · Applied and environmental microbiology · Veterinary & livestock · Human observational / experimental

Authors: Yokoyama, Takashi; Miyazaki, Shinya; Akagi, Hiroko; Ikawa, Satoshi; Kitano, Katsuhisa

The bactericidal potential of both disinfectants was reduced by bovine serum albumin (BSA); however, PNA showed about 30-times-higher resistance against BSA inhibition than HOCl. Moreover, the high resistance of PNA to organic load was confirmed, indicating that PNA will inactivate bacteria effectively even on contaminated surfaces, such as used medical devices or the human body surface.

PMID 33127816 · DOI 10.1128/AEM.01860-20 · [PubMed record](#)

261. In-office bleaching with low/medium vs. high concentrate hydrogen peroxide: A systematic review and meta-analysis.

2020 · Journal of dentistry · Food & agriculture · Systematic review / meta-analysis

Authors: Maran, Bianca Medeiros; Matos, Thalita de Paris; de Castro, Andrea Dos Santos; Vochikovski, Laína; Amadori, Ana Luiza; Loguercio, Alessandro D; Reis, Alessandra; Berger, Sandrine Bittencourt

No significant difference in color change was detected among groups, except from the subgroup low vs. high HP for the immediate color change, but this difference is not clinically relevant. CLINICAL SIGNIFICANCE: The use of low concentrate hydrogen peroxide products may produce the same color change efficacy with the bonus of having lower risk and intensity of bleaching sensitivity.

PMID 33068711 · DOI 10.1016/j.jdent.2020.103499 · [PubMed record](#)

262. Decomposition performance of hypochlorite on bead-type NiO(x)(OH)(y) catalyst: improving applicability of catalysts.

2020 · Water science and technology : a journal of the International Association on Water Pollution Research · Water, sanitation & biosecurity · Journal article / other

Authors: Xu, Wenying; Gao, Haoyang

An easy-to-use, pollution-free and reusable beaded NiO(x)(OH)(y) catalyst for improving hypochlorite oxidation was prepared by impregnating the mixture of persulfate and alkali over alumina and then reduced it with Ni(2+). The hypochlorite conversion rate increased with the catalyst dosage and reuse times, and decreased with available chlorine, while pH of hypochlorite solution had little effect on the conversion rate.

PMID 33031074 · DOI 10.2166/wst.2020.402 · [PubMed record](#)

263. Redox regulation in host-pathogen interactions: thiol switches and beyond.

2021 · Biological chemistry · Water, sanitation & biosecurity · Review

Authors: Varatnitskaya, Marharyta; Degrossoli, Adriana; Leichert, Lars I

Recent studies have shown that both host and bacteria address failing protein homeostasis by activation of chaperone-like holdases through N-chlorination. Recent studies using genetically encoded redox probes and redox proteomics highlight differences in redox homeostasis in host and pathogen and give first hints at potential cellular HOCl signaling beyond thiol-disulfide switch mechanisms.

PMID 33021957 · DOI 10.1515/hsz-2020-0264 · [PubMed record](#)

264. Roles of RcsA, an AhpD Family Protein, in Reactive Chlorine Stress Resistance and Virulence in *Pseudomonas aeruginosa*.

2020 · Applied and environmental microbiology · Food & agriculture · Journal article / other

Authors: Nontaleerak, Benya; Duang-Nkern, Jintana; Wongsaroj, Lampet; Trinachartvanit, Wachareeporn; Romsang, Adisak; Mongkolsuk, Skorn

After allelic exchange mutagenesis in the *P. aeruginosa* rcsA, the *P. aeruginosa* rcsA deletion mutant showed significantly decreased HOCl resistance. Ectopic expression of *P. aeruginosa* rcsA led to significantly increased NaOCl resistance in *Escherichia coli*. Moreover, the pathogenicity of the rcsA mutant decreased dramatically in both *Caenorhabditis elegans* and *Drosophila melanogaster* host model systems compared to the wild type (WT).

PMID 32801171 · DOI 10.1128/AEM.01480-20 · [PubMed record](#)

265. Evaluating the bactericidal action of hypochlorous acid in culture media.

2020 · Free radical biology & medicine · Water, sanitation & biosecurity · Journal article / other

Authors: Ashby, Louisa V; Springer, Reuben; Hampton, Mark B; Kettle, Anthony J; Winterbourn, Christine C

Our results showed that more reagent HOCl was required to kill bacteria in culture media than in aqueous buffer, and this corresponded to the lower concentration of reactive chlorine species achieved in the media. In summary, we demonstrate that the choice of media as well as procedural details within experiments crucially impact the cellular toxicity of HOCl.

PMID 32739594 · DOI 10.1016/j.freeradbiomed.2020.07.033 · [PubMed record](#)

266. The novel HOCl fluorescent probe CAN induced A549 apoptosis by inhibiting chlorination activity of MPO.

2020 · Bioorganic & medicinal chemistry letters · Water, sanitation & biosecurity · In vitro / laboratory

Authors: An, Zaiyong; Zhao, Zhimin; Zhao, Lin; Yue, Qiulin; Li, Kunlun; Zhao, Baoxiang; Miao, Junying; Su, Le

These findings suggested that CAN (below 1 μ M) would develop into a HOCl probe. A549 could be induced apoptosis by reducing the HOCl level by CAN.

PMID 32717611 · DOI 10.1016/j.bmcl.2020.127394 · [PubMed record](#)

267. The effects of neutrophil-generated hypochlorous acid and other hypohalous acids on host and pathogens.

2021 · Cellular and molecular life sciences : CMLS · Water, sanitation & biosecurity · Review
Authors: Ulfig, Agnes; Leichert, Lars I

Recent studies have shown that plasma proteins act not only as sinks for HOCl, but get actively transformed into modulators of the cellular immune response through N-chlorination. Finally, we take a look at the emerging role of HOCl as a potential signaling molecule, particularly its role in neutrophil extracellular trap formation.

PMID 32661559 · DOI 10.1007/s00018-020-03591-y · [PubMed record](#)

268. Hypochlorite-induced porcine model of peritoneal fibrosis through the activation of IL1 β -CX3CL1-TGF β 1 signal axis.

2020 · Scientific reports · Veterinary & livestock · In vitro / laboratory
Authors: Hsu, Yu-Ting; Wu, Ching-Ho; Chao, Chun-Yuan; Wei, Yu-Syuan; Chang, Yen-Chen; Chen, Yi-Ting; Lin, Shuei-Liong; Tsai, Su-Yi; Lee, Ya-Jane; Tsai, Pei-Shiue

We showed that administration 15-30 mM hypochlorite, a dose- and time-dependent severity of peritoneal fibrosis characterized by mesothelium fragmentation, α SMA(+) myofibroblasts accumulation, organ surface thickening and type I collagen deposition were observed. We also demonstrated in vitro using human mesothelial cells that hypochlorite-induced fibrosis was likely due to necrosis, but not programmed apoptosis; besides, overexpression of IL1 β , CX3CL1...

PMID 32661265 · DOI 10.1038/s41598-020-68495-0 · [PubMed record](#)

269. The Chlorination of N-Methyl Amino Acids with Hypochlorous Acid: Kinetics and Mechanisms.

2020 · Chemical research in toxicology · Water, sanitation & biosecurity · Journal article / other
Authors: Simon, Fruzsina; Kiss, Eszter; Szabó, Mária; Fábíán, István

This feature is most likely due to the lack of an alkyl substituent on the α -carbon atom. Under physiological pH, aldehydes and methylamine form in these reactions, which are not particularly toxic.

PMID 32633499 · DOI 10.1021/acs.chemrestox.0c00222 · [PubMed record](#)

270. The composition of chlorinated or oxidized phosphatidylcholine products changes with hypochlorite concentration: Application to abscess lipid analysis.

2020 · Legal medicine (Tokyo, Japan) · Water, sanitation & biosecurity · Human observational / experimental
Authors: Hoshioka, Yumi; Abe, Hiroko; Yajima, Daisuke; Makino, Yohsuke; Yamaguchi, Rutsuko; Saitoh, Hisako; Inokuchi, Go; Motomura, Ayumi; Nagasawa, Sayaka; Iwase, Hirotaro

The detections of oxidized phosphatidylcholines in human tissues might indicate previous exposure to hypochlorous acid in septic cases. Our results provide insight into the mechanisms underlying pathogen survival following inflammation associated with neutrophil activation and topical myeloperoxidase release and show postmortem biomarkers candidates for sepsis.

PMID 32516737 · DOI 10.1016/j.legalmed.2020.101724 · [PubMed record](#)

271. Evidence-Based Review of Antibiofilm Agents for Wound Care.

2021 · Advances in wound care · Water, sanitation & biosecurity · Review
Authors: Weigelt, Maximilian A; McNamara, Stephanie A; Sanchez, Daniela; Hirt, Penelope A; Kirsner, Robert S

This review aims to discuss the mode of action and clinical significance of currently available antibiofilm products, including surfactants, dressings, and others, with a focus on levels of evidence for efficacy in disrupting biofilms and ability to improve wound healing outcomes. The development of noninvasive techniques to quantify biofilms will facilitate increased ease of research about biofilms in wounds and how to combat them.

PMID 32496980 · DOI 10.1089/wound.2020.1193 · [PubMed record](#)

272. Epileptic brain fluorescent imaging reveals apigenin can relieve the myeloperoxidase-mediated oxidative stress and inhibit ferroptosis.

2020 · Proceedings of the National Academy of Sciences of the United States of America · Water, sanitation & biosecurity · Animal study
Authors: Shao, Chenwen; Yuan, Jiwen; Liu, Yani; Qin, Yajuan; Wang, Xueao; Gu, Jin; Chen, Guiquan; Zhang, Bing; Liu, Hong-Ke; Zhao, Jing; Zhu, Hai-Liang; Qian, Yong

Herein, we report an efficient two-photon fluorescence probe (named HCP) for the real-time detection of endogenous HClO signals generated by MPO in the brain of kainic acid (KA)-induced epileptic mice, where HClO-dependent chlorination of quinolone fluorophore gives the enhanced fluorescence response. Moreover, from this screen, we identified that the flavonoid compound apigenin can relieve the MPO-mediated oxidative stress and inhibit the ferroptosis of...

PMID 32327603 · DOI 10.1073/pnas.1917946117 · [PubMed record](#)

273. Effect of physio-chemical seed treatments on opium poppy downy mildews caused by *Peronospora meconopsidis* and *P. somniferi*.

2020 · PloS one · Food & agriculture · Journal article / other

Authors: Thangavel, Tamilarasan; Scott, Jason; Jones, Suzanne; Gugalothu, Ramya; Wilson, Calum

The most effective treatment methods were seed washes in acidified electrolytic water (400 ppm hypochlorous acid for 5 min) and hypochlorite solution (2% NaOCl for 5 min). In seed to seedling transmission assays, these two treatments reduced transmission of *P. somniferi* by 88.8% and 74.61%, and *P. meconopsidis* by 93.3% and 100%, respectively.

PMID 32275719 · DOI 10.1371/journal.pone.0230801 · [PubMed record](#)

274. Hypochlorous acid-generating electrochemical scaffold eliminates *Candida albicans* biofilms.

2020 · Journal of applied microbiology · Veterinary & livestock · In vitro / laboratory

Authors: Zmuda, H M; Mohamed, A; Raval, Y S; Call, D R; Schuetz, A N; Patel, R; Beyenal, H

There was a decrease in the number of viable mammalian cells ($35.6 \pm 6.4\%$) in uninfected porcine dermal explants exposed to continuous HOCl-generating e-scaffolds for 24 h compared to explants exposed to nonpolarized e-scaffolds (not generating HOCl) ($P < 0.05$). SIGNIFICANCE AND IMPACT OF THE STUDY: Wound infections caused by *C. albicans* are difficult to treat due to presence of biofilms in wound beds.

PMID 32249986 · DOI 10.1111/jam.14656 · [PubMed record](#)

275. A multimodel regime for evaluating effectiveness of antimicrobial wound care products in microbial biofilms.

2020 · Wound repair and regeneration : official publication of the Wound Healing Society [and] the European Tissue Repair Society · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Stoffel, Joseph J; Kohler Riedi, Petra L; Hadj Romdhane, Brittany

Statistically significant differences in antimicrobial performance were observed between treatments in each model and changing microbial growth conditions or combinations of organisms resulted in significant performance differences for some treatments. Unexpectedly, the iodine product was statistically ($P > .05$) no different than the untreated control, while the benzalkonium chloride containing product significantly ($P < .05$) reduced the biofilm compared...

PMID 32175636 · DOI 10.1111/wrr.12806 · [PubMed record](#)

276. Bacterial Defense Systems against the Neutrophilic Oxidant Hypochlorous Acid.

2020 · Infection and immunity · Water, sanitation & biosecurity · Review

Authors: Sultana, Sadia; Foti, Alessandro; Dahl, Jan-Ulrik

We then discuss sophisticated adaptive strategies that bacteria have developed to enhance their survival during HOCl stress. Understanding bacterial defense and survival strategies against one of the most powerful neutrophilic oxidants may provide novel insights into treatment options that potentially compromise the ability of pathogens to resist HOCl stress and therefore may increase the efficacy of the innate immune response.

PMID 32152198 · DOI 10.1128/IAI.00964-19 · [PubMed record](#)

277. Ratiometric electrochemical molecular switch for sensing hypochlorous acid: Applicable in food analysis and real-time in-situ monitoring.

2020 · Analytica chimica acta · Food & agriculture · Animal study

Authors: Kumaravel, Sakthivel; Balamurugan, T S T; Jia, Shun-Hong; Lin, Hsin-Yi; Huang, Sheng-Tung

The scheme was manipulated to establish a highly selective (in presence of various reactive oxygen species, anions and other biological interfering species) and sensitive (detection limit 75 nM) sensing platform not only in lab samples but also in real samples (food samples, and live cells). Real-time in situ quantification platform was developed to profile HClO productions in macrophages, and it did so with great consistency.

PMID 32145845 · DOI 10.1016/j.aca.2020.01.065 · [PubMed record](#)

278. Disinfection by-products and ecotoxic risk associated with hypochlorite treatment of irbesartan.

2020 · The Science of the total environment · Water, sanitation & biosecurity · Journal article / other

Authors: Romanucci, Valeria; Siciliano, Antonietta; Guida, Marco; Libralato, Giovanni; Saviano, Lorenzo; Luongo, Giovanni; Previtera, Lucio; Di Fabio, Giovanni; Zarrelli, Armando

Recently, many studies highlighted the consistent finding of irbesartan in effluents from wastewater treatment plants (WWTPs) and in some rivers and lakes in both Europe and North America, suggesting that no >80% can be removed by specific treatments. A preliminary ecotoxicity assessment with the crustacean *Daphnia magna* showed that some of the identified by-products were up to 12-times more toxic than irbesartan.

PMID 32050394 · DOI 10.1016/j.scitotenv.2019.135625 · [PubMed record](#)

279. Antimicrobial efficacy of a very stable hypochlorous acid formula compared with other antiseptics used in treating wounds: in-vitro study on micro-organisms with or without biofilm.

2020 · The Journal of hospital infection · Water, sanitation & biosecurity · Human observational / experimental

Authors: Herruzo, R; Herruzo, I

Lower concentrations of ClHO, as well as of the other antiseptics studied, were less effective or more altered by the biofilm. ClHO at a concentration of 1500 mg/L is very effective in the presence or absence of biofilm that can be used on healthy skin for 5 min.

PMID 31987843 · DOI 10.1016/j.jhin.2020.01.013 · [PubMed record](#)

280. Structural Study on Hypochlorous Acid-Mediated Chlorination of Betanin and Its Decarboxylated Derivatives from an Anti-Inflammatory Beta vulgaris L. Extract.

2020 · Molecules (Basel, Switzerland) · Water, sanitation & biosecurity · Human observational / experimental

Authors: Kumorkiewicz-Jamro, Agnieszka; Starzak, Karolina; Sutor, Katarzyna; Nemzer, Boris; Pietrzkowski, Zbigniew; Popenda, ■ukasz; Wybraniec, S■awomir

Recent reports suggest that betacyanin plant pigments can act as potent scavengers of inflammatory factors and are notably effective against HOCl. Therefore, out of the aqueous free chlorine equilibrium species: HOCl, OCl(-), Cl(2), and Cl(2)O, the most potent chlorinating agents are HOCl and Cl(2)O postulated previously and the attack of the Cl(■) ion on the carbon C-18 with a cyclic intermediate version is considered.

PMID 31963358 · DOI 10.3390/molecules25020378 · [PubMed record](#)

281. Enhancement of the Aggregation-Induced Emission by Hydrogen Bond for Visualizing Hypochlorous Acid in an Inflammation Model and a Hepatocellular Carcinoma Model.

2020 · Analytical chemistry · Food & agriculture · In vitro / laboratory

Authors: Han, Xiaomin; Ma, Yufan; Chen, Yuzhi; Wang, Xuefei; Wang, Zhuo

During the process, HOTN shows significantly better response than COTN. The slightly different chemical structures of COTN and HOTN result in a significant response to HClO.

PMID 31913021 · DOI 10.1021/acs.analchem.9b05347 · [PubMed record](#)

282. Short-Term Guideline Values for Chlorine in Marine Waters.

2020 · Environmental toxicology and chemistry · Water, sanitation & biosecurity · Review

Authors: Batley, Graeme E; Simpson, Stuart L

In applying these conservative guideline values in field situations, it would need to be demonstrated that concentrations of CPOs would be reduced to below the guideline value within an acceptable mixing zone through both dilution and dissociation. Environ Toxicol Chem 2020;39:754-764. © 2020 SETAC.

PMID 31907965 · DOI 10.1002/etc.4661 · [PubMed record](#)

283. Developing chlorine-based antiseptic by electrolysis.

2020 · The Science of the total environment · Food & agriculture · Journal article / other

Authors: Mourad, Khaldoun A; Hobro, Sture

The results showed that 0.005-0.01% hydrochloride water can be a perfect antiseptic that can kill most bacteria and pathogenies within 12 s. The results also showed that the most efficient way was to produce the solution on-site.

PMID 31905555 · DOI 10.1016/j.scitotenv.2019.136108 · [PubMed record](#)

284. Topical stabilized hypochlorous acid: The future gold standard for wound care and scar management in dermatologic and plastic surgery procedures.

2020 · Journal of cosmetic dermatology · Water, sanitation & biosecurity · Review

Authors: Gold, Michael H; Andriessen, Anneke; Bhatia, Ashish C; Bitter, Patrick Jr; Chilukuri, Suneel; Cohen, Joel L; Robb, Chris W

Moreover, HOCl is active against biofilm and increases oxygenation of the wound site to improve healing. RESULTS: Topical stabilized HOCl provides an optimal wound healing environment and, when combined with silicone, may be ideal for reducing scarring.

PMID 31904191 · DOI 10.1111/jocd.13280 · [PubMed record](#)

285. Evaluating the effectiveness of HOCl application on odor reduction and earthworm population growth during vermicomposting of food waste employing *Eisenia fetida*.

2019 · PloS one · Food & agriculture · Animal study

Authors: Kim, Chanwoo; Her, Younggu; Kim, Yooan; Jung, Chanhon; Lim, Hangkyo; Suh, Kyo

The results showed that HOCl application could reduce NH₃ by 40% and R-NH₂ by 80%, and increase the earthworm population size and total weight by up to 29% and 92%, respectively, compared to the control group. These results suggest that HOCl application is potentially an efficient method to control the odor and to boost earthworm reproduction and thus facilitate vermicomposting for improved food waste treatment and environmental quality.

PMID 31856257 · DOI 10.1371/journal.pone.0226229 · [PubMed record](#)

286. Carbon Dots as Fluorescent/Colorimetric Probes for Real-Time Detection of Hypochlorite and Ascorbic Acid in Cells and Body Fluid.

2019 · Analytical chemistry · Veterinary & livestock · Human observational / experimental

Authors: Wei, Zhenni; Li, Huiqing; Liu, Suibo; Wang, Wei; Chen, Hongli; Xiao, Lehui; Ren, Cuiling; Chen, Xingguo

The concentrations of ClO(-) and AA in humor can be measured by RD-CDs in both fluorescence and colorimetric mode. The results above-mentioned demonstrate its great potential in biosensing.

PMID 31756070 · DOI 10.1021/acs.analchem.9b03272 · [PubMed record](#)

287. Metabolic Activation of Tofacitinib Mediated by Myeloperoxidase in Vitro.

2019 · Chemical research in toxicology · Food & agriculture · In vitro / laboratory

Authors: Guo, Xiucui; Jia, Yudi; Han, Lingling; Zhao, Yanhong; Li, Wei; Zhang, Zhengyu; Peng, Ying; Zheng, Jiang

The present study demonstrated that TFT was oxidized to a chemically reactive nitrenium ion by myeloperoxidase (MPO) occurring in neutrophils. The electrophilic ion showed chemical reactivity toward N-acetyl-cysteine (NAC) to produce two TFT-NAC conjugates (M1 and M2) in incubation of TFT with leucocytes in the presence of NAC.

PMID 31725283 · DOI 10.1021/acs.chemrestox.9b00280 · [PubMed record](#)

288. Luminescent metal organic frameworks with recognition sites for detection of hypochlorite through energy transfer.

2019 · Mikrochimica acta · Water, sanitation & biosecurity · Human observational / experimental

Authors: Guo, Lan; Liu, Yuan; Qu, Fengli; Liu, Zhe; Kong, Rongmei; Chen, Guang; Fan, Wenjing; Xia, Lian

Hypochlorite causes the quenching of the blue fluorescence of nano-UiO-66-NH(2) (with excitation/emission maxima at 325/430 nm), and this finding forms the basis for a fluorometric assay for hypochlorite. Compared with other fluorescent probes for sensing hypochlorite, UiO-66-NH(2) has a comparable detection limit of 0.3 μmol L⁻¹ and a broad linearity relationship in the range of 1-8 μmol L⁻¹.

PMID 31686245 · DOI 10.1007/s00604-019-3806-x · [PubMed record](#)

289. Comparative study of Cl,N-Cdots and N-Cdots and application for trinitrophenol and ClO(-) sensor and cell-imaging.

2019 · Analytica chimica acta · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Wang, Huiping; Zhang, Li; Guo, Xueqing; Dong, Wenjuan; Wang, Ruiping; Shuang, Shaomin; Gong, Xiaojuan; Dong, Chuan

The proposed sensor was used to detect PA in Taiyuan tap water, Wutai tap water, Wutai rain water and Wutai river water samples with encouraging results. Our results suggested that Cl,N-Cdots has promising applications in sensing, water monitoring, commodity supervision and cell-imaging.

PMID 31679577 · DOI 10.1016/j.aca.2019.09.019 · [PubMed record](#)

290. Electrochemically-Activated Water Presents Bactericidal Effect Against Salmonella Heidelberg Isolated from Poultry Origin.

2020 · Foodborne pathogens and disease · Veterinary & livestock · In vitro / laboratory

Authors: Wilsmann, Daiane Elisa; Carvalho, Daiane; Zottis Chitolina, Gabriela; Apellanis Borges, Karen; Quedi Furian, Thales; Carvalho Martins, Abrahão; Webber, Bruna; Pinheiro do Nascimento, Vladimir

At this concentration, ECA inhibited the growth of almost 87% of the Salmonella strains, and the results showed a significant decrease in the mean bacterial counts for both exposure times (5 and 10 min). These findings demonstrate that ECA is effective against SH in vitro and it is a possible alternative to disinfection in the poultry industry for the control of this pathogen.

PMID 31647339 · DOI 10.1089/fpd.2019.2682 · [PubMed record](#)

291. A real-time-based in vitro assessment of the oxidative antimicrobial mechanisms of the myeloperoxidase-hydrogen peroxide-halide system.

2019 · Molecular immunology · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Atosuo, Janne; Suominen, Eetu

Here, we show that at a physiological pH or lower, the antimicrobial activity of MPO is high, and the system effectively enhances the H₂O₂-dependent oxidative killing of E. coli by chlorination. At this higher pH, the activity of H₂O₂ is enhanced and high enough to kill E. coli without the participation of MPO, and the lowered chloride concentration seemed still to enhance the H₂O₂-dependent killing capacity.

PMID 31593870 · DOI 10.1016/j.molimm.2019.09.017 · [PubMed record](#)

292. Inactivation of Rhizoctonia solani in fertigation water using regenerative in situ electrochemical hypochlorination.

2019 · Scientific reports · Food & agriculture · Journal article / other

Authors: Lévesque, Serge; Graham, Thomas; Bejan, Dorin; Lawson, Jamie; Zhang, Ping; Dixon, Mike

Electrochemical processes are emerging as effective means for controlling pathogens via in situ regenerative hypochlorination; a process that is demonstrated here to achieve pathogen control in fertigation solutions without leading to the accumulation of potentially phytotoxic free chlorine residuals associated with other chlorination processes. Effluent free chlorine concentrations were significantly lower than commonly reported phytotoxic threshold...

PMID 31578375 · DOI 10.1038/s41598-019-50600-7 · [PubMed record](#)

293. Decontamination of aerosolised bacteria from a pig farm environment using a pH neutral electrochemically activated solution (Ecas4 anolyte).

2019 · PloS one · Veterinary & livestock · Animal study

Authors: Tenzin, Sangay; Ogunniyi, Abiodun David; Khazandi, Manouchehr; Ferro, Sergio; Bartsch, Jonathon; Crabb, Simon; Abraham, Sam; Deo, Permal; Trott, Darren J

After the first hour of fogging, a 78% total bacterial reduction was observed, which further increased to > 97% after the second hour, > 99.4% after the third and 99.8% after the fourth hour, finally resulting in a 99.99% reduction from the farm environment over five hours. Unlike the current formaldehyde spray disinfection protocol, which requires a long empty period because of its hazardous properties, this economically viable and environmentally...

PMID 31553747 · DOI 10.1371/journal.pone.0222765 · [PubMed record](#)

294. Enhanced thallium(I) removal from wastewater using hypochlorite oxidation coupled with magnetite-based biochar adsorption.

2020 · The Science of the total environment · Water, sanitation & biosecurity · Journal article / other

Authors: Li, Huosheng; Xiong, Jingfang; Zhang, Gaosheng; Liang, Aiping; Long, Jianyou; Xiao, Tangfu; Chen, Yongheng; Zhang, Ping; Liao, Dandan; Lin, Lianhua; Zhang, Hongguo

The Tl removal efficiency was constantly higher than 98.5% during five consecutive recycle tests, indicating the effective reuse performance of the adsorbent. The catalytic hypochlorite oxidation induced by the magnetic biochar has also great potential to the effective removal of other pollutants.

PMID 31494421 · DOI 10.1016/j.scitotenv.2019.134166 · [PubMed record](#)

295. A twist six-membered rhodamine-based fluorescent probe for hypochlorite detection in water and lysosomes of living cells.

2019 · Analytica chimica acta · Water, sanitation & biosecurity · Human observational / experimental

Authors: Wang, Zechen; Zhang, Qinghao; Liu, Junwen; Sui, Ran; Li, Yahui; Li, Yue; Zhang, Xinfu; Yu, Haibo; Jing, Kui; Zhang, Mingyan; Xiao, Yi

Test-strip prepared with 6G-CIO was successfully used to semi-quantitatively indicate the concentration of CIO(-) in water. 6G-CIO would be a practical probe for real-time monitoring of CIO(-) in the biological and real water samples.

PMID 31472700 · DOI 10.1016/j.aca.2019.07.046 · [PubMed record](#)

296. The formation of N-chloramines with proteinogenic amino acids.

2019 · Water research · Water, sanitation & biosecurity · Journal article / other

Authors: Szabó, Mária; Simon, Fruzsina; Fábán, István

A comparison of the parameters of activation indicates that the presence of a bulky substituent on the side chain close to the α -carbon atom decreases the strength of bonding between the reactants and make the structure more diffuse in the transition state. The results presented here resolve earlier discrepancies in the literature and are relevant in chlorination water treatment technologies as well as in the interpretation of in vivo processes involving...

PMID 31445310 · DOI 10.1016/j.watres.2019.114994 · [PubMed record](#)

297. Neutrophils as Sentinel Cells of the Immune System: A Role of the MPO-halide-system in Innate and Adaptive Immunity.

2020 · Current medicinal chemistry · Water, sanitation & biosecurity · Review

Authors: Marcinkiewicz, Janusz; Walczewska, Maria

At the time we demonstrated protein chlorination by HOCl, the major product of neutrophil MPO-halide system enhances protein immunogenicity. Moreover, it has been described, that taurine chloramine (TauCl), the physiological products of the reaction of HOCl with taurine, show anti-microbial and anti-inflammatory properties.

PMID 31424363 · DOI 10.2174/0929867326666190819123300 · [PubMed record](#)

298. Exposure of Pseudomonas aeruginosa to bactericidal hypochlorous acid during neutrophil phagocytosis is compromised in cystic fibrosis.

2019 · The Journal of biological chemistry · Water, sanitation & biosecurity · Human observational / experimental

Authors: Dickerhof, Nina; Isles, Vivienne; Pattemore, Philip; Hampton, Mark B; Kettle, Anthony J

Bacterial GSA production indicated that HOCl had reacted with the bacterial cells, oxidized their GSH, and was sufficient to be solely responsible for bacterial killing. Inhibition of NADPH oxidase and myeloperoxidase lowered GSA formation in the bacterial cells, but the bacteria were still killed, presumably by compensatory nonoxidative mechanisms.

PMID 31341024 · DOI 10.1074/jbc.RA119.009934 · [PubMed record](#)

299. Inactivation of Shiga toxin-producing Escherichia coli in fresh beef by electrolytically-generated hypochlorous acid, peroxyacetic acid, lactic acid and caprylic acid.

2019 · Meat science · Veterinary & livestock · Animal study

Authors: Cap, Mariana; Vaudagna, Sergio; Mozgovo, Marina; Soteras, Trinidad; Sucari, Adriana; Signorini, Marcelo; Leotta, Gerardo

Sensory analysis showed no significant differences either in flavor or in color between samples treated with caprylic acid and reference samples. Caprylic acid appears to be an effective and viable alternative to conventional interventions frequently used for meat product decontamination.

PMID 31323451 · DOI 10.1016/j.meatsci.2019.107886 · [PubMed record](#)

300. N-chlorination mediates protective and immunomodulatory effects of oxidized human plasma proteins.

2019 · eLife · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Ulfing, Agnes; Schulz, Anton V; Müller, Alexandra; Lupilov, Natalie; Leichert, Lars I

Here, we show that N-chlorination, induced by HOCl concentrations encountered at sites of inflammation, converts blood plasma proteins into chaperone-like holdases that protect other proteins from aggregation. We propose that activation and enhanced persistence of neutrophils mediated by HOCl-modified plasma proteins, resulting in the increased and prolonged generation of ROS, including HOCl, constitutes a potentially detrimental positive feedback loop...

PMID 31298656 · DOI 10.7554/eLife.47395 · [PubMed record](#)

301. Deterioration Mechanism of a Tertiary Polyamide Reverse Osmosis Membrane by Hypochlorite.

2019 · Environmental science & technology · Water, sanitation & biosecurity · Journal article / other
Authors: Hashiba, Koki; Nakai, Satoshi; Ohno, Masaki; Nishijima, Wataru; Gotoh, Takehiko; Iizawa, Takashi

These results indicated that hypochlorous acid rather than hypochlorite ion was the free chlorine species that induced membrane deterioration. Silver ion probing of the deteriorated membrane revealed that amide bond scission occurred in the active layer, which might be related to the electron deficiency of the amidic nitrogen caused by chlorination of its benzene ring.

PMID 31276395 · DOI 10.1021/acs.est.9b00663 · [PubMed record](#)

302. Analysis of protein chlorination by mass spectrometry.

2019 · Redox biology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Nybo, Tina; Davies, Michael J; Rogowska-Wrzesinska, Adelina

Particular emphasis was placed on 1) sensitive and precise detection of modification sites, 2) the avoidance of loss or artefactual creation of modifications, 3) accurate quantification of peptide abundance and reduction of missing values problem, 4) monitoring the dynamics of modification in samples exposed to different oxidant concentrations and 5) development of guidelines for verification of chlorination sites assignment. A combination of an optimised...

PMID 31181457 · DOI 10.1016/j.redox.2019.101236 · [PubMed record](#)

303. Catalase prevents myeloperoxidase self-destruction in response to oxidative stress.

2019 · Journal of inorganic biochemistry · Veterinary & livestock · Human observational / experimental
Authors: Ali, Iyad; Khan, Sana N; Chatzicharalampous, Charalampos; Bai, David; Abu-Soud, Husam M

Here, we investigate the interplay of MPO, HOCl, and CAT during catalysis, and explore the crucial role of MPO inhibitors and HOCl scavengers in protecting the catalytic site from protein modification of both enzymes against oxidative damage mediated by HOCl. We showed that CAT not only competes with MPO for H₂O₂ but also scavenges HOCl.

PMID 31103890 · DOI 10.1016/j.jinorgbio.2019.110706 · [PubMed record](#)

304. Fluorescence measurements of peroxynitrite/peroxynitrous acid in cold air plasma treated aqueous solutions.

2019 · Physical chemistry chemical physics : PCCP · Water, sanitation & biosecurity · Journal article / other
Authors: Tarabová, Barbora; Lukeš, Petr; Hammer, Malte U; Jablonowski, Helena; von Woedtke, Thomas; Reuter, Stephan; Machala, Zdenko

This cross-reactivity study showed the highest sensitivity of the H₂DCFDA dye to ONOO-/ONOOH. However, besides ONOO-/ONOOH, H₂DCFDA also exhibited sensitivity to hypochlorite anions/hypochlorous acid (OCI-/HOCl), showing that for a selective study it is important to have an idea about the possible constituents in the studied solutions.

PMID 30982833 · DOI 10.1039/c9cp00871c · [PubMed record](#)

305. Inactivation of conidia from three *Penicillium* spp. isolated from fruit juices by conventional and alternative mild preservation technologies and disinfection treatments.

2019 · Food microbiology · Food & agriculture · Journal article / other
Authors: Nierop Groot, Masja; Abee, Tjakko; van Bokhorst-van de Veen, Hermien

The results show that *Penicillium* spp. conidia are susceptible to mild heat, high pressure pasteurization (HPP), PEF, cold atmospheric plasma (CAP), UV, and chemical sanitizers chlorine dioxide and hypochlorite albeit with different susceptibility. For hypochlorite, UV, and CAP the reduction was between 1 and 3 log.

PMID 30910081 · DOI 10.1016/j.fm.2018.06.004 · [PubMed record](#)

306. Dietary Flavonoids Scavenge Hypochlorous Acid via Chlorination on A- and C-Rings as Primary Reaction Sites: Structure and Reactivity Relationship.

2019 · Journal of agricultural and food chemistry · Water, sanitation & biosecurity · Journal article / other
Authors: Yang, Xin; Wang, Tian; Guo, Jinlong; Sun, Mingtai; Wong, Ming Wah; Huang, Dejian

Correlation of the hypochlorous acid scavenging capacity (IC₅₀) values and the structural features of flavonoids revealed that the hydroxyl groups in the A-ring and B-ring can enhance the scavenging capacity, whereas the C(2)C(3) double bond has a negative impact on the HClO scavenging capacity. Our findings highlight the importance of considering specific reactive oxygen species when measuring radical scavenging capacity of dietary antioxidants.

PMID 30901210 · DOI 10.1021/acs.jafc.8b06689 · [PubMed record](#)

307. Construction of Its Evaluation System in Originally Designed Test-Chamber System and Sporicidal Activity of Aerosolized Hypochlorite Solution to *Bacillus subtilis* Spores.

2019 · Biocontrol science · Food & agriculture · Human observational / experimental
Authors: Ishikawa, Shu; Ueno, Shohei; Mitsui, Mai; Matsumura, Yoshinobu; Hatsuoka, Tetsuro

Our results indicated that inactivation of spore was depend on AC exposure amount and time. This study indicated that our test-chamber system can provide reproducible test data under a homogeneous air condition, and, thereby, that the data obtained by the chamber system should contribute to predicting the AC-required dose to disinfect a whole building.

PMID 30880314 · DOI 10.4265/bio.24.57 · [PubMed record](#)

308. Enhanced fluorescence sensing of hypochlorous acid using serum albumin as a signal amplifier.

2019 · Journal of materials chemistry. B · Veterinary & livestock · Human observational / experimental
Authors: Zhang, Peng; Zhang, Qian; Li, Shasha; Chen, Wenhui; Guo, Xinjie; Ding, Caifeng

This analytical strategy reduced the limit of detection to as low as 1.5 nM and was also applicable to live cells, accompanied by significant fluorescence change from red to green with a modified signal-to-noise ratio. Based on the results of this study, the well-designed probe and analytical method could be promising for intracellular ClO(-) detection.

PMID 32255163 · DOI 10.1039/c8tb03023e · [PubMed record](#)

309. Hypochlorous-Acid-Generating Electrochemical Scaffold for Treatment of Wound Biofilms.

2019 · Scientific reports · Veterinary & livestock · Animal study
Authors: Kiamco, Mia Mae; Zmuda, Hannah M; Mohamed, Abdelrhman; Call, Douglas R; Raval, Yash S; Patel, Robin; Beyenal, Haluk

Cytotoxicity and histopathological assessment showed no discernible harm to host tissues when e-scaffolds were applied to explant biofilms. The described strategy may provide a novel antibiotic-free strategy for treating persistent biofilm-associated infections, such as wound infections.

PMID 30804362 · DOI 10.1038/s41598-019-38968-y · [PubMed record](#)

310. Disinfection by-Products and Ecotoxic Risk Associated with Hypochlorite Treatment of Tramadol.

2019 · Molecules (Basel, Switzerland) · Water, sanitation & biosecurity · Human observational / experimental
Authors: Romanucci, Valeria; Siciliano, Antonietta; Galdiero, Emilia; Guida, Marco; Luongo, Giovanni; Liguori, Renato; Di Fabio, Giovanni; Previtera, Lucio; Zarrelli, Armando

In recent years, many studies have highlighted the consistent finding of tramadol (TRA) in the effluents from wastewater treatment plants (WTPs) and also in some rivers and lakes in both Europe and North America, suggesting that TRA is removed by no more than 36% by specific disinfection treatments. The results reported that TRA may be classified as a harmful compound to some aquatic organisms whereas its chlorinated product mixture showed no effects on...

PMID 30769936 · DOI 10.3390/molecules24040693 · [PubMed record](#)

311. The apoA-I mimetic peptide 4F protects apolipoprotein A-I from oxidative damage.

2019 · Chemistry and physics of lipids · Water, sanitation & biosecurity · In vitro / laboratory
Authors: White, C Roger; Datta, Geeta; Wilson, Landon; Palgunachari, Mayakonda N; Anantharamaiah, G M

Furthermore, 4F enhances the cholesterol efflux ability of apoA-I to a greater extent than either 4F or apoA-I alone, even after hypochlorite oxidation. These observations suggest that apoA-I in lipid complexes may be protected by the presence of 4F, resulting in the preservation of its anti-inflammatory and anti-atherogenic properties.

PMID 30707910 · DOI 10.1016/j.chemphyslip.2019.01.009 · [PubMed record](#)

312. Fluorescence Quenching-Based Mechanism for Determination of Hypochlorite by Coumarin-Derived Sensors.

2019 · International journal of molecular sciences · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Starzak, Karolina; Matwijczuk, Arkadiusz; Creaven, Bernadette; Matwijczuk, Alicja; Wybraniec, Sławomir; Karcz, Dariusz

The mode of action was found to rely upon a chlorination of the coumarin-based probes resulting from their reaction with sodium hypochlorite. The results obtained suggest the applicability of a coumarin-dependent hypochlorite recognition mechanism for the detection of, as well as for quantitative determination of, hypochlorite species in vitro.

PMID 30642004 · DOI 10.3390/ijms20020281 · [PubMed record](#)

313. Chlorination and oxidation of the extracellular matrix protein laminin and basement membrane extracts by hypochlorous acid and myeloperoxidase.

2019 · Redox biology · Water, sanitation & biosecurity · Human observational / experimental

Authors: Nybo, Tina; Dieterich, Simon; Gamon, Luke F; Chuang, Christine Y; Hammer, Astrid; Hoeffler, Gerald; Malle, Ernst; Rogowska-Wrzesinska, Adelina; Davies, Michael J

These data indicate that laminin is extensively modified by MPO-derived oxidants, with structural and functional changes. These modifications, and compromised cell-matrix interactions, may promote endothelial cell dysfunction, weaken the structure of atherosclerotic lesions, and enhance lesion rupture.

PMID 30476874 · DOI 10.1016/j.redox.2018.10.022 · [PubMed record](#)

314. Heterogeneous Chlorination of Squalene and Oleic Acid.

2019 · Environmental science & technology · Water, sanitation & biosecurity · Human observational / experimental

Authors: Schwartz-Narbonne, Heather; Wang, Chen; Zhou, Shouming; Abbatt, Jonathan P D; Faust, Jennifer

These results indicate that chlorination of skin oil, which contains substantial carbon unsaturation, is likely to occur rapidly under common cleaning conditions, potentially leading to the irritation associated with chlorinated bleach. This chemistry will likely also proceed with cooking oils, in the human respiratory system which has unsaturated surfactants as important components of lung fluid, and with organic components of the sea surface microlayer.

PMID 30387352 · DOI 10.1021/acs.est.8b04248 · [PubMed record](#)

315. Evaluation of residual toxicity of hypochlorite-treated water using bioluminescent microbes and microalgae: Implications for ballast water management.

2019 · Ecotoxicology and environmental safety · Food & agriculture · Human observational / experimental

Authors: Lee, Jung-Suk; Hong, Seongjin; Lee, Junghyun; Choi, Tae Seob; Rhie, Kitae; Khim, Jong Seong

Unexpectedly, significant bioluminescence inhibition was observed for hypochlorite-treated water at < 0.1 mg L⁻¹ TRO (expressed as Cl₂), which is a lower concentration than the maximum allowable discharge concentration (MADC) to marine waters established by the International Maritime Organization (IMO). The results indicate that bioluminescent microbes possess an ecologically-relevant sensitivity to both TRO and DBPs in ballast water.

PMID 30317117 · DOI 10.1016/j.ecoenv.2018.10.002 · [PubMed record](#)

316. pH controlled byproduct formation in aqueous decomposition of N-chloro- α -alanine.

2019 · Journal of hazardous materials · Water, sanitation & biosecurity · Journal article / other

Authors: Simon, Fruzsina; Szabó, Mária; Fábán, István

The intermediates and the products formed are of primary concern because they may have significant biological activities. This species is transformed into pyruvate ion through hydration and deamination steps.

PMID 30243251 · DOI 10.1016/j.jhazmat.2018.09.004 · [PubMed record](#)

317. Chlorination and oxidation of human plasma fibronectin by myeloperoxidase-derived oxidants, and its consequences for smooth muscle cell function.

2018 · Redox biology · Water, sanitation & biosecurity · Human observational / experimental

Authors: Nybo, Tina; Cai, Huan; Chuang, Christine Y; Gamon, Luke F; Rogowska-Wrzesinska, Adelina; Davies, Michael J

Studies using primary human coronary artery smooth muscle cells (HCASMC) show that exposure to HOCl-modified FN, results in decreased adherence, increased proliferation and altered expression of genes involved in ECM synthesis and remodelling. These findings indicate that the presence of modified fibronectin may play a major role in the formation, development and stabilisation of fibrous caps in atherosclerotic lesions and may play a key role in the...

PMID 30237127 · DOI 10.1016/j.redox.2018.09.005 · [PubMed record](#)

318. Quantitative assessment of cyanide in cystic fibrosis sputum and its oxidative catabolism by hypochlorous acid.

2018 · Free radical biology & medicine · Food & agriculture · Human observational / experimental

Authors: Eiserich, Jason P; Ott, Sean P; Kadir, Tamara; Morrissey, Brian M; Hayakawa, Keri A; La Merrill, Michele A; Cross, Carroll E

Carbamoylated proteins were found in CF sputa, analogous to reported findings in asthma. CONCLUSIONS: Our studies indicate that CN(-) is a transient species in the inflamed CF airway due to multiple biosynthetic and metabolic processes.

PMID 30213640 · DOI 10.1016/j.freeradbiomed.2018.09.007 · [PubMed record](#)

319. Antiviral innate immune response in non-myeloid cells is augmented by chloride ions via an increase in intracellular hypochlorous acid levels.

2018 · Scientific reports · Food & agriculture · Human observational / experimental

Authors: Ramalingam, Sandeep; Cai, Baiyi; Wong, Junsheng; Twomey, Matthew; Chen, Rui; Fu, Rebecca M; Boote, Toby; McCaughan, Hugh; Griffiths, Samantha J; Haas, Jürgen G

Here, we show that epithelial, fibroblast and hepatic cells have enhanced antiviral activity in the presence of increasing concentrations of sodium chloride (NaCl). A significant increase in intracellular HOCl production is seen early in infection.

PMID 30206371 · DOI 10.1038/s41598-018-31936-y · [PubMed record](#)

320. Role of hypochlorous acid (HOCl) and other inflammatory mediators in the induction of macrophage extracellular trap formation.

2018 · Free radical biology & medicine · Food & agriculture · Human observational / experimental

Authors: Rayner, Benjamin S; Zhang, Yunjia; Brown, Bronwyn E; Reyes, Leila; Cogger, Victoria C; Hawkins, Clare L

We show that exposure of human monocyte-derived macrophages to pathophysiological levels of HOCl results in the dose-dependent extrusion of DNA and histones into the cellular supernatant, consistent with extracellular trap formation. Concurrent with, but independent of these findings, macrophage exposure to HOCl also resulted in an immediate and sustained cytosolic accumulation of Ca(2+), culminating in the increased production of cytokines and chemokines.

PMID 30189264 · DOI 10.1016/j.freeradbiomed.2018.09.001 · [PubMed record](#)

321. Antioxidant Activity of Hydrogen Nanobubbles in Water with Different Reactive Oxygen Species both in Vivo and in Vitro.

2018 · Langmuir : the ACS journal of surfaces and colloids · Food & agriculture · In vitro / laboratory

Authors: Liu, Shu; Oshita, Seiichi; Thuyet, Dang Quoc; Saito, Masanao; Yoshimoto, Takahiko

Using a relatively weak reduced dye, APF, we showed that hydrogen NB water can effectively remove three cytotoxic ROS, (•)OH, ClO(-), and ONOO(-), from water. Our results showed that this decreased the physiological activity of barley seeds in their normal homeostatic state.

PMID 30189133 · DOI 10.1021/acs.langmuir.8b02440 · [PubMed record](#)

322. Heterogeneity of hypochlorous acid production in individual neutrophil phagosomes revealed by a rhodamine-based probe.

2018 · The Journal of biological chemistry · Food & agriculture · Human observational / experimental

Authors: Albrett, Amelia M; Ashby, Louisa V; Dickerhof, Nina; Kettle, Anthony J; Winterbourn, Christine C

We show that it also reacts rapidly with hypobromous acid, bromamines, and hypoiodous acid, indicating that R19-S responds to these reactive halogen species as well as HOCl. Our results confirm the utility of R19-S for detecting HOCl in real-time and provide definitive evidence that isolated neutrophils produce HOCl in phagosomes.

PMID 30135208 · DOI 10.1074/jbc.RA118.004789 · [PubMed record](#)

323. Surgical Breast Pocket Irrigation With Hypochlorous Acid (HOCl): An In Vivo Evaluation of Pocket Protein Content and Potential HOCl Antimicrobial Capacity.

2018 · Aesthetic surgery journal · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Haws, Melinda J; Gingrass, Mary K; Porter, R Stephen; Brindle, C Tod

Results were compared to HOCl solution concentration and protein binding potential to determine availability of free HOCl. This supports the antimicrobial and anti-biofilm activity as described in previous in vitro studies when using PhaseOne® as part of pocket irrigation.

PMID 30084898 · DOI 10.1093/asj/sjy031 · [PubMed record](#)

324. 0.01% Hypochlorous Acid as an Alternative Skin Antiseptic: An In Vitro Comparison.

2018 · Dermatologic surgery : official publication for American Society for Dermatologic Surgery [et al.] · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Anagnostopoulos, Apostolos G; Rong, Andrew; Miller, Darlene; Tran, Ann Q; Head, Trajen; Lee, Michael C; Lee, Wendy W

C. species, S. pyogenes, P. aeruginosa, and P. acnes: All antiseptics demonstrated immediate bactericidal effects. CONCLUSION: In vitro studies of HA 0.01% were observed to have equal or more efficacious antiseptic properties compared with IPA, CHG, and PI.

PMID 29985866 · DOI 10.1097/DSS.0000000000001594 · [PubMed record](#)

325. Chlorine Dioxide-Pollutant Transformation and Formation of Hypochlorous Acid as a Secondary Oxidant.

2018 · Environmental science & technology · Water, sanitation & biosecurity · Journal article / other

Authors: Terhalle, Jens; Kaiser, Pascal; Jütte, Mischa; Buss, Johanna; Yasar, Sermin; Marks, Robert; Uhlmann, Helmut; Schmidt, Torsten C; Lutze, Holger V

The presence of the selective HOCl scavenger glycine largely diminished their transformation, indicating that atenolol and metoprolol were transformed by a fast reaction with HOCl (e.g., k (atenolol + HOCl) = $3.5 \times 10(4) \text{ M}(-1) \text{ s}(-1)$) that formed in ClO(2) reactions with the wastewater matrix. The formation of HOCl may thus increase the number of transformable micropollutants in ClO(2) applications.

PMID 29966411 · DOI 10.1021/acs.est.8b01099 · [PubMed record](#)

326. Achieving low concentrations of chromium in drinking water by nanofiltration: membrane performance and selection.

2018 · Environmental science and pollution research international · Water, sanitation & biosecurity · Journal article / other

Authors: Giagnorio, Mattia; Ruffino, Barbara; Grinic, Daria; Steffenino, Sara; Meucci, Lorenza; Zanetti, Maria Chiara; Tiraferri, Alberto

The rejection observed as a function of chemical composition in the feed solution suggests that electrostatic effect is an important mechanism of chromium(VI) removal for the membranes with higher surface charge and lower film density. All three membranes showed adequate rejection of chromium from tap and well water of diverse chemical composition, suggesting that nanofiltration is an effective process to remove chromium for the production of safe...

PMID 29946838 · DOI 10.1007/s11356-018-2627-5 · [PubMed record](#)

327. The stability of chlorinated, brominated, and iodinated haloacetamides in drinking water.

2018 · Water research · Water, sanitation & biosecurity · Journal article / other

Authors: Ding, Shunke; Chu, Wenhai; Krasner, Stuart W; Yu, Yun; Fang, Chao; Xu, Bin; Gao, Naiyun

In contrast, the reactions between chloramines and HAMs were found to be insignificant. Additionally, four common quenching agents, including sodium sulfite, sodium thiosulfate, ascorbic acid, and ammonium chloride, were demonstrated to expedite HAM degradation, whereas ammonium chloride was the least influential among the four.

PMID 29920459 · DOI 10.1016/j.watres.2018.06.024 · [PubMed record](#)

328. Wavelength-dependent chlorine photolysis and subsequent radical production using UV-LEDs as light sources.

2018 · Water research · Water, sanitation & biosecurity · Journal article / other

Authors: Yin, Ran; Ling, Li; Shang, Chii

The modelling results suggested that the maximum fluence-based rate constant ($1.46 \times 10(-4) \text{ m}(2) \text{ J}(-1)$) was obtained at 289.7 nm and pH 9.95. The findings in this study provide the fundamental information in selecting UV-LEDs with specific wavelength for enhancing/optimizing chlorine photodecay and/or its radical generation at different pHs in real-world applications.

PMID 29913386 · DOI 10.1016/j.watres.2018.06.018 · [PubMed record](#)

329. Insight into the interactions of proteinase inhibitor- alpha-2-macroglobulin with hypochlorite.

2018 · International journal of biological macromolecules · Veterinary & livestock · Animal study

Authors: Siddiqui, Tooba; Zia, Mohammad Khalid; Ali, Syed Saqib; Ahsan, Haseeb; Khan, Fahim Halim

The proteinase-antiproteinase balance plays an important role in mediating inflammation associated tissue destruction. In this paper, we intend to study hypochlorite induced modifications in proteinase inhibitor- $\alpha(2)\text{M}$ via biophysical techniques such as absorption spectroscopy, fluorescence spectroscopy, circular dichroism (CD), fourier transform infrared spectrometry (FTIR) and isothermal titration calorimetry (ITC).

PMID 29778882 · DOI 10.1016/j.ijbiomac.2018.05.112 · [PubMed record](#)

330. Disinfection of transboundary animal disease viruses on surfaces used in pork packing plants.

2018 · Veterinary microbiology · Veterinary & livestock · Animal study

Authors: Krug, Peter W; Davis, Talina; O'Brien, Catherine; LaRocco, Michael; Rodriguez, Luis L

These results highlight the importance of manufacturer-recommended pre-cleaning steps to remove gross soil before surface disinfection. Taken together, these data support the use of acid- and surfactant-containing commercial products for packing plant disinfection during a TAD virus outbreak event.

PMID 29778199 · DOI 10.1016/j.vetmic.2018.04.029 · [PubMed record](#)

331. Impact of antimicrobial wipes compared with hypochlorite solution on environmental surface contamination in a health care setting: A double-crossover study.

2018 · American journal of infection control · Water, sanitation & biosecurity · Journal article / other
Authors: Siani, Harsha; Wesgate, Rebecca; Maillard, Jean-Yves

Collectively, the introduction of training plus daily wipe disinfection significantly reduced multidrug-resistant organisms recovered from surfaces. The results demonstrate the superiority of the preimpregnated wipes in significantly decreasing microbial bioburden from high-touch surfaces.

PMID 29759641 · DOI 10.1016/j.ajic.2018.03.020 · [PubMed record](#)

332. [Enzymatic and bactericidal activity of monomeric and dimeric forms of myeloperoxidase].

2018 · Biomeditsinskaia khimiia · Water, sanitation & biosecurity · Human observational / experimental
Authors: Vakhrusheva, T V; Sokolov, A V; Kostevich, V A; Vasilyev, V B; Panasenkov, O M

At equal heme concentration, a somewhat higher bactericidal effect was observed for the hemi-MPO/■2■2/Cl⁻ system compared with the dimeric MPO/■2■2/Cl⁻ system. This finding suggests that appearance in blood of MPO corresponding in mass to its monomer may result from the damage of dimeric MPO by reactive halogen species, especially upon their overproduction underlying oxidative/halogenative stress in inflammatory diseases.

PMID 29723147 · DOI 10.18097/PBMC20186402175 · [PubMed record](#)

333. Evaluation of decontamination efficacy of commonly used antimicrobial interventions for beef carcasses against Shiga toxin-producing Escherichia coli.

2018 · Meat science · Veterinary & livestock · Animal study
Authors: Signorini, Marcelo; Costa, Magdalena; Teitelbaum, David; Restovich, Viviana; Brasesco, Hebe; García, Diego; Superno, Valeria; Petrol, Sandra; Bruzzone, Mariana; Arduini, Victor; Vanzini, Mónica; Sucari, Adriana; Suberbie, Germán; Maricel, Turina; Rodríguez, Ricardo; Leotta, Gerardo A

Pre-rigor beef carcasses were used to determine whether nine antimicrobial strategies effectively reduced aerobic plate, coliform and E. coli counts and stx and eae gene prevalence. Decontamination of beef carcasses through automated application of lactic acid and hot water would reduce public health risks associated with STEC contamination.

PMID 29656275 · DOI 10.1016/j.meatsci.2018.04.009 · [PubMed record](#)

334. Drinking water microbiome assembly induced by water stagnation.

2018 · The ISME journal · Water, sanitation & biosecurity · Journal article / other
Authors: Ling, Fangqiong; Whitaker, Rachel; LeChevallier, Mark W; Liu, Wen-Tso

Here, we track tap water microbiome assembly in situ, showing that bacterial community composition changes rapidly from the city supply following ~6-day stagnation, along with an increase in cell count from 10(3) cells/mL to upwards of 7.8 × 10(5) cells/mL. Our study challenges current water quality monitoring practice worldwide which ignore biological growth in plumbing, and suggests the island biogeography model as a useful framework to evaluate...

PMID 29588495 · DOI 10.1038/s41396-018-0101-5 · [PubMed record](#)

335. Uric acid disrupts hypochlorous acid production and the bactericidal activity of HL-60 cells.

2018 · Redox biology · Food & agriculture · Human observational / experimental
Authors: Carvalho, Larissa A C; Lopes, João P P B; Kaihama, Gilberto H; Silva, Railmara P; Bruni-Cardoso, Alexandre; Baldini, Regina L; Meotti, Flavia C

Fluorescence microscopy showed that uric acid also decreased the levels of HOCl produced by dHL-60 cells, while significantly increased superoxide production. Altogether, our results demonstrated that HOCl is, indeed, the main relevant oxidant against bacteria and deviation of myeloperoxidase activity to produce other oxidants hampers dHL-60 killing activity.

PMID 29510342 · DOI 10.1016/j.redox.2018.02.020 · [PubMed record](#)

336. Enzymatic and bactericidal activity of myeloperoxidase in conditions of halogenative stress.

2018 · Biochemistry and cell biology = Biochimie et biologie cellulaire · Water, sanitation & biosecurity · Human observational / experimental
Authors: Vakhrusheva, Tatyana V; Grigorieva, Daria V; Gorudko, Irina V; Sokolov, Alexey V; Kostevich, Valeria A; Lazarev, Vassili N; Vasilyev, Vadim B; Cherenkevich, Sergey N; Panasenkov, Oleg M

SCN(-) interfered with HOCl-mediated MPO inhibition. UV-vis spectra showed that heme degradation is involved in HOCl- and HOBr-mediated MPO inactivation.

PMID 29394490 · DOI 10.1139/bcb-2017-0292 · [PubMed record](#)

337. Chlorinated Lipids Elicit Inflammatory Responses in vitro and in vivo.

2019 · Shock (Augusta, Ga.) · Food & agriculture · In vitro / laboratory

Authors: Yu, Hong; Wang, Meifang; Wang, Derek; Kalogeris, Theodore J; McHowat, Jane; Ford, David A; Korthuis, Ronald J

Following the addition of either 2-CIPA or 2-ClHDA to the culture medium, HIMVEC displayed increased platelet and neutrophil adherence that was associated with elevated expression of ECAMs and increased permeability. In vivo, chlorinated lipid exposure significantly increased LECA, PECA, ROS production, and albumin leakage, inflammatory events that were associated with mast cell activation and increased tissue MPO activity and expression.

PMID 29394241 · DOI 10.1097/SHK.0000000000001112 · [PubMed record](#)

338. In Vitro Evaluation of a Hypochlorous Acid Hygiene Solution on Established Biofilms.

2018 · Eye & contact lens · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Romanowski, Eric G; Stella, Nicholas A; Yates, Kathleen A; Brothers, Kimberly M; Kowalski, Regis P; Shanks, Robert M Q

RESULTS: Bactericidal activity (≥ 3 Log₁₀; 99.9%) was observed for all tested bacterial species after a 30-min exposure. Confocal microscopy and crystal violet staining analysis of bacterial biofilms treated with hypochlorous acid solution both demonstrated that biofilm bacteria were readily killed, but biofilm structure was largely maintained.

PMID 29369234 · DOI 10.1097/ICL.0000000000000456 · [PubMed record](#)

339. The effect of HOCl-induced modifications on phosphatase and tensin homologue (PTEN) structure and function.

2018 · Free radical research · Water, sanitation & biosecurity · Human observational / experimental

Authors: Verrastro, Ivan; Tveen-Jensen, Karina; Spickett, Corinne M; Pitt, Andrew R

Twenty different oxPTMs of PTEN were identified, of which 14 were significantly elevated upon HOCl treatment in a dose-dependent manner. Much higher levels of oxidation occurred in the protein aggregates compared to the monomeric protein for certain methionine and tyrosine residues located in the C2 and C-terminal domains, suggesting that their oxidation promoted protein destabilisation and aggregation; many of the residues modified were classified as...

PMID 29298524 · DOI 10.1080/10715762.2018.1424333 · [PubMed record](#)

340. Hypochlorous Acid Promoted Platinum Drug Chemotherapy by Myeloperoxidase-Encapsulated Therapeutic Metal Phenolic Nanoparticles.

2018 · ACS nano · Food & agriculture · In vitro / laboratory

Authors: Dai, Yunlu; Cheng, Siyuan; Wang, Zhongliang; Zhang, Ruili; Yang, Zhen; Wang, Jingjing; Yung, Bryant C; Wang, Zhantong; Jacobson, Orit; Xu, Can; Ni, Qianqian; Yu, Guocan; Zhou, Zijian; Chen, Xiaoyuan

The MPP NPs show prolonged blood circulation and high tumor accumulation as evidenced by (89)Zr-based positron emission tomography imaging. The MPP NPs effectively inhibit tumor growth in vivo.

PMID 29293312 · DOI 10.1021/acsnano.7b06852 · [PubMed record](#)

341. Preliminary Results of the Use of a Stabilized Hypochlorous Acid Solution in the Management of *Ralstonia Pickettii* Biofilm on Silicone Breast Implants.

2018 · Aesthetic surgery journal · Water, sanitation & biosecurity · Human observational / experimental

Authors: Brindle, C Tod; Porter, Steve; Bijlani, Kiran; Arumugam, Sridhar; Matias, Rowena; Najafi, Ron; Fisher, Jack

Remaining solutions showed total kill of planktonic bacteria at one minute. Saline control showed no significant effect on biofilm as anticipated.

PMID 29240873 · DOI 10.1093/asj/sjx229 · [PubMed record](#)

342. Hypochlorous Acid Versus Povidone-Iodine Containing Irrigants: Which Antiseptic is More Effective for Breast Implant Pocket Irrigation?

2018 · Aesthetic surgery journal · Veterinary & livestock · In vitro / laboratory

Authors: Hu, Honghua; Sleiman, Janine; Johani, Khalid; Vickery, Karen

The use of pocket irrigation with antiseptic/antibiotic has been shown to reduce the incidence of contracture. RESULTS: Our findings showed that PhaseOne was unable to eradicate planktonic and/or biofilm *S. aureus* in the presence of either tryptone soy broth or bovine calf serum (protein soil) in a variety of in vitro assays.

PMID 29190321 · DOI 10.1093/asj/sjx213 · [PubMed record](#)

343. Disruption of Biofilms and Neutralization of Bacteria Using Hypochlorous Acid Solution: An In Vivo and In Vitro Evaluation.

2017 · Advances in skin & wound care · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Day, Anna; Alkhalil, Abdulnaser; Carney, Bonnie C; Hoffman, Hilary N; Moffatt, Lauren T; Shupp, Jeffrey W

Undiluted VWS was significantly less cytotoxic compared with 1% PI, CWS, and 10% PI (in increasing order of cytotoxicity).
CONCLUSIONS: These findings support the use of VWS in the treatment of wounds with biofilms and to reduce the bioburden of venous stasis ulcers.

PMID 29140837 · DOI 10.1097/01.ASW.0000526607.80113.66 · [PubMed record](#)

344. Oxidation of C-reactive protein by hypochlorous acid leads to the formation of potent platelet activator.

2018 · International journal of biological macromolecules · Water, sanitation & biosecurity · Human observational / experimental
Authors: Boncler, Magdalena; Kehrel, Beate; Szewczyk, Rafał; Stec-Martyna, Emilia; Bednarek, Radosław; Brodde, Martin; Watala, Cezary

After treatment of isolated platelets with 50 µg/ml HOCl-CRP, the modified CRP significantly stimulated platelet activation (over 10-fold increase in the fraction of CD62-positive platelets compared to controls, $P < 0.008$), enhanced deposition of platelets onto immobilized fibrinogen (two-fold rise in platelet adhesion compared to controls, $P < 0.0001$), and induced platelet aggregation by up to 79.5%. The ability of HOCl-CRP to interact with several platelet...

PMID 29111269 · DOI 10.1016/j.ijbiomac.2017.10.159 · [PubMed record](#)

345. Isomer distribution of hydroxyoctadecadienoates (HODE) and hydroxyeicosatetraenoates (HETE) produced in the plasma oxidation mediated by peroxy radical, peroxy nitrite, hypochlorite, 15-lipoxygenase, and singlet oxygen.

2017 · Archives of biochemistry and biophysics · Food & agriculture · Animal study
Authors: Umeno, Aya; Morita, Mayuko; Yoshida, Yasukazu; Naito, Yuji; Niki, Etsuo

It was shown that 9- and 13-(E,E)-HODEs, 13(S)-(Z,E)-HODE, and 10- and 12-(Z,E)-HODEs were specific lipid oxidation products by free radical, 15-lipoxygenase, and singlet oxygen, respectively. The isomer distribution of HODEs produced by peroxy nitrite was similar to that by peroxy radical, suggesting that the peroxy nitrite mediated lipid oxidation proceeds by free radical mechanisms.

PMID 29097313 · DOI 10.1016/j.abb.2017.10.023 · [PubMed record](#)

346. Preparation of an Efficient Ratiometric Fluorescent Nanoprobe (m-CDs@[Ru(bpy)(3)](2+)) for Visual and Specific Detection of Hypochlorite on Site and in Living Cells.

2017 · ACS sensors · Water, sanitation & biosecurity · Human observational / experimental
Authors: Zhan, Yuanjin; Luo, Fang; Guo, Longhua; Qiu, Bin; Lin, Yuhong; Li, Juan; Chen, Guonan; Lin, Zhenyu

Herein, m-phenylenediamine (mPD) is used as a precursor to prepare carbon dots (named m-CDs) with highly fluorescent quantum yield (31.58% in water), and our investigation shows that the strong fluorescent emission of m-CDs can be effectively quenched by ClO(-). Additionally, intracellular detection of exogenous ClO(-) was demonstrated via ratiometric imaging microscopy.

PMID 29094932 · DOI 10.1021/acssensors.7b00601 · [PubMed record](#)

347. Neutrophil granule proteins generate bactericidal ammonia chloramine on reaction with hydrogen peroxide.

2017 · Free radical biology & medicine · Water, sanitation & biosecurity · Human observational / experimental
Authors: Green, Jessie N; Chapman, Anna L P; Bishop, Cynthia J; Winterbourn, Christine C; Kettle, Anthony J

Comparison of levels of protein modification in the extract and in phagosomes implies that a relatively low proportion of phagosomal H₂O₂ would be converted to HOCl, but there should be sufficient for substantial protein chloramine formation and some breakdown to ammonia monochloramine. It is possible that HOCl could kill ingested bacteria by an indirect mechanism involving protein oxidation and monochloramine formation.

PMID 29055823 · DOI 10.1016/j.freeradbiomed.2017.10.343 · [PubMed record](#)

348. Myofibrillar protein oxidation affects filament charges, aggregation and water-holding.

2018 · Meat science · Veterinary & livestock · Animal study
Authors: Bao, Yulong; Boeren, Sjeef; Ertbjerg, Per

The lower pI values of oxidized proteins suggests that oxidation increased the overall net negative charge of myofibrillar proteins solubilized for IEF. Here we propose a hypothesis that oxidation-induced increase in net negative charges is the driving force for improved water-holding in myofibrils, whereas protein cross-linking and aggregation have an opposing effect by decreasing the water-holding.

PMID 28968552 · DOI 10.1016/j.meatsci.2017.09.011 · [PubMed record](#)

349. Low-density lipoprotein modified by myeloperoxidase oxidants induces endothelial dysfunction.

2017 · Redox biology · Food & agriculture · In vitro / laboratory
Authors: Abdo, Adrian I; Rayner, Benjamin S; van Reyk, David M; Hawkins, Clare L

In this study, we demonstrate that both HOSCN- and HOCl-modified LDL inhibit endothelium-mediated vasorelaxation ex vivo in rat aortic ring segments. In vitro experiments with human coronary artery endothelial cells show that HOSCN-modified LDL decreases in the production of nitric oxide (NO(•)) and induces the loss of endothelial nitric oxide synthase (eNOS) activity.

PMID 28818791 · DOI 10.1016/j.redox.2017.08.004 · [PubMed record](#)

350. New Insights into the Stability of Silver Sulfide Nanoparticles in Surface Water: Dissolution through Hypochlorite Oxidation.

2017 · Environmental science & technology · Veterinary & livestock · Animal study
Authors: Li, Lingxiangyu; Xu, Zhenlan; Wimmer, Andreas; Tian, Qinghua; Wang, Xinping

Our results suggested that both uncoated and polyvinylpyrrolidone (PVP)-coated Ag(2)SNPs (100 µg/L) underwent dissolution in surface water disinfected with aqueous chlorine at a dose of 4 mg/L, showing the highest dissolved silver ion concentrations of 22.3 and 10.5 µg/L within 45 min, respectively. This work documented that Ag(2)SNPs could undergo dissolution in surface water through hypochlorite oxidation, posing potential risks to aquatic organisms...

PMID 28608678 · DOI 10.1021/acs.est.7b01738 · [PubMed record](#)

351. A Graphene Quantum Dots-Hypochlorite Hybrid System for the Quantitative Fluorescent Determination of Total Antioxidant Capacity.

2017 · Small (Weinheim an der Bergstrasse, Germany) · Food & agriculture · Journal article / other
Authors: Wang, Min; Chen, Jie; Liu, Chenghao; Qiu, Jianding; Wang, Xiaomeng; Chen, Peng; Xu, Chenjie

This system shows the excellent analytical recoveries for commercial drinks (>89.9%) and good consistency with ELISA testing for SOD secretion in cell-conditioned medium. These results demonstrate the ability and reliability of the GQD-hypochlorite system for detecting and quantifying TAC in real drinks and complex biological fluids.

PMID 28597508 · DOI 10.1002/smll.201700709 · [PubMed record](#)

352. A fluorescent homogeneous assay for myeloperoxidase measurement in biological samples. A positive correlation between myeloperoxidase-generated HOCl level and oxidative status in STZ-diabetic rats.

2017 · Talanta · Water, sanitation & biosecurity · Human observational / experimental
Authors: Stocker, Pierre; Cassien, Mathieu; Vidal, Nicolas; Th  tiot-Laurent, Sophie; Pietri, Sylvia

Increased levels of MPO may contribute to cellular dysfunction and tissues injury by producing highly reactive oxidants such as hypochlorous acid (HOCl). The data proved that the present assay has a reliable performance when quantitating the active MPO in the plasma of diabetic animals, a feature of inflammatory disease found concomitant with an elevation of protein carbonyls levels and lipid peroxidation and which was negatively correlated with the ratio...

PMID 28501147 · DOI 10.1016/j.talanta.2017.03.102 · [PubMed record](#)

353. Oxidized 5-aminosalicylic acid activates Nrf2-HO-1 pathway by covalently binding to Keap1: Implication in anti-inflammatory actions of 5-aminosalicylic acid.

2017 · Free radical biology & medicine · Food & agriculture · Human observational / experimental
Authors: Kang, Sookjin; Kim, Woosong; Jeong, Seongkeun; Lee, Yonghyun; Nam, Joon; Lee, Sunyoung; Jung, Yunjin

Moreover, oral gavage of sulfasalazine, a colon-specific prodrug of 5-ASA currently used clinically, activated the Nrf2-HO-1 pathway in the colonic tissues where inflammation was in progress, which was not observed when inflammation subsided. Collectively, our data suggest that Nrf2-HO-1 pathway is involved in the anti-inflammatory pharmacology of 5-ASA, which was likely being exerted exclusively in the inflammatory state.

PMID 28473247 · DOI 10.1016/j.freeradbiomed.2017.04.366 · [PubMed record](#)

354. Inhibition of Myeloperoxidase- and Neutrophil-Mediated Hypochlorous Acid Formation in Vitro and Endothelial Cell Injury by (-)-Epigallocatechin Gallate.

2017 · Journal of agricultural and food chemistry · Food & agriculture · In vitro / laboratory
Authors: Tian, Rong; Ding, Yun; Peng, Yi-Yuan; Lu, Naihao

This flavonoid also effectively inhibited HOCl generation in activated neutrophils (HOCl formation: $65.0 \pm 5.6\%$ for 20 μM EGCG versus $100 \pm 6.2\%$ for control, $P < 0.01$) without influencing MPO and Nox2 release and superoxide formation, suggesting that EGCG specifically inhibited MPO but not NADPH oxidase activity in activated neutrophils. Our results indicate that dietary EGCG is an effective and specific inhibitor of MPO activity and may participate in...

PMID 28361543 · DOI 10.1021/acs.jafc.7b00631 · [PubMed record](#)

355. Optimization for zeolite regeneration and nitrogen removal performance of a hypochlorite-chloride regenerant.

2017 · Chemosphere · Water, sanitation & biosecurity · Journal article / other
Authors: Zhang, Wei; Zhou, Zhen; An, Ying; Du, Silu; Ruan, Danian; Zhao, Chengyue; Ren, Ning; Tian, Xiaoce

Textural analysis indicated that NaClO-NaCl regeneration leads to an increased surface area of zeolites, especially the microporosity. The results indicated that NaClO-NaCl regeneration is an attractive method to achieve sustainable removal of nitrogen from wastewater through zeolite.

PMID 28351015 · DOI 10.1016/j.chemosphere.2017.03.091 · [PubMed record](#)

356. Topical Approaches to Improve Surgical Outcomes and Wound Healing: A Review of Efficacy and Safety.

2017 · Journal of drugs in dermatology : JDD · Food & agriculture · Review
Authors: Totoraitis, Kristin; Cohen, Joel L; Friedman, Adam

Topical antiseptics, including chlorhexidine and povidone-iodine, can have a cytotoxic effect on keratinocytes and may actually impede wound healing as a result. Emerging products, such as hypochlorous acid, may be a potential alternative to the more commonly used agents, as it has effective antimicrobial actions and minimal adverse effects.

PMID 28301615 · [PubMed record](#)

357. Reaction of tetracycline with biologically relevant chloramines.

2017 · Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy · Water, sanitation & biosecurity · Journal article / other
Authors: Benavides, J; Barrias, P; Piro, N; Arenas, A; Orrego, A; Pino, E; Villegas, L; Dorta, E; Aspée, A; López-Alarcón, C

These results evidenced that tautomers of tetracycline are pivotal intermediates in all reactions. This kind of reactions, which were also observed triggered by lysozyme-derived chloramines, could limit the efficiency of the tetracycline-based therapy.

PMID 28187315 · DOI 10.1016/j.saa.2017.02.001 · [PubMed record](#)

358. Myeloperoxidase-mediated protein lysine oxidation generates 2-aminoadipic acid and lysine nitrile in vivo.

2017 · Free radical biology & medicine · Food & agriculture · In vitro / laboratory
Authors: Lin, Hongqiao; Levison, Bruce S; Buffa, Jennifer A; Huang, Ying; Fu, Xiaoming; Wang, Zeneng; Gogonea, Valentin; DiDonato, Joseph A; Hazen, Stanley L

Prior studies also suggest enrichment of protein-bound 2-AAA as an oxidative post-translational modification of lysyl residues in tissues associated with degenerative diseases of aging. Collectively, these results show that MPO-mediated oxidation of protein lysyl residues serves as a mechanism for producing 2-AAA and LysCN in vivo.

PMID 28069522 · DOI 10.1016/j.freeradbiomed.2017.01.006 · [PubMed record](#)

359. Transformation of aminopyrine in the presence of free available chlorine: Kinetics, products, and reaction pathways.

2017 · Chemosphere · Water, sanitation & biosecurity · Journal article / other
Authors: Cai, Mei-Quan; Feng, Li; Zhang, Li-Qiu

The results showed that FAC reacted with AMP rapidly, and a 74% elimination was achieved for 1.30 μM AMP after 2 min at 14.08 μM FAC dose. In addition, Cl(2) showed high reactivity ($10(6)\text{--}10(7) \text{ M}(-1)\text{s}(-1)$) in the presence of chloride, compared with HOCl ($k(\text{AMP}^+, \text{HOCl}) = (5.73 \pm 0.23) \times 10(2) \text{ M}(-1)\text{s}(-1)$, $k(\text{AMP}^0, \text{HOCl}) = (9.68 \pm 0.96) \times 10(2) \text{ M}(-1)\text{s}(-1)$).

PMID 28056449 · DOI 10.1016/j.chemosphere.2016.12.033 · [PubMed record](#)

360. Potential roles of myeloperoxidase and hypochlorous acid in metabolism and toxicity of alkene hydrocarbons and drug molecules containing olefinic moieties.

2017 · Expert opinion on drug metabolism & toxicology · Food & agriculture · Review
Authors: Zhang, Xin-Yu; Elfarra, Adnan A

Adverse drug reactions (ADRs) pose a significant health problem and are generally attributed to reactive metabolites. A case study is presented, in which a carcinogenic alkene, 1,3-butadiene, is demonstrated to form 1-chloro-2-hydroxy-3-butene (CHB) through the MPO-mediated pathway.

PMID 27936967 · DOI 10.1080/17425255.2017.1271413 · [PubMed record](#)

361. A contrast study of Dermacyn on enterocoely irrigate to control intraoperative infection.

2017 · Minerva chirurgica · Water, sanitation & biosecurity · Randomized controlled trial
Authors: Liu, Jun; Fan, Peishi; Chu, Jun; Yang, Jian; Yang, Xiaohu; Zhang, Lu; Guo, Chunliang

There were significant differences in the nature of the drainage fluid, bacterial culture results, blood routine, C-reactive protein and procalcitonin between the two groups. CONCLUSIONS: The use of Dermacyn as an antibiotic agent for intraoperative peritoneal lavage was effective in reducing the risk of infection, due to its broad-spectrum bactericidal effect.

PMID 27841850 · DOI 10.23736/S0026-4733.16.07192-3 · [PubMed record](#)

362. Kinetic studies on the reaction of cob(II)alamin with hypochlorous acid: Evidence for one electron oxidation of the metal center and corrin ring destruction.

2016 · Journal of inorganic biochemistry · Veterinary & livestock · Animal study
Authors: Dassanayake, Rohan S; Farhath, Mohamed M; Shelley, Jacob T; Basu, Soumitra; Brasch, Nicola E

HOCl provides support for HOCl being initially reduced to Cl and subsequent H atom abstraction from the corrin macrocycle occurring, resulting in small amounts of corrinoid species with two or four H atoms fewer than the parent cobalamin. Finally, SDS-PAGE experiments show that HOCl-induced damage to bovine serum albumin does not occur in the presence of Cbl(II), providing support for Cbl(II) being an efficient HOCl trapping agent.

PMID 27567143 · DOI 10.1016/j.jinorgbio.2016.07.009 · [PubMed record](#)

363. A quantum chemical study of HOCl-induced transformations of carbamazepine.

2016 · Organic & biomolecular chemistry · Water, sanitation & biosecurity · Journal article / other
Authors: Tandari, Tana; Vrejk, Valerije; Šakić, Davor

Chlorination and epoxidation of CBZ are two initial, competitive processes that result in two key intermediates: N-chloramide and 10,11-epoxide. Their exceptional thermodynamic stability, as predicted by quantum chemical methods, suggests that these structures should be considered as recalcitrants in chlorinated waters.

PMID 27808324 · DOI 10.1039/c6ob02166b · [PubMed record](#)

364. Staphylococcus aureus SaeR/S-regulated factors reduce human neutrophil reactive oxygen species production.

2016 · Journal of leukocyte biology · Food & agriculture · Human observational / experimental
Authors: Guerra, Fermin E; Addison, Conrad B; de Jong, Nienke W M; Azzolino, Joseph; Pallister, Kyler B; van Strijp, Jos A G; Voyich, Jovanka M

With the use of ROS probes, the temporal and overall production of neutrophil ROS was assessed during exposure to the clinically relevant *S. aureus* USA300 (strain LAC) and its isogenic mutant LAC Δ saeR/S. Our results demonstrated that SaeR/S-regulated factors do not inhibit neutrophil superoxide (O₂⁻) production. However, subsequent neutrophil ROS production was significantly reduced during exposure to LAC compared with LAC Δ saeR/S. In addition...

PMID 27334228 · DOI 10.1189/jlb.4VMAB0316-100RR · [PubMed record](#)

365. A fast-responsive fluorescent probe based on BODIPY dye for sensitive detection of hypochlorite and its application in real water samples.

2016 · Talanta · Water, sanitation & biosecurity · Human observational / experimental
Authors: Wang, Yun; Xia, Jinchun; Han, Juan; Bao, Xu; Li, Yuanyuan; Tang, Xu; Ni, Liang; Wang, Lei; Gao, Mengmeng

The fluorescence of the system is dramatically enhanced by ClO⁻ due to the removal of C=N isomerization effect in physiological pH condition. This probe also has satisfactory selectivity for ClO⁻ even in the presence of other interferential ions and shows high sensitivity with a detection limit of 19.8 nM.

PMID 27769492 · DOI 10.1016/j.talanta.2016.09.025 · [PubMed record](#)

366. Involvement of vascular peroxidase 1 in angiotensin II-induced hypertrophy of H9c2 cells.

2017 · Journal of the American Society of Hypertension : JASH · Food & agriculture · In vitro / laboratory
Authors: Yang, Wei; Liu, Zhaoya; Xu, Qian; Peng, Haiyang; Chen, Luyao; Huang, Xiao; Yang, Tianlun; Yu, Zaixin; Cheng, Guangjie; Zhang, Guogang; Shi, Ruizheng

As compared to WKY rats, the SHR exhibited increased myocyte cross sectional area, enhanced Nox2 and VPO1 expression level in cardiac tissue, and an increased Ang II level in plasma. In conclusion, these results suggest that the Nox2/VPO1/HOCl/ERK1/2 redox signaling pathway was implicated in the pathogenesis of Ang II-induced cardiac hypertrophy.

PMID 27651140 · DOI 10.1016/j.jash.2016.08.002 · [PubMed record](#)

367. Sensitive detection and estimation of cell-derived peroxynitrite fluxes using fluorescein-boronate.

2016 · Free radical biology & medicine · Veterinary & livestock · In vitro / laboratory
Authors: Rios, Natalia; Piacenza, Lucía; Trujillo, Mada; Martínez, Alejandra; Demicheli, Verónica; Prolo, Carolina; Álvarez, María Noel; López, Gloria V; Radi, Rafael

FI-B was shown to be more sensitive than the coumarin boronate due to a higher molar absorption coefficient and quantum yield. Overall, our results show that FI-B is a kinetically selective and highly sensitive probe for the direct detection of cell-derived peroxynitrite.

PMID 27641237 · DOI 10.1016/j.freeradbiomed.2016.08.033 · [PubMed record](#)

368. Effects of air polishing and an amino acid buffered hypochlorite solution to dentin surfaces and periodontal ligament cell survival, attachment, and spreading.

2017 · Clinical oral investigations · Veterinary & livestock · In vitro / laboratory
Authors: Schmidlin, Patrick R; Fujioka-Kobayashi, Masako; Mueller, Heinz-Dieter; Sculean, Anton; Lussi, Adrian; Miron, Richard J

Significantly higher PDL cell numbers were observed on samples treated with the Perio powder and the Perisolv® solution (approximately 40 % more cells; $p < 0.05$). CONCLUSION: The results from the present study demonstrate that cell survival and spreading of PDL cells on root surfaces is possible following either air polishing or application with Perisolv®.

PMID 27596604 · DOI 10.1007/s00784-016-1950-9 · [PubMed record](#)

369. Kinetics and mechanisms of formation of earthy and musty odor compounds: Chloroanisoles during water chlorination.

2016 · Chemosphere · Food & agriculture · Journal article / other
Authors: Zhang, Kejia; Zhou, Xinyan; Zhang, Tuqiao; Mao, Minmin; Li, Lei; Liao, Wenchao

The results showed that HOCl reacted with anisole in acidic solution, with the hydrogen ion as an important catalyst. Quantification of product distribution of the produced chloroanisoles demonstrated that a chlorine attack in the para-position was favored over the ortho-position.

PMID 27561731 · DOI 10.1016/j.chemosphere.2016.08.051 · [PubMed record](#)

370. Elimination of biofilm and microbial contamination reservoirs in hospital washbasin U-bends by automated cleaning and disinfection with electrochemically activated solutions.

2016 · The Journal of hospital infection · Water, sanitation & biosecurity · Journal article / other
Authors: Swan, J S; Deasy, E C; Boyle, M A; Russell, R J; O'Donnell, M J; Coleman, D C

Manual U-bend electrochemically activated (ECA) solution treatment reduced counts significantly ($<100\text{cfu/swab}$) ($P < 0.01$ for CBA; $P < 0.005$ for R2A). Similarly, counts from the automated ECA-treatment U-bend were significantly reduced with average counts for 35 cycles on CBA, R2A, PAS, and PA of 2.1 ± 4.5 ($P < 0.0001$), 13.1 ± 30.1 ($P < 0.05$), 0.7 ± 2.8 ($P < 0.001$), and 0 ($P < 0.05$) cfu/swab, respectively.

PMID 27485396 · DOI 10.1016/j.jhin.2016.07.007 · [PubMed record](#)

371. Effectiveness of Hypochlorous Acid to Reduce the Biofilms on Titanium Alloy Surfaces in Vitro.

2016 · International journal of molecular sciences · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Chen, Chun-Ju; Chen, Chun-Cheng; Ding, Shinn-Jyh

The results indicated that HOCl exhibited better antibacterial efficacy with increasing irrigating volumes. Moreover, HOCl significantly lowered the LPS concentration of *P. gingivalis* when compared with NaOCl and CHX.

PMID 27447617 · DOI 10.3390/ijms17071161 · [PubMed record](#)

372. Solanum diploconos fruits: profile of bioactive compounds and in vitro antioxidant capacity of different parts of the fruit.

2016 · Food & function · Food & agriculture · In vitro / laboratory

Authors: Ribeiro, Alessandra Braga; Chisté, Renan Campos; Lima, José L F C; Fernandes, Eduarda

Coumaric, ferulic and caffeic acid derivatives were revealed to be the major phenolic constituents. Thus, Solanum diploconos fruits may be seen as a promising source of bioactive compounds with high antioxidant potential against the most physiologically relevant ROS and RNS.

PMID 27142444 · DOI 10.1039/c6fo00326e · [PubMed record](#)

373. Inactivation of bacteria on surfaces by sprayed slightly acidic hypochlorous acid water: in vitro experiments.

2016 · The Journal of veterinary medical science · Veterinary & livestock · In vitro / laboratory

Authors: Hakim, Hakimullah; Alam, Md Shahin; Sangsriratanakul, Natthanant; Nakajima, Katsuhiro; Kitazawa, Minori; Ota, Mari; Toyofuku, Chiharu; Yamada, Masashi; Thammakarn, Chanathip; Shoham, Dany; Takehara, Kazuaki

Our findings demonstrate that SAHW is a good candidate for biosecurity enhancement in the poultry industry. These results augment previous findings demonstrating the competence of SAHW as an anti-viral disinfectant.

PMID 27052464 · DOI 10.1292/jvms.16-0075 · [PubMed record](#)

374. Linking Inflammation and Parkinson Disease: Hypochlorous Acid Generates Parkinsonian Poisons.

2016 · Toxicological sciences : an official journal of the Society of Toxicology · Food & agriculture · In vitro / laboratory

Authors: Jeitner, Thomas M; Kalogiannis, Mike; Krasnikov, Boris F; Gomolin, Irving; Peltier, Morgan R; Moran, Graham R

The observed changes in mitochondrial biochemistry were also accompanied by the swelling of these organelles. Overall, our findings suggest that chlorination of dopamine by HOCl generates toxins that selectively kill dopaminergic neurons in the substantia nigra in a manner comparable to MPP+.

PMID 27026709 · DOI 10.1093/toxsci/kfw052 · [PubMed record](#)

375. Chlorination of Betacyanins in Several Hypochlorous Acid Systems.

2016 · Journal of agricultural and food chemistry · Water, sanitation & biosecurity · Journal article / other

Authors: Wybraniec, Sławomir; Starzak, Karolina; Pietrzkowski, Zbigniew

The intriguing low activity of Cl₂ in betanin/betanidin chlorination compared to HOCl and/or Cl₂O can be explained by a special position of the attack by molecules of HOCl and/or Cl₂O. In the MPO/H₂O₂/Cl(-) system, the highest efficiency of monochloro-betanin/-betanidin generation is observed at pH 5.

PMID 26947920 · DOI 10.1021/acs.jafc.5b06020 · [PubMed record](#)

376. TrpA1 Regulates Defecation of Food-Borne Pathogens under the Control of the Duox Pathway.

2016 · PLoS genetics · Food & agriculture · Human observational / experimental

Authors: Du, Eun Jo; Ahn, Tae Jung; Kwon, Ilmin; Lee, Ji Hye; Park, Jeong-Ho; Park, Sun Hwa; Kang, Tong Mook; Cho, Hana; Kim, Tae Jin; Kim, Hyung-Wook; Jun, Youngsoo; Lee, Hee Jae; Lee, Young Sik; Kwon, Jae Young; Kang, KyeongJin

Consistent with TrpA1's role in defecation, uracil-excreting Erwinia carotovora showed higher persistence in TrpA1-deficient guts. Taken together, our results propose that the uracil/Duox pathway promotes bacteria expulsion from the gut through the HOCl-sensitive receptor, TRPA1(A)10b, thereby minimizing the chances that bacteria adapt to survive host defense systems.

PMID 26726767 · DOI 10.1371/journal.pgen.1005773 · [PubMed record](#)

377. Unexpected products of the hypochlorous acid-induced oxidation of oleic acid: A study using high performance thin-layer chromatography-electrospray ionization mass spectrometry.

2016 · Journal of chromatography. A · Water, sanitation & biosecurity · Journal article / other

Authors: Schröter, Jenny; Griesinger, Hans; Reuÿ, Eyla; Schulz, Michael; Riemer, Thomas; Süß, Rosmarie; Schiller, Jürgen; Fuchs, Beate

The obtained products after oleic acid chlorination were also compared with the reaction products of 1-palmitoyl-2-oleoyl-sn-phosphatidylcholine (POPC) and HOCl. The reasons why different products are obtained will be discussed and the involvement of the carboxylic acid emphasized.

PMID 26700153 · DOI 10.1016/j.chroma.2015.11.059 · [PubMed record](#)

378. Serotonin as a putative scavenger of hypohalous acid in the brain.

2016 · Biochimica et biophysica acta · Water, sanitation & biosecurity · Human observational / experimental
Authors: Kalogiannis, Mike; Delikatny, E James; Jeitner, Thomas M

Extracellular concentrations of serotonin in the brain can be elevated with selective serotonin reuptake inhibitors and suggests that such compounds could be used to increase the cerebral antioxidant capacity. These observations suggest that serotonin may act to suppress chlorinative stress in the brain.

PMID 26699077 · DOI 10.1016/j.bbadis.2015.12.012 · [PubMed record](#)

379. Viability and Effects on Bacterial Proteins by Oral Rinses with Hypochlorous Acid as Active Ingredient.

2015 · Brazilian dental journal · Water, sanitation & biosecurity · Human observational / experimental
Authors: Castillo, Diana Marcela; Castillo, Yormaris; Delgadillo, Nathaly Andrea; Neuta, Yineth; Jola, Johana; Calderón, Justo Leonardo; Lafaurie, Gloria Inés

CHX showed a higher efficacy than HOCl against *S. mutans*, *A. israelii*, *E. corrodens* and *E. cloacae* ($p < 0.001$) while HOCl was more effective than CHX against *P. gingivalis*, *A. actinomycetemcomitans*, *C. rectus* and *K. oxytoca* ($p = 0.001$). HOCl reduced the bacterial viability especially in periodontopathic bacteria, which may support its use in the control of subgingival biofilm in periodontal patients.

PMID 26647939 · DOI 10.1590/0103-6440201300388 · [PubMed record](#)

380. Aerosol Disinfection Capacity of Slightly Acidic Hypochlorous Acid Water Towards Newcastle Disease Virus in the Air: An In Vivo Experiment.

2015 · Avian diseases · Veterinary & livestock · Animal study
Authors: Hakim, Hakimullah; Thammakarn, Chanathip; Suguro, Atsushi; Ishida, Yuki; Nakajima, Katsuhiro; Kitazawa, Minoru; Takehara, Kazuaki

Existence of bioaerosol contaminants in farms and outbreaks of some infectious organisms with the ability of transmission by air increase the need for enhancement of biosecurity, especially for the application of aerosol disinfectants. Cytopathic effects were observed, and a hemagglutination test was performed to confirm the result at 5 days postinoculation.

PMID 26629621 · DOI 10.1637/11107-042115-Reg.1 · [PubMed record](#)

381. Silica Gel for Enhanced Activity and Hypochlorite Protection of Cyanuric Acid Hydrolase in Recombinant Escherichia coli.

2015 · mBio · Water, sanitation & biosecurity · Journal article / other
Authors: Radian, Adi; Aukema, Kelly G; Aksan, Alptekin; Wackett, Lawrence P

UV spectroscopy, fluorescence spectroscopy, and scanning electron microscopy showed that the higher rates were due to APTES increasing membrane permeability and enhancing cyanuric acid diffusion into the cytoplasm to reach the CAH enzyme. Methods for promoting whole-cell biocatalysis are important in biotechnology, and the present work illustrates approaches to enhance rates and protect against an inhibitory substance.

PMID 26530383 · DOI 10.1128/mBio.01477-15 · [PubMed record](#)

382. The role of vascular peroxidase 1 in ox-LDL-induced vascular smooth muscle cell calcification.

2015 · Atherosclerosis · Food & agriculture · Animal study
Authors: Tang, Yixin; Xu, Qian; Peng, Haiyang; Liu, Zhaoya; Yang, Tianlun; Yu, Zaixin; Cheng, Guangjie; Li, Xiaohui; Zhang, Guogang; Shi, Ruizheng

In cultured primary rat VSMCs, we observed that the expression of VPO1 was significantly increased in combination with increases in calcification, as demonstrated via increased mineralization, as well as increased alkaline phosphatase (ALP) activity and up-regulated runt-related transcription factor 2 (Runx2) expression in ox-LDL-treated cells. Collectively, these results demonstrated that VPO1 promotes ox-LDL-induced VSMC calcification via the...

PMID 26520887 · DOI 10.1016/j.atherosclerosis.2015.08.047 · [PubMed record](#)

383. Novel Electrokinetic Microfluidic Detector for Evaluating Effectiveness of Microalgae Disinfection in Ship Ballast Water.

2015 · International journal of molecular sciences · Water, sanitation & biosecurity · Journal article / other
Authors: Maw, Myint Myint; Wang, Junsheng; Li, Fabo; Jiang, Jinhu; Song, Younan; Pan, Xinxiang

The results show that the viability of microalgae cells under different treatment conditions can be determined accurately and further optimal treatment conditions including concentrations of NaClO and treatment time can also be obtained. These results can provide accurate evaluation and optimal parameters for ballast water treatment methods.

PMID 26516836 · DOI 10.3390/ijms161025560 · [PubMed record](#)

384. Fungal Infections After Boston Type 1 Keratoprosthesis Implantation: Literature Review and In Vitro Antifungal Activity of Hypochlorous Acid.

2015 · Cornea · Water, sanitation & biosecurity · Review
Authors: Odorcic, Silvia; Haas, Wolfgang; Gilmore, Michael S; Dohlman, Claes H

RESULTS: Fifteen publications, predominantly retrospective case series, were identified. 0.01% hypochlorous acid is rapidly fungicidal, reducing the number of viable yeast cells or mold conidia by at least 99.99% within 60 seconds.

PMID 26488624 · DOI 10.1097/ICO.0000000000000639 · [PubMed record](#)

385. A computational study of the chlorination and hydroxylation of amines by hypochlorous acid.

2015 · Organic & biomolecular chemistry · Water, sanitation & biosecurity · Journal article / other
Authors: Šakić, Davor; Hanževački, Marko; Smith, David M; Vrčević, Valerije

The origin of the observed solvent effects arises from differential solvation of the respective transition states for chlorine- and oxygen-transfers, respectively. The inclusion of 5 or 6 explicit water molecules is required to reproduce the experimental barriers for HOCl-induced formation of N-chloramines in an aqueous environment.

PMID 26486691 · DOI 10.1039/c5ob01823d · [PubMed record](#)

386. Specific role of taurine in the 8-brominated-2'-deoxyguanosine formation.

2015 · Archives of biochemistry and biophysics · Food & agriculture · In vitro / laboratory
Authors: Asahi, Takashi; Nakamura, Yoshimasa; Kato, Yoji; Osawa, Toshihiko

Taurine also enhanced the bromination of only dG among the four 2'-deoxynucleosides, whereas it inhibited the 8-Cl-dG formation. The amount of dibrominated taurine (taurine dibromamine) closely correlated with the formation of 8-Br-dG, suggesting that taurine dibromamine might be a plausible mediator for the dG bromination in vivo.

PMID 26456401 · DOI 10.1016/j.abb.2015.10.002 · [PubMed record](#)

387. Amide Link Scission in the Polyamide Active Layers of Thin-Film Composite Membranes upon Exposure to Free Chlorine: Kinetics and Mechanisms.

2015 · Environmental science & technology · Water, sanitation & biosecurity · Journal article / other
Authors: Powell, Joshua; Luh, Jeanne; Coronell, Orlando

The results showed that (i) hydroxyl ions are needed for scission to occur, (ii) hydroxide-induced amide link scission is a strong function of exposure to hypochlorous acid, (iii) the ratio between amide links broken and chlorine atoms taken up increased with the chlorination pH and reached a maximum of ~25%, (iv) polyamide disintegration occurs when high free chlorine concentrations, alkaline conditions, and high exposure times are combined, (v) amide...

PMID 26394532 · DOI 10.1021/acs.est.5b02110 · [PubMed record](#)

388. Observation of the multiple halogenation of peptides in the electrospray ionization source.

2015 · Journal of mass spectrometry : JMS · Water, sanitation & biosecurity · Journal article / other
Authors: Kostyukevich, Yuri; Zhdanova, Ekaterina; Kononikhin, Alexey; Popov, Igor; Kukaev, Eugene; Nikolaev, Eugene

It was found that the grounding of ESI syringe results in the formation of an additional electric loop leading to the electrolytic production of Cl₂ and as a consequence the hypochlorous acid inside the ESI needle. In the paper, it is shown on the example of the solution of the several peptides in the presence of HCl that by manipulating the ESI syringe potential, it is possible to create complexes with up to five Cl atoms for sample peptides when the ESI...

PMID 26349644 · DOI 10.1002/jms.3599 · [PubMed record](#)

389. Kinetic Analysis of Haloacetonitrile Stability in Drinking Waters.

2015 · Environmental science & technology · Water, sanitation & biosecurity · Journal article / other
Authors: Yu, Yun; Reckhow, David A

Results indicated that hydroxide, hypochlorite, and their protonated forms could react with HANs via nucleophilic attack on the nitrile carbon, forming the corresponding haloacetamides (HAMs) and haloacetic acids (HAAs) as major reaction intermediates and end products. Developed using the estimated reaction rate constants, the linear free energy relationships (LFERs) summarized the nucleophilic nature of HAN reactions and demonstrated an activating effect...

PMID 26275044 · DOI 10.1021/acs.est.5b02772 · [PubMed record](#)

390. Removal of caffeine from aqueous solution by indirect electrochemical oxidation using a graphite-PVC composite electrode: A role of hypochlorite ion as an oxidising agent.

2015 · Journal of hazardous materials · Water, sanitation & biosecurity · Journal article / other
Authors: Al-Qaim, Fouad F; Mussa, Zainab H; Othman, Mohamed R; Abdullah, Md P

The results revealed that the electrochemical oxidation rates of caffeine followed pseudo first-order kinetics, with rate constant values ranged from 0.006 to 0.23 min⁻¹ depending on the operating parameters. The removal efficiency of caffeine increases with applied voltage very significantly, suggesting a very important role of mediated oxidation process.

PMID 26218306 · DOI 10.1016/j.jhazmat.2015.07.007 · [PubMed record](#)

391. Control of Salmonella Cross-Contamination between Green Round Tomatoes in a Model Flume System.

2015 · Journal of food protection · Food & agriculture · Journal article / other
Authors: Gereffi, Scott; Sreedharan, Aswathy; Schneider, Keith R

Based on these findings, 25 ppm of HOCl may be adequate to prevent cross-contamination when the concentration is properly maintained, COD does not exceed 500 ppm, and tomatoes are treated for at least 120 s. The use of less sanitizer by packers could reduce chemical and disposal costs.

PMID 26197278 · DOI 10.4315/0362-028X.JFP-14-524 · [PubMed record](#)

392. Do pH and flavonoids influence hypochlorous acid-induced catalase inhibition and heme modification?

2015 · International journal of biological macromolecules · Veterinary & livestock · In vitro / laboratory
Authors: Krych-Madej, Justyna; Gebicka, Lidia

It has been shown that HOCl-induced catalase inhibition is independent on pH in the range 6.0-7.4. Preincubation of catalase with epigallocatechin gallate and quercetin before HOCl treatment enhances the degree of catalase inhibition, whereas catechin does not affect this process.

PMID 26116387 · DOI 10.1016/j.ijbiomac.2015.06.038 · [PubMed record](#)

393. Nitrite attenuated hypochlorous acid-mediated heme degradation in hemoglobin.

2015 · Chemico-biological interactions · Veterinary & livestock · Animal study
Authors: Lu, Naihao; Li, Jiayu; Ren, Xiaoming; Tian, Rong; Peng, Yi-Yuan

The protective effects of NO₂⁻ on HOCl-induced heme destruction were attributed to its reduction of ferryl Hb and/or direct scavenging of HOCl. Therefore, NO₂⁻ could show protective effects in some inflammatory diseases by preventing HOCl-mediated heme destruction of hemoproteins and free iron release.

PMID 26051522 · DOI 10.1016/j.cbi.2015.05.021 · [PubMed record](#)

394. Oxidation by neutrophils-derived HOCl increases immunogenicity of proteins by converting them into ligands of several endocytic receptors involved in antigen uptake by dendritic cells and macrophages.

2015 · PloS one · Veterinary & livestock · Human observational / experimental
Authors: Biedron, Rafał; Konopinski, Maciej K; Marcinkiewicz, Janusz; Józefowski, Szczepan

We demonstrate that oxidation of proteins by endogenous, neutrophils-derived HOCl increases their immunogenicity. Our results indicate that oxidation by neutrophils-derived HOCl may be a physiological mechanism of conferring immunogenicity on proteins which in their native forms do not bind to endocytic receptors.

PMID 25849867 · DOI 10.1371/journal.pone.0123293 · [PubMed record](#)

395. Chlorination of the β-triketone herbicides tembotrione and sulcotrione: Kinetic and mechanistic study, transformation products identification and toxicity.

2015 · Water research · Water, sanitation & biosecurity · Journal article / other
Authors: Tawak, Alice; Deborde, Marie; Labanowski, Jérôme; Gallard, Hervé

Second-order reaction was observed and rate constants of $9.69 (\pm 0.15) \times 10^3 \text{ M}^{-1}\text{s}^{-1}$ for TBT and $9.48 (\pm 0.62) \times 10^3 \text{ M}^{-1}\text{s}^{-1}$ for SCT were obtained at pH 7. An increase in toxicity was observed but it could not be clearly assigned to the identified byproducts.

PMID 25813488 · DOI 10.1016/j.watres.2015.02.060 · [PubMed record](#)

396. Microbial community-based polyhydroxyalkanoates (PHAs) production from wastewater: Techno-economic analysis and ex-ante environmental assessment.

2015 · Bioresource technology · Water, sanitation & biosecurity · Journal article / other

Authors: Fernández-Dacosta, Cora; Posada, John A; Kleerebezem, Robbert; Cuellar, Maria C; Ramirez, Andrea

However, these results are not yet competitive with those for the petrochemical counterparts. Additional performance improvements may be possible, through process integration and optimisation.

PMID 25796067 · DOI 10.1016/j.biortech.2015.03.025 · [PubMed record](#)

397. Effect of hypochlorous acid solution on the eradication and prevention of *Pseudomonas aeruginosa* infection, serum biochemical variables, and cecum microbiota in rats.

2015 · Experimental animals · Water, sanitation & biosecurity · Animal study

Authors: Goto, Kazuo; Kuwayama, Eri; Nozu, Ryoko; Ueno, Masami; Hayashimoto, Nobuhito

The results suggest that the solution could not eliminate the bacteria in the experimentally infected rats; however, the administration of a 10-parts-per-million (ppm) hypochlorous acid solution as drinking water was effective in inhibiting horizontal spread of *P. aeruginosa* infection among cage mates. The results suggest that the weak acid hypochlorous solution could not eradicate *P. aeruginosa* completely from rats.

PMID 25736708 · DOI 10.1538/expanim.14-0068 · [PubMed record](#)

398. Imidazole catalyzes chlorination by unreactive primary chloramines.

2015 · Free radical biology & medicine · Water, sanitation & biosecurity · Journal article / other

Authors: Roemeling, Margo D; Williams, Jared; Beckman, Joseph S; Hurst, James K

Time-dependent imidazole-catalyzed HPA chlorination by NH_2Cl was also demonstrated by product analyses. Quantitative assessment of the data suggests that physiological levels of histidyl groups will react with primary chloramines to generate a flux of imidazole chloramine sufficient to catalyze biological chlorination via $\text{HImCl}(+)$, particularly in environments that generate high concentrations of HOCl such as the neutrophil phagosome.

PMID 25660996 · DOI 10.1016/j.freeradbiomed.2015.01.026 · [PubMed record](#)

399. Hypohalous acids contribute to renal extracellular matrix damage in experimental diabetes.

2015 · Diabetes · Water, sanitation & biosecurity · Animal study

Authors: Brown, Kyle L; Darris, Carl; Rose, Kristie Lindsey; Sanchez, Otto A; Madu, Hartman; Avance, Josh; Brooks, Nickolas; Zhang, Ming-Zhi; Fogo, Agnes; Harris, Raymond; Hudson, Billy G; Voziyan, Paul

In the NC1 hexamers isolated from diabetic kidneys, levels of HOCl -derived oxidized and chlorinated tryptophan residues W(28) and W(192) are significantly elevated compared with nondiabetic controls. Our results suggest that hypohalous acid-derived modifications of renal ECM, and specifically collagen IV networks, contribute to functional protein damage in diabetes.

PMID 25605804 · DOI 10.2337/db14-1001 · [PubMed record](#)

400. Inflaming the diseased brain: a role for tainted melanins.

2015 · Biochimica et biophysica acta · Food & agriculture · In vitro / laboratory

Authors: Jeitner, T M; Kalogiannis, M; Patrick, P A; Gomolin, I; Palaia, T; Ragolia, L; Brand, D; Delikatny, E J

Intrastriatal administration of 10(6) particles also increased the content of $\text{TNF}\alpha$ in the brain and led to a 50% loss of the dopaminergic neurons in the nigra. These studies indicate that HOCl and dopamine react quickly and preferentially with each other to produce particles that promote inflammation and neuronal death in the brain.

PMID 25585261 · DOI 10.1016/j.bbadis.2015.01.004 · [PubMed record](#)

401. Human native, enzymatically modified and oxidized low density lipoproteins show different lipidomic pattern.

2015 · Biochimica et biophysica acta · Food & agriculture · In vitro / laboratory

Authors: Orsó, Evelyn; Matysik, Silke; Grandl, Margot; Liebis, Gerhard; Schmitz, Gerd

Concomitantly, a strong rise of the lysophosphatidylcholine (LPC) fraction can be found in oxLDL as compared to native LDL. The mild oxidation of LDL with hypochlorite and/or lipoxygenase does not alter the content of the analyzed lipid classes and species in a significant manner.

PMID 25583048 · DOI 10.1016/j.bbalip.2015.01.001 · [PubMed record](#)

402. The effects of hypochlorous acid and neutrophil proteases on the structure and function of extracellular superoxide dismutase.

2015 · Free radical biology & medicine · Veterinary & livestock · Human observational / experimental

Authors: Morales, Karla; Olesen, Mads Nikolaj; Poulsen, Ebbe Toftgaard; Larsen, Ulrike G; Enghild, Jan J; Petersen, Steen Vang

Moreover, we show that the neutrophil-derived proteases human neutrophil elastase and cathepsin G cleaved the N-terminal region of EC-SOD irrespective of HOCl oxidation. The present data suggest that EC-SOD is stable and active at the site of inflammation and that neutrophils have the capacity to modulate the biodistribution of the protein by generating EC-SOD monomers that can diffuse into tissue.

PMID 25582887 · DOI 10.1016/j.freeradbiomed.2014.12.027 · [PubMed record](#)

403. Activation of RidA chaperone function by N-chlorination.

2014 · Nature communications · Food & agriculture · Human observational / experimental

Authors: Müller, Alexandra; Langklotz, Sina; Lupilova, Nataliya; Kuhlmann, Katja; Bandow, Julia Elisabeth; Leichert, Lars Ingo Ole

Here, we show that E. coli RidA modified with HOCl acts as a highly effective chaperone. HOCl-mediated N-chlorination thus is a cysteine-independent post-translational modification that reversibly turns RidA into an effective chaperone holdase, which plays a crucial role in the protection of cytosolic proteins during oxidative stress.

PMID 25517874 · DOI 10.1038/ncomms6804 · [PubMed record](#)

404. Inactivation of chemical and heat-resistant spores of Bacillus and Geobacillus by nitrogen cold atmospheric plasma evokes distinct changes in morphology and integrity of spores.

2015 · Food microbiology · Food & agriculture · Journal article / other

Authors: van Bokhorst-van de Veen, Hermien; Xie, Houyu; Esveld, Erik; Abee, Tjakko; Mastwijk, Hennie; Nierop Groot, Masja

Moreover, microscopy analysis revealed CAP-exposed B. cereus spores to turn phase grey conceivably because of water influx indicating damage of the spores, a phenomenon that was not observed for non-treated spores. Overall, this study shows that nitrogen CAP treatment has a biocidal effect on selected Bacillus and Geobacillus spores associated with alterations in spore surface morphology and loss of spore integrity.

PMID 25481059 · DOI 10.1016/j.fm.2014.03.018 · [PubMed record](#)

405. Evaluation of sprayed hypochlorous acid solutions for their virucidal activity against avian influenza virus through in vitro experiments.

2015 · The Journal of veterinary medical science · Veterinary & livestock · In vitro / laboratory

Authors: Hakim, Hakimullah; Thammakarn, Chanathip; Suguro, Atsushi; Ishida, Yuki; Kawamura, Akinobu; Tamura, Miho; Satoh, Keisuke; Tsujimura, Misato; Hasegawa, Tomomi; Takehara, Kazuaki

In this form, the 200 ppm solution inactivated AIV within 10 min of contact, while 50 and 100 ppm could not inactivate it. These data suggest that HOCl can be used in spray form to inactivate AIV at the farm level.

PMID 25421399 · DOI 10.1292/jvms.14-0413 · [PubMed record](#)

406. Optimization of microwave-assisted extraction of polyphenols from herbal teas and evaluation of their in vitro hypochlorous acid scavenging activity.

2014 · Journal of agricultural and food chemistry · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Bekde, Burcu; Durusoy, Nazan; Özyürek, Mustafa; Güçlü, Kubilay; Apak, Reza

Thus, the 25% inhibitive concentration (IC₂₅) value of polyphenols was determined using the relative increase in fluorescence intensity of the resorcinol probe. The present study revealed that epigallocatechin gallate (IC₂₅ = 0.1 µM) was the most effective scavenging agent.

PMID 25365495 · DOI 10.1021/jf503065h · [PubMed record](#)

407. Protein chlorination in neutrophil phagosomes and correlation with bacterial killing.

2014 · Free radical biology & medicine · Food & agriculture · Human observational / experimental

Authors: Green, Jessie N; Kettle, Anthony J; Winterbourn, Christine C

These results indicate that HOCl production is largely localized to the phagosomes and a substantial proportion reacts with phagosomal protein before reaching the microbe. They support a role for HOCl generation, rather than an alternative myeloperoxidase activity, in the killing process.

PMID 25236747 · DOI 10.1016/j.freeradbiomed.2014.08.013 · [PubMed record](#)

408. Clinically relevant HOCl concentrations reduce clot retraction rate via the inhibition of energy production in platelet mitochondria.

2014 · Free radical research · Veterinary & livestock · In vitro / laboratory
Authors: Misztal, T; Rusak, T; Tomasiak, M

In an artificial system, concentrations of HOCl resulting in inhibition of CR (25-100 nM) reduced mitochondrial transmembrane potential and did not affect actin polymerization in thrombin-stimulated platelets. We conclude that low clinically relevant HOCl concentrations may evoke the inhibition of CR via the reduction of platelet contractility resulted from malfunction of platelet mitochondria.

PMID 25236568 · DOI 10.3109/10715762.2014.960866 · [PubMed record](#)

409. Kinetics of 3-nitrotyrosine modification on exposure to hypochlorous acid.

2014 · Free radical research · Water, sanitation & biosecurity · Human observational / experimental
Authors: Curtis, M P; Neidigh, J W

Previous studies reported a loss of 3-nitrotyrosine when exposed to hypochlorous acid, suggesting that observations of 3-nitrotyrosine underestimate the presence of reactive nitrogen species in diseased tissue (Whiteman and Halliwell, Biochemical and Biophysical Research Communications, 258, 168-172 (1999)). The results demonstrate that 3-nitrotyrosine is chlorinated by hypochlorous acid or chloramines to form 3-chloro-5-nitrotyrosine.

PMID 25119650 · DOI 10.3109/10715762.2014.954110 · [PubMed record](#)

410. The use of hypochlorous acid as a model for investigating bladder overactivity.

2014 · International braz j urol : official journal of the Brazilian Society of Urology · Veterinary & livestock · Animal study
Authors: Dambros, Miriam; Dambros, Mara Celia; Lorenzetti, Fabio; Dassen, E L H M; van Koeveringe, G A

The overactivity could be stopped by washing out HOCl for 10 minutes after which still a significant contraction after EFS and ACh stimulation was seen. CONCLUSIONS: It can be concluded that an oxidative stressor, like HOCl, is capable of inducing smooth muscle overactivity.

PMID 25010308 · DOI 10.1590/S1677-5538.IBJU.2014.03.16 · [PubMed record](#)

411. Influence of sanitizers on the lipopolysaccharide toxicity of Escherichia coli strains cultivated in the presence of Zygosaccharomyces bailii.

2014 · TheScientificWorldJournal · Food & agriculture · Journal article / other
Authors: Mogotsi, Lerato; De Smidt, Olga; Venter, Pierre; Groenewald, Willem

Interestingly, pure cultures of Z. bailii showed increased toxicity measured by LAL and decreased toxicity measured by IL-6. LAL analysis showed a decrease in toxicity of both E. coli strains grown in combination with Z. bailii, while IL-6 analysis of the mixed cultures showed an increase in toxicity.

PMID 24977173 · DOI 10.1155/2014/135856 · [PubMed record](#)

412. Superior bactericidal activity of N-bromine compounds compared to their N-chlorine analogues can be reversed under protein load.

2014 · Journal of applied microbiology · Water, sanitation & biosecurity · Journal article / other
Authors: Gottardi, W; Klotz, S; Nagl, M

In the presence of peptone, however, bromine compounds showed an increased loss of BA, which partly caused a reversal of efficacy within isosteric pairs. SIGNIFICANCE AND IMPACT OF THE STUDY: The expected protein load is one of the most important parameters for selection of a suited active halogen compound.

PMID 24905215 · DOI 10.1111/jam.12474 · [PubMed record](#)

413. Five-year longitudinal assessment (2008 to 2012) of E-101 solution activity against clinical target and antimicrobial-resistant pathogens.

2014 · Antimicrobial agents and chemotherapy · Veterinary & livestock · Human observational / experimental
Authors: Denys, Gerald A; Pillar, Chris M; Sahm, Daniel F; O'Hanley, Peter; Stephens, Jackson T Jr

This study summarizes the topical E-101 solution susceptibility testing results for 760 Gram-positive and Gram-negative target pathogens collected from 75 U.S. sites between 2008 and 2012 and 103 ESKAPE pathogens. These results confirm that E-101 solution retains its potent broad-spectrum activity against U.S. clinical isolates and organisms with challenging resistance phenotypes.

PMID 24841272 · DOI 10.1128/AAC.03020-14 · [PubMed record](#)

414. Nanomolar detection of hypochlorite by a rhodamine-based chiral hydrazide in absolute aqueous media: application in tap water analysis with live-cell imaging.

2014 · Analytical chemistry · Water, sanitation & biosecurity · Human observational / experimental

Authors: Goswami, Shyamaprosad; Das, Avijit Kumar; Manna, Abhishek; Maity, Anup Kumar; Saha, Partha; Quah, Ching Kheng; Fun, Hoong-Kun; Abdel-Aziz, Hatem A

The bioactivity and the application of the probe for detection of OCl(-) in natural water system have been demonstrated. The sensibility of the receptor toward OCl(-) was studied in absolute aqueous media, and the detection limit of hypochlorite-mediated oxidation to the receptor in nanomolar level makes this platform (RHHP) an ultrasensitive and unique system for OCl(-) oxidation.

PMID 24806145 · DOI 10.1021/ac500418k · [PubMed record](#)

415. Effects of indoor swimming pools on the nasal cytology of pool workers.

2014 · The Journal of laryngology and otology · Water, sanitation & biosecurity · Human observational / experimental

Authors: Erkul, E; Yaz, A; Cengiz, C; Cengiz, H M; San, T; Bal, C

RESULTS: When the groups were compared in terms of epithelial cells, group 1 had significantly more epithelial cells than group 2. The skin prick test results for both groups were not significantly different.

PMID 24762781 · DOI 10.1017/S0022215114000784 · [PubMed record](#)

416. Development of a functional ruthenium(II) complex for probing hypochlorous acid in living cells.

2014 · Dalton transactions (Cambridge, England : 2003) · Veterinary & livestock · Human observational / experimental

Authors: Ye, Zhiqiang; Zhang, Run; Song, Bo; Dai, Zhichao; Jin, Dayong; Goldys, Ewa M; Yuan, Jingli

However, it can specifically and rapidly react with HOCl in aqueous media to afford a highly luminescent derivative, [Ru(bpy)2(HM-bpy)](PF6)2 (HM-bpy: 4-hydroxymethyl-4'-methyl-2,2'-bipyridine), accompanied by a 110-fold luminescence enhancement. The results corroborate that indeed [Ru(bpy)2(AN-bpy)](PF6)2 is a useful luminescent probe for the monitoring of HOCl in biological systems.

PMID 24740358 · DOI 10.1039/c4dt00179f · [PubMed record](#)

417. Thermodynamic properties of chloramine formation and related reactions during water treatment: a G4MP2, G4, and W1BD theoretical study.

2014 · Journal of environmental science and health. Part A, Toxic/hazardous substances & environmental engineering · Water, sanitation & biosecurity · Journal article / other

Authors: Rayne, Sierra; Forest, Kaya

Additional thermodynamic calculations were undertaken on associated chloramination reactions involving the disproportionation of monochloramine, the decomposition of di- and tri-chloramine, and the reactions of trichloramine with ammonia and dichloramine. The results from these investigations not only provide a better understanding of the reaction thermodynamics, they also allow for a more rigorous interpretation of proposed chloramination mechanisms.

PMID 24679082 · DOI 10.1080/10934529.2014.882180 · [PubMed record](#)

418. Poisoning injuries associated with water and wastewater treatment facilities.

2014 · Journal of occupational and environmental medicine · Water, sanitation & biosecurity · Human observational / experimental

Authors: Forrester, Mathias B

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 24603207 · DOI 10.1097/JOM.000000000000103 · [PubMed record](#)

419. The in vitro antimicrobial activity of wound and skin cleansers at nontoxic concentrations.

2014 · Advances in skin & wound care · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Rani, Suriani Abdul; Hoon, Russell; Najafi, Ramin Ron; Khosrovi, Behzad; Wang, Lu; Debabov, Dmitri

At noncytotoxic concentrations, NeutroPhase (NovaBay Pharmaceuticals Inc, Emeryville, California) was the most rapidly bactericidal, achieving a 4-log reduction in colony-forming units in less than 1 minute. The study findings suggest that NeutroPhase, in contrast with many commercially available wound cleansers, has rapid bactericidal activity at concentrations that are safe for human cells.

PMID 24440863 · DOI 10.1097/01.ASW.0000443255.73875.a3 · [PubMed record](#)

420. Effect of hypochlorite oxidation on cholinesterase-inhibition assay of acetonitrile extracts from fruits and vegetables for monitoring traces of organophosphate pesticides.

2014 · The Journal of toxicological sciences · Food & agriculture · Journal article / other

Authors: Kitamura, Kentaro; Maruyama, Kaori; Hamano, Sachiko; Kishi, Tomohiro; Kawakami, Tsuyoshi; Takahashi, Yasuo; Onodera, Sukeo

Enhanced anti-ChE activities leading to low detection limits (ppb levels) were observed for the chlorine-treated extracts that were spiked with chlorpyrifos, diazinon, fenitrothion, and isoxathion. This combination of oxidative derivatisation and ChE inhibition assays was used successfully to monitor and perform semi-quantitative determination of ChE inhibitors in apple, tomato, cucumber, and strawberry samples.

PMID 24418711 · DOI 10.2131/jts.39.71 · [PubMed record](#)

421. Comparison of oxygen and hypochlorite as cathodic electron acceptor in microbial fuel cells.

2014 · Bioresource technology · Water, sanitation & biosecurity · Journal article / other

Authors: Jadhav, D A; Ghadge, A N; Mondal, Debika; Ghangrekar, M M

Voltammetry and Tafel analysis further supported the faster reduction kinetics lead to increase in power output and reduction in internal resistance of MFC operated with NaOCl as an electron acceptor. Higher internal resistance, lower cathode potential and slow reduction kinetics deteriorated performance of MFC using oxygen as cathodic electron acceptor.

PMID 24413450 · DOI 10.1016/j.biortech.2013.12.069 · [PubMed record](#)

422. Nicotine mediates hypochlorous acid-induced nuclear protein damage in mammalian cells.

2014 · Inflammation · Food & agriculture · In vitro / laboratory

Authors: Salama, Samir A; Arab, Hany H; Omar, Hany A; Maghrabi, Ibrahim A; Snapka, Robert M

These findings point out the ability of nicotine to mediate HOCl-induced intracellular damage and suggest antioxidants as protective measures. The results also raise the possibility that Nic-Cl can be created in the inflamed tissues of tobacco and electronic cigarette smokers and may contribute to smoking-related diseases.

PMID 24357417 · DOI 10.1007/s10753-013-9797-6 · [PubMed record](#)

423. A near-infrared fluorescent probe for selective detection of HClO based on Se-sensitized aggregation of heptamethine cyanine dye.

2014 · Chemical communications (Cambridge, England) · Veterinary & livestock · Animal study

Authors: Cheng, Guanghui; Fan, Jiangli; Sun, Wen; Cao, Jianfang; Hu, Chong; Peng, Xiaojun

A Se-containing heptamethine cyanine dye based fluorescent probe was successfully developed and used for HClO detection with rapid response and high selectivity based on aggregation behavior. The probe could react with HClO with significant change in its fluorescence profile, which makes it practical for detecting HClO in fetal bovine serum and in living mice.

PMID 24310167 · DOI 10.1039/c3cc47864e · [PubMed record](#)

424. Rapid and ratiometric detection of hypochlorite with real application in tap water: molecules to low cost devices (TLC sticks).

2013 · Chemical communications (Cambridge, England) · Water, sanitation & biosecurity · Journal article / other

Authors: Goswami, Shyamaprosad; Manna, Abhishek; Paul, Sima; Quah, Ching Kheng; Fun, Hoong-Kun

We have designed a chemodosimeter DPNO (weak fluorescence) which can be oxidized to HPNO (strong blue fluorescence) by OCI(-) with high selectivity and sensitivity in a ratiometric approach with a noticeably lower detection limit. The sensor could be useful for the detection of hypochlorites in tap water.

PMID 24185489 · DOI 10.1039/c3cc47121g · [PubMed record](#)

425. Comparative reactivity of the myeloperoxidase-derived oxidants hypochlorous acid and hypothiocyanous acid with human coronary artery endothelial cells.

2013 · Free radical biology & medicine · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Lloyd, Mitchell M; Grima, Michael A; Rayner, Benjamin S; Hadfield, Katrina A; Davies, Michael J; Hawkins, Clare L

With each oxidant, apoptosis appears to be caspase-independent, with the inactivation of caspases 3/7 observed, and pretreatment of the cells with the caspase inhibitor Z-VAD-fmk having no effect on the extent of cell death. The results with HOSCN may be particularly significant for smokers, who have elevated plasma levels of SCN(-), the precursor of this oxidant.

PMID 24120969 · DOI 10.1016/j.freeradbiomed.2013.10.007 · [PubMed record](#)

426. Role of cysteines in the stability and DNA-binding activity of the hypochlorite-specific transcription factor HypT.

2013 · PloS one · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Drazic, Adrian; Tsoutsouloupoulos, Amelie; Peschek, Jirka; Gundlach, Jasmin; Krause, Maike; Bach, Nina C; Gebendorfer, Katharina M; Winter, Jeannette

Bacterial viability assays and analysis of target gene regulation indicate that HypT is highly specific to activation by HOCl and that no reaction products of HOCl such as monochloramine, hydroxyl radicals, or methionine sulfoxide activate HypT in vivo. Surprisingly, purified HypT lost its DNA-binding activity upon incubation with HOCl or reaction products that oxidize HypT to form a disulfide-linked dimer, and regained DNA-binding activity upon reduction.

PMID 24116067 · DOI 10.1371/journal.pone.0075683 · [PubMed record](#)

427. Efficacy of dilute hypochlorite solutions and an electrochemically activated saline solution containing hypochlorous acid for disinfection of methicillin-resistant Staphylococcus aureus in a pig skin model.

2013 · Infection control and hospital epidemiology · Veterinary & livestock · In vitro / laboratory

Authors: Chang, Bailey; Nerandzic, Michelle M; Kundrapu, Sirisha; Sunkesula, Venkata C K; Deshpande, Abhishek; Donskey, Curtis J

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 24113614 · DOI 10.1086/673448 · [PubMed record](#)

428. Aqueous chlorination of carbamazepine: kinetic study and transformation product identification.

2013 · Water research · Water, sanitation & biosecurity · Journal article / other

Authors: Soufan, M; Deborde, M; Delmont, A; Legube, B

These results indicate that, for a 1 mg/L free chlorine concentration and 1-10 mg/L chloride concentration at pH 7, half-lives about 52-69 days can be expected. From a mechanistic viewpoint, several transformation products were observed during carbamazepine chlorination.

PMID 23891541 · DOI 10.1016/j.watres.2013.05.047 · [PubMed record](#)

429. Bovine pulp tissue dissolution ability of HealOzone®, Aquatone Alpha Electrolyte® and sodium hypochlorite.

2013 · Australian endodontic journal : the journal of the Australian Society of Endodontology Inc · Veterinary & livestock · Animal study

Authors: Rossi-Fedele, Giampiero; Steier, Liviu; Dogramaci, Esma Jane; Canullo, Luigi; Steier, Gabriela; de Figueiredo, Jose Antonio Poli

Student's t-test showed that G5 dissolved bovine pulp tissue faster than G3 (P = 0.01). Only groups containing sodium hypochlorite dissolved pulp tissue, whilst HealOzone enhanced speed of dissolution.

PMID 23890260 · DOI 10.1111/j.1747-4477.2010.00287.x · [PubMed record](#)

430. pH-dependent Si-fluorescein hypochlorous acid fluorescent probe: spirocycle ring-opening and excess hypochlorous acid-induced chlorination.

2013 · Journal of the American Chemical Society · Water, sanitation & biosecurity · Journal article / other

Authors: Best, Quinn A; Sattenapally, Narsimha; Dyer, Daniel J; Scott, Colleen N; McCarroll, Matthew E

Over a range of pH values, the probe reacts with a stoichiometric amount of HOCl, resulting in a mixture of two pH-dependent fluorescent species, a SiF disulfide product and a SiF sulfonate product. When an excess of HOCl is present, the SiF fluorophores become chlorinated, via an intermediate halohydrin, resulting in a more pH independent and red-shifted fluorophore.

PMID 23889259 · DOI 10.1021/ja401426s · [PubMed record](#)

431. N-acetyl lysyltyrosylcysteine amide inhibits myeloperoxidase, a novel tripeptide inhibitor.

2013 · Journal of lipid research · Veterinary & livestock · Human observational / experimental

Authors: Zhang, Hao; Jing, Xigang; Shi, Yang; Xu, Hao; Du, Jianhai; Guan, Tongju; Weihrauch, Dorothee; Jones, Deron W; Wang, Weiling; Gourlay, David; Oldham, Keith T; Hillery, Cheryl A; Pritchard, Kirkwood A Jr

KYC is unique as its isomers do not inhibit MPO activity, or are much less effective. These data indicate KYC is a novel and specific inhibitor of MPO activity that is nontoxic to endothelial cell cultures.

PMID 23883583 · DOI 10.1194/jlr.M038273 · [PubMed record](#)

432. Fluorescent hydroxylamine derived from the fragmentation of PAMAM dendrimers for intracellular hypochlorite recognition.

2013 · Chemistry (Weinheim an der Bergstrasse, Germany) · Food & agriculture · Journal article / other
Authors: Wu, Te-Haw; Liu, Ching-Ping; Chien, Chih-Te; Lin, Shu-Yi

Specially, the novel fluorophore was only sensitive to OCl(-), one of reactive oxygen species (ROS), resulting in an irreversible fluorescence turn-off. The results suggest that the sensing approach may be useful for the detection of intracellular OCl(-) with minimal interference from biological matrixes.

PMID 23853105 · DOI 10.1002/chem.201300494 · [PubMed record](#)

433. Novel strategies for enhanced removal of persistent *Bacillus anthracis* surrogates and *Clostridium difficile* spores from skin.

2013 · PLoS one · Water, sanitation & biosecurity · Randomized controlled trial
Authors: Nerandzic, Michelle M; Rackaityte, Elze; Jury, Lucy A; Eckart, Kevin; Donskey, Curtis J

RESULTS: Spore removal from hands was enhanced with Vashe soak (>2.5 log10 reduction) versus soap and water wash or soak (~2.0 log10 reduction; P<0.05) and Vashe wipes versus alcohol wipes (P<0.01). These findings suggest a novel strategy to reduce the burden of spores on skin.

PMID 23844234 · DOI 10.1371/journal.pone.0068706 · [PubMed record](#)

434. Neutrophils Turn Plasma Proteins into Weapons against HIV-1.

2013 · PLoS one · Food & agriculture · In vitro / laboratory
Authors: Speth, Cornelia; Brodde, Martin F; Hagleitner, Magdalena; Rambach, Günter; Van Aken, Hugo; Dierich, Manfred; Kehrel, Beate E

Idea-PP was able to inhibit viral infection and replication in a cell culture system as shown by reduced number of infected cells and of syncytia, resulting in reduction of viral capsid protein p24 in the culture supernatant. These data offer an opportunity to improve the understanding of the intricacies of host-pathogen interactions and allow the generation of the following hypothetical scheme: natural immune defense mechanisms generate by...

PMID 23840401 · DOI 10.1371/journal.pone.0066073 · [PubMed record](#)

435. A dendritic cell vaccine pulsed with autologous hypochlorous acid-oxidized ovarian cancer lysate primes effective broad antitumor immunity: from bench to bedside.

2013 · Clinical cancer research : an official journal of the American Association for Cancer Research · Food & agriculture · Human observational / experimental
Authors: Chiang, Cheryl Lai-Lai; Kandalaft, Lana E; Tanyi, Janos; Hagemann, Andrea R; Motz, Gregory T; Svoronos, Nikolaos; Montone, Kathleen; Mantia-Smaldone, Gina M; Smith, Lori; Nisenbaum, Harvey L; Levine, Bruce L; Kalos, Michael; Czerniecki, Brian J; Torigian, Drew A; Powell, Daniel J Jr; Mick, Rosemarie; Coukos, George

RESULTS: We showed that DCs engulfed HOCl-oxidized lysate most efficiently stimulated robust MLRs, and elicited strong tumor-specific IFN- γ secretions in autologous T cells. CONCLUSIONS: This is the first study showing the potential efficacy of a DC vaccine pulsed with HOCl-oxidized tumor lysate, a novel approach in preparing DC vaccine that is potentially applicable to many cancers.

PMID 23838316 · DOI 10.1158/1078-0432.CCR-13-1185 · [PubMed record](#)

436. Protection of flavonoids against hypochlorite-induced protein modifications.

2013 · Food chemistry · Veterinary & livestock · In vitro / laboratory
Authors: Siwak, Justyna; Lewinska, Anna; Wnuk, Maciej; Bartosz, Grzegorz

In the present study, the effectiveness of fifteen structurally different flavonoids against hypochlorite-mediated changes in in vitro systems, with and without cells, was tested and compared. Taken together, special care should be taken when extrapolating the results on antioxidant propensity of food bioactive compounds in vitro to the cellular milieu.

PMID 23790908 · DOI 10.1016/j.foodchem.2013.04.018 · [PubMed record](#)

437. Antioxidant activity and inhibitory effects of lead (*Leucaena leucocephala*) seed extracts against lipid oxidation in model systems.

2013 · Food science and technology international = Ciencia y tecnologia de los alimentos internacional · Food & agriculture · Animal study
Authors: Benjakul, Sootawat; Kittiphattanabawon, Phanat; Shahidi, Fereidoon; Maqsood, Sajid

Both extracts showed similar hydroxyl radical (HO•) scavenging activity, hydrogen peroxide (H₂O₂) scavenging activity, singlet oxygen inhibition and hypochlorous acid (HOCl) scavenging capacity ($p > 0.05$). At the same level of use, mimosine exhibited a higher efficacy in prevention of lipid oxidation in both systems as indicated by the lower increases in thiobarbituric acid reactive substances.

PMID 23729420 · DOI 10.1177/1082013212455186 · [PubMed record](#)

438. One-electron oxidation and reduction of glycosaminoglycan chloramides: a kinetic study.

2013 · Free radical biology & medicine · Food & agriculture · Journal article / other
Authors: Sibanda, S; Parsons, B J; Houee-Levin, C; Marignier, J-L; Paterson, A W J; Heyes, D J

These findings suggest that these potential in vivo radicals may react in a site-specific manner with the N-Cl group in the glycosaminoglycan chloramides of the ECM, possibly to produce more efficient fragmentation. This is the first study therefore to conclusively demonstrate that reducing radicals react rapidly with glycosaminoglycan chloramides in a site-specific attack at the N-Cl group, probably to produce a 100% efficient biopolymer fragmentation...

PMID 23684776 · DOI 10.1016/j.freeradbiomed.2013.05.012 · [PubMed record](#)

439. Sporicidal efficacy of pH-adjusted bleach for control of bioburden on production facility surfaces.

2013 · Journal of industrial microbiology & biotechnology · Water, sanitation & biosecurity · Journal article / other
Authors: Frazer, Anne Cornish; Smyth, Josephine N; Bhupathiraju, Vishvesh K

In addition, solutions of 0.29 or 0.50 % NaOCl stored at room temperature protected from light retained efficacy for at least 4 weeks, indicating that short-term storage of solutions is possible following pH adjustment. A comparison of chemical stability for 0.12, 0.25, and 0.50 % NaOCl solutions adjusted to different initial pHs indicated that the least chlorate formation occurred with 0.12 % NaOCl.

PMID 23532317 · DOI 10.1007/s10295-013-1257-7 · [PubMed record](#)

440. Modelling trihalomethanes formation in water supply systems.

2013 · Environmental technology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Di Cristo, Cristiana; Esposito, Giovanni; Leopardi, Angelo

The comparison of the performances of 18 selected literature empirical models furnishes interesting observations, indicating that the formula, developed using field data, results in being more suitable for reproducing THMs formation for the presented case study. Other considerations are also offered from the comparison with the results obtained using a simple first order kinetic model, calibrated using measured data.

PMID 23530316 · DOI 10.1080/09593330.2012.679702 · [PubMed record](#)

441. Distribution and infection-related functions of bacillithiol in *Staphylococcus aureus*.

2013 · International journal of medical microbiology : IJMM · Food & agriculture · In vitro / laboratory
Authors: Pöther, Dierk-Christoph; Gierok, Philipp; Harms, Manuela; Mostertz, Jörg; Hochgräfe, Falko; Antelmann, Haïke; Hamilton, Chris J; Borovok, Ilya; Lalk, Michael; Aharonowitz, Yair; Hecker, Michael

Comparison of the BSH-producing and BSH-minus strains revealed higher resistance of the BSH-producing strain against the antibiotic fosfomycin and the oxidant hypochlorite but not against hydrogen peroxide or diamide. This indicates a potential role of BSH in protection of *S. aureus* during infection.

PMID 23517692 · DOI 10.1016/j.ijmm.2013.01.003 · [PubMed record](#)

442. Myeloperoxidase deficiency induces MIP-2 production via ERK activation in zymosan-stimulated mouse neutrophils.

2013 · Free radical research · Food & agriculture · In vitro / laboratory
Authors: Tateno, N; Matsumoto, N; Motowaki, T; Suzuki, K; Aratani, Y

The zymosan-induced production of MIP-2 in the wild-type neutrophils was enhanced by pre-treatment of the MPO inhibitor 4-aminobenzoic acid hydrazide. Collectively, these results strongly suggest that both lack of HOCl and accumulation of H₂O₂ due to MPO deficiency contribute to the up-regulation of MIP-2 production in mouse neutrophils stimulated with zymosan.

PMID 23438680 · DOI 10.3109/10715762.2013.778990 · [PubMed record](#)

443. Carotenoids and phenolic compounds from *Solanum sessiliflorum*, an unexploited Amazonian fruit, and their scavenging capacities against reactive oxygen and nitrogen species.

2013 · Journal of agricultural and food chemistry · Food & agriculture · Journal article / other
Authors: Rodrigues, Eliseu; Mariutti, Lilian R B; Mercadante, Adriana Z

Both mana-cubiu extracts were able to scavenge all the tested reactive species. The carotenoid extract was shown to be a potent scavenger of peroxy radical, while the hydrophilic extract was a potent hydrogen peroxide and hypochlorous acid scavenger.

PMID 23432472 · DOI 10.1021/jf3054214 · [PubMed record](#)

444. Direct electric current treatment under physiologic saline conditions kills *Staphylococcus epidermidis* biofilms via electrolytic generation of hypochlorous acid.

2013 · PLoS one · Water, sanitation & biosecurity · Journal article / other
Authors: Sandvik, Elizabeth L; McLeod, Bruce R; Parker, Albert E; Stewart, Philip S

There were no significant differences in log reductions for wells with ciprofloxacin compared to those without at the same current levels. Together these results indicate that electrolysis reactions generating hypochlorous acid from chloride are likely a main contributor to the efficacy of direct current application.

PMID 23390518 · DOI 10.1371/journal.pone.0055118 · [PubMed record](#)

445. Vascular peroxidase 1: a novel enzyme in promoting oxidative stress in cardiovascular system.

2013 · Trends in cardiovascular medicine · Food & agriculture · Review
Authors: Ma, Qi-Lin; Zhang, Guo-Gang; Peng, Jun

In this process ($O_2(-) \rightarrow H_2O_2 \rightarrow HOCl$), the oxidant reactivities of reactive oxygen species (ROS) are significantly increased and therefore the oxidative stress is dramatically amplified. In addition, VPO1 can be secreted into the extracellular space to participate in extracellular matrix formation, suggesting that VPO1 may also play a role in cardiovascular remodeling (such as fibrosis).

PMID 23357484 · DOI 10.1016/j.tcm.2012.11.002 · [PubMed record](#)

446. Interaction between chlorhexidine-impregnated gutta-percha points and several chlorine-containing endodontic irrigating solutions.

2013 · International endodontic journal · Food & agriculture · Human observational / experimental
Authors: Rossi-Fedele, G; Doñicramac, E J; Steier, L; de Figueiredo, J A P

Mean intensity scores were calculated and compared between groups using Kruskal-Wallis procedure followed by the Mann-Whitney test. RESULTS: The groups containing 5.25% NaOCl started to produce a visible precipitate after fourteen days (16.48 ± 0.98) for the Activ points; this process was first noticed with the standard gutta-percha group on day 17 (18.33 ± 1.22 days), with a statistically significant difference ($P = 0.002$).

PMID 23331158 · DOI 10.1111/iej.12044 · [PubMed record](#)

447. Role of lysine during protein modification by HOCl and HOBr: halogen-transfer agent or sacrificial antioxidant?

2013 · Biochemistry · Veterinary & livestock · Journal article / other
Authors: Sivey, John D; Howell, Stanley C; Bean, Doyle J; McCurry, Daniel L; Mitch, William A; Wilson, Corey J

The absence of lysine increased yields of chlorinated tyrosines and decreased yields of brominated tyrosines following treatments with HOCl and HOBr, respectively, without influencing the susceptibility of ADK to HOX-mediated losses of secondary structure. These findings suggest that lysine serves predominantly as a sacrificial antioxidant (via formation of lysine nitrile) toward HOCl and as a halogen-transfer mediator [via reactions involving...

PMID 23327477 · DOI 10.1021/bi301523s · [PubMed record](#)

448. Antiviral activity of Ecasol against feline calicivirus, a surrogate of human norovirus.

2012 · Journal of infection and public health · Food & agriculture · Human observational / experimental
Authors: Chander, Yogesh; Johnson, Thomas; Goyal, Sagar M; Russell, R J

After exposure to Ecasol, the virus titers were compared with untreated controls to determine the virus inactivation efficacy after different contact times. Ecasol was found to decrease the FCV titer by $>5\log(10)$ within 1min of contact, indicating its suitability for inactivation of NoV on surfaces.

PMID 23287613 · DOI 10.1016/j.jiph.2012.10.001 · [PubMed record](#)

449. Active halogen compounds and proteinaceous material: loss of activity of topical anti-infectives by halogen consumption.

2013 · The Journal of pharmacy and pharmacology · Veterinary & livestock · Animal study
Authors: Gottardi, Waldemar; Nagl, Markus

KEY FINDINGS: The decrease in oxidation capacity was higher in the presence of FCS than of peptone and correlated with the reactivity of the oxidants in both cases. CONCLUSIONS: The observed consumption effects are the result of the differing oxidizing (chlorinating) potencies.

PMID 23278688 · DOI 10.1111/j.2042-7158.2012.01589.x · [PubMed record](#)

450. Formation of organochlorine by-products in bleached laundry.

2013 · Chemosphere · Water, sanitation & biosecurity · Human observational / experimental
Authors: Leri, Alessandra C; Anthony, Laura N

Organochlorine formation increases at higher wash temperature. Our results also suggest that residual hypochlorite remains in fabric after laundering with bleach, presenting the possibility of direct and sustained dermal contact with reactive chlorine.

PMID 23261123 · DOI 10.1016/j.chemosphere.2012.10.088 · [PubMed record](#)

451. Inhibition by polyphenolic phytochemicals and sulfurous compounds of the formation of 8-chloroguanosine mediated by hypochlorous acid, human myeloperoxidase, and activated human neutrophils.

2012 · Bioscience, biotechnology, and biochemistry · Water, sanitation & biosecurity · Human observational / experimental
Authors: Nakano, Toshiki; Masuda, Mitsuharu; Suzuki, Toshinori; Ohshima, Hiroshi

Among the test compounds, (-)-epigallocatechin gallate (EGCG) showed the strongest inhibitory effect. These results suggest that polyphenols and sulfurous compounds have the potential to inhibit the induction of nucleobase damage mediated by chlorination, with possible application to reducing DNA damage associated with inflammation and cigarette-smoke inhalation.

PMID 23221717 · DOI 10.1271/bbb.120482 · [PubMed record](#)

452. Chlorination and oxidation of heparin and hyaluronan by hypochlorous acid and hypochlorite anions: effect of sulfate groups on reaction pathways and kinetics.

2013 · Free radical biology & medicine · Water, sanitation & biosecurity · Journal article / other
Authors: Akeel, Almabrok; Sibanda, Sambulelwe; Martin, Stephen W; Paterson, Andrew W J; Parsons, Barry J

By comparison with hyaluronan, it can be demonstrated that both N-sulfate and O-sulfate groups in heparin influence the proportions of these pathways in this glycosaminoglycan. The significance of these results for the mechanisms of inflammation, particularly for fragmentation of extracellular matrix glycosaminoglycans, is discussed.

PMID 23220380 · DOI 10.1016/j.freeradbiomed.2012.11.020 · [PubMed record](#)

453. Synthesis, characterization, and reactivity of hypochloritoiron(III) porphyrin complexes.

2012 · Journal of the American Chemical Society · Water, sanitation & biosecurity · Journal article / other
Authors: Cong, Zhiqi; Yanagisawa, Sachiko; Kurahashi, Takuya; Ogura, Takashi; Nakashima, Satoru; Fujii, Hiroshi

The structures of 1-4 were confirmed by absorption, (2)H and (19)F NMR, EPR, and resonance Raman spectroscopy and electrospray ionization mass spectrometry at low temperature. The reactions of 1 and 2 with various organic substrates show that 1 and 2 are capable of chlorination, sulfoxidation, and epoxidation reactions and that 1 is much more reactive with these substrates than 2.

PMID 23214510 · DOI 10.1021/ja3108774 · [PubMed record](#)

454. A simple yet effective chromogenic reagent for the rapid estimation of bromate and hypochlorite in drinking water.

2013 · The Analyst · Water, sanitation & biosecurity · Journal article / other
Authors: Zhang, Jia; Yang, Xiurong

We present a method for the rapid visible assay of bromate and hypochlorite in drinking water within 5 min. The assay utilizes a commercially common reagent and allows the determination of bromate and hypochlorite at several ppb levels with remarkably high selectivity over other ions.

PMID 23175696 · DOI 10.1039/c2an36287b · [PubMed record](#)

455. Free chlorine inactivation of fungi in drinking water sources.

2013 · Water research · Water, sanitation & biosecurity · Journal article / other
Authors: Pereira, V J; Marques, R; Marques, M; Benoliel, M J; Barreto Crespo, M T

The sensitivity degree of different fungi isolates to chlorine disinfection varied among different genera with some species showing a higher resistance to disinfection and others expected to be more prone to protection from inactivation by the water matrix components. When the disinfection efficiency measured in terms of the chlorine concentration and contact time (Ct) values needed to achieve 99% inactivation were compared with the Ct values reported as...

PMID 23164218 · DOI 10.1016/j.watres.2012.09.052 · [PubMed record](#)

456. Reactions of copper macrocycles with antioxidants and HOCl: potential for biological redox sensing.

2013 · Biomaterials : an international journal on the role of metal ions in biology, biochemistry, and medicine · Veterinary & livestock · Animal study
Authors: Sowden, Rebecca J; Trotter, Katherine D; Dunbar, Lynsey; Craig, Gemma; Erdemli, Omer; Spickett, Corinne M; Reglinski, John

This was concluded to be due to competition between metal oxidation and ligand oxidation, which is believed to contribute to macrocycle demetallation. Moreover, the macrocyclic complexes could be demetallated by incubation with EDTA and bovine serum albumin, demonstrating that they would be inappropriate for use in biological systems.

PMID 23160798 · DOI 10.1007/s10534-012-9596-9 · [PubMed record](#)

457. Evaluation of antioxidant activity of leafy vegetables and beans with myoglobin method.

2013 · Plant cell reports · Food & agriculture · Journal article / other
Authors: Terashima, Masaaki; Fukukita, Akiko; Kodama, Riho; Miki, Haruka; Suzuki, Mayuko; Ikegami, Maya; Tamura, Noriko; Yasuda, Akari; Morikawa, Mami; Matsumura, Saki

This plot clearly showed the characteristics of the antioxidant activity of the leafy vegetables and the beans. The samples examined in this work were categorized into four groups. (1) The samples showed high antioxidant activity against all ROS and RNS: daikon sprout, spinach, Qing-geng-cai, and onion. (2) The samples showed high antioxidant activity against peroxyl radical: red bean and soy bean. (3) The samples showed high antioxidant against...

PMID 23160640 · DOI 10.1007/s00299-012-1368-z · [PubMed record](#)

458. Virus inactivation mechanisms: impact of disinfectants on virus function and structural integrity.

2012 · Environmental science & technology · Water, sanitation & biosecurity · Journal article / other
Authors: Wigginton, Krista Rule; Pecson, Brian M; Sigstam, Thérèse; Bosshard, Franziska; Kohn, Tamar

UV and chlorine treatments, for example, cause site-specific capsid protein backbone cleavage that inhibits viral genome injection into the host cell. Combined, these results will aid in developing better methods for combating waterborne and foodborne viral pathogens and further our understanding of the adaptive changes viruses undergo in response to natural and anthropogenic stressors.

PMID 23098102 · DOI 10.1021/es3029473 · [PubMed record](#)

459. Chloride transport in functionally active phagosomes isolated from Human neutrophils.

2012 · Free radical biology & medicine · Food & agriculture · Human observational / experimental
Authors: Aiken, Martha L; Painter, Richard G; Zhou, Yun; Wang, Guoshun

Flow cytometric measurement of acridine orange, a fluorescent pH indicator, in the purified phagosomes demonstrated that the organelle in its isolated state was capable of transporting protons to the phagosomal lumen via the vacuolar-type ATPase proton pump (V-ATPase). Phagosomal uptake of iodide and protein iodination were significantly blocked by chloride channel inhibitors, including CFTRinh-172 and NPPB.

PMID 23089227 · DOI 10.1016/j.freeradbiomed.2012.10.542 · [PubMed record](#)

460. Preventing protein oxidation with sugars: scavenging of hypohalous acids by 5-selenopyranose and 4-selenofuranose derivatives.

2012 · Chemical research in toxicology · Veterinary & livestock · Human observational / experimental
Authors: Storkey, Corin; Pattison, David I; White, Jonathan M; Schiesser, Carl H; Davies, Michael J

These values show little variation with differing sugar structures. These studies demonstrate that novel selenium (and to a lesser extent, sulfur) derivatives of monosaccharides could be potent modulators of peroxidase-mediated damage at sites of acute and chronic inflammation, and in multiple human pathologies.

PMID 23075063 · DOI 10.1021/tx3003593 · [PubMed record](#)

461. Targeted subendothelial matrix oxidation by myeloperoxidase triggers myosin II-dependent de-adhesion and alters signaling in endothelial cells.

2012 · Free radical biology & medicine · Veterinary & livestock · Human observational / experimental
Authors: Rees, Martin D; Dang, Lei; Thai, Thuan; Owen, Dylan M; Malle, Ernst; Thomas, Shane R

Notably, diversion of MPO from HOCl production by thiocyanate or nitrite attenuated de-adhesion and associated signaling responses, despite the latter substrate supporting MPO-catalyzed fibronectin nitration. These data show that subendothelial-localized MPO employs a novel "outside-in" mode of redox signaling, involving HOCl-mediated matrix oxidation.

PMID 23059132 · DOI 10.1016/j.freeradbiomed.2012.10.002 · [PubMed record](#)

462. Resorcinol as a spectrofluorometric probe for the hypochlorous acid scavenging activity assay of biological samples.

2012 · Analytical chemistry · Food & agriculture · Animal study
Authors: Özyürek, Mustafa; Bekdemir, Burcu; Güçlü, Kubilay; Apak, Reşat

Thus, conventional problems of the TNB assay arising from the reactivity of thiol-type scavengers to produce extra TNB by direct reduction of 5,5'-dithiobis(2-nitrobenzoic acid) (DTNB) were overcome. Moreover, unlike enzymatic assays (e.g., elastase), there is no confusion as to whether the putative scavenger actually reacts with HOCl or inhibits the enzyme.

PMID 23046424 · DOI 10.1021/ac302369p · [PubMed record](#)

463. Presence of hydrogen peroxide, a source of hydroxyl radicals, in acid electrolyzed water.

2012 · PLoS one · Water, sanitation & biosecurity · Journal article / other
Authors: Mokudai, Takayuki; Nakamura, Keisuke; Kanno, Taro; Niwano, Yoshimi

Dimethyl sulfoxide, the other hydroxyl radical scavenger used in the present study, canceled the bactericidal activity of AEW, accompanied by complete depletion of free available chlorine, suggesting that hypochlorous acid is probably a major contributor to the antimicrobial activity. CONCLUSIONS: It is strongly suggested that although hydrogen peroxide is present in AEW as a source of hydroxyl radicals, the antimicrobial activity of AEW does not depend...

PMID 23029505 · DOI 10.1371/journal.pone.0046392 · [PubMed record](#)

464. Sensitive and simple determination of bromate in foods disinfected with hypochlorite reagents using high performance liquid chromatography with post-column derivatization.

2012 · Journal of chromatography. A · Food & agriculture · Animal study
Authors: Yokota, Azusa; Kubota, Hiroki; Komiya, Satomi; Sato, Kyoko; Akiyama, Hiroshi; Koshiishi, Ichiro

The lowest quantification limit in fresh foods was estimated to be 0.6 ng/g as bromic acid. The method should be helpful for the quantification of bromate in fresh foods disinfected with hypochlorite solutions.

PMID 23026260 · DOI 10.1016/j.chroma.2012.09.014 · [PubMed record](#)

465. Microbicidal effect of weak acid hypochlorous solution on various microorganisms.

2012 · Biocontrol science · Food & agriculture · In vitro / laboratory
Authors: Ono, Tomoko; Yamashita, Koji; Murayama, Tomomi; Sato, Toshio

The microbicidal effects of hypochlorous solutions did not depend on the available chlorine concentration but on the HClO concentration. These results show that the weak acid hypochlorous solution has practical applicability in such places as hospitals and establishments related to the food industry.

PMID 23007104 · DOI 10.4265/bio.17.129 · [PubMed record](#)

466. Antioxidant characteristics of extracts from cereal residues by their subcritical water treatment.

2012 · Journal of oleo science · Water, sanitation & biosecurity · Journal article / other
Authors: Murayama, Yusuke; Wiboonsirikul, Jintana; Khuwijitjaru, Pramote; Kobayashi, Takashi; Adachi, Shuji

The results show that the extracts from the sake lees, corn kernel hull, and defatted rapeseed had differently the antioxidative activities against all radicals and ions. However, the okara, defatted rice bran and desalted soy sauce lees had no activity against the hypochlorite ion.

PMID 22975779 · DOI 10.5650/jos.61.465 · [PubMed record](#)

467. Ginsenoside Rb1 directly scavenges hydroxyl radical and hypochlorous acid.

2012 · Current pharmaceutical design · Water, sanitation & biosecurity · Journal article / other
Authors: Lü, Jian-Ming; Weakley, Sarah M; Yang, Zhen; Hu, Ming; Yao, Qizhi; Chen, Changyi

We found that Rb1 can significantly and selectively reduce hydroxyl radical (●OH) and hypochlorous acid (HOCl), two of the strongest ROS, with unique molecular mechanisms in a cell-free system. Rb1 also shows a high reactivity to HOCl and effectively inhibits HOCl-induced tyrosine chlorination in a cell free system.

PMID 22974003 · DOI 10.2174/138161212803832254 · [PubMed record](#)

468. Enhanced bromate formation during chlorination of bromide-containing waters in the presence of CuO: catalytic disproportionation of hypobromous acid.

2012 · Environmental science & technology · Water, sanitation & biosecurity · Journal article / other
Authors: Liu, Chao; von Gunten, Urs; Croué, Jean-Philippe

This study shows enhanced bromate formation during chlorination of bromide-containing waters in the presence of cupric oxide (CuO). CuO was effective to catalyze hypochlorous acid (HOCl) or hypobromous acid (HOBr) decay (e.g., at least 10(4) times enhancement for HOBr at pH 8.6 by 0.2 g L(-1) CuO).

PMID 22963047 · DOI 10.1021/es3021793 · [PubMed record](#)

469. Semicarbazide in selected bird's nest products.

2012 · Journal of food protection · Food & agriculture · Human observational / experimental
Authors: Xing, Yuan-Na; Ni, Hong-Gang; Chen, Ze-Yong

Because the presence of high amounts of nitrogen could result in the formation of semicarbazide (SEM), the bleaching process could be one of the predominant sources of SEM in food. Sensitivity analysis suggested that concentration of SEM in food is the most significant parameter governing human exposure via consumption of SEM-containing food.

PMID 22947474 · DOI 10.4315/0362-028X.12-065 · [PubMed record](#)

470. A solar-driven UV/Chlorine advanced oxidation process.

2012 · Water research · Water, sanitation & biosecurity · Journal article / other
Authors: Chan, Po Yee; Gamal El-Din, Mohamed; Bolton, James R

For MB photobleaching, the OCl(-) concentration was the key factor causing an increase in the pseudo first-order rate constants. For CHA photodegradation, an optimal OCl(-) concentration of 1.55 mM was obtained for a 0.23 mM CHA concentration, and a scavenger effect was observed when higher OCl(-) concentrations were applied.

PMID 22939221 · DOI 10.1016/j.watres.2012.07.047 · [PubMed record](#)

471. Influences of chloride and hypochlorite on neutrophil extracellular trap formation.

2012 · PloS one · Food & agriculture · Human observational / experimental
Authors: Akong-Moore, Kathryn; Chow, Ohn A; von Köckritz-Blickwede, Maren; Nizet, Victor

Neither pharmacological inhibition nor genetic deletion of MPO in murine neutrophils blocked NETosis, in contrast to findings in human neutrophils. Our results also reveal an example of significant species-specific differences in NET phenotypes, and the need for caution in extrapolation to humans from studies of murine NETosis.

PMID 22912772 · DOI 10.1371/journal.pone.0042984 · [PubMed record](#)

472. PEGylated single-walled carbon nanotubes activate neutrophils to increase production of hypochlorous acid, the oxidant capable of degrading nanotubes.

2012 · Toxicology and applied pharmacology · Food & agriculture · Human observational / experimental
Authors: Vlasova, Irina I; Vakhrusheva, Tatyana V; Sokolov, Alexey V; Kostevich, Valeria A; Gusev, Alexandr A; Gusev, Sergey A; Melnikova, Viktoriya I; Lobach, Anatolii S

Both PEG-SWCNTs and c-SWCNTs enhanced HOCl generation from isolated neutrophils upon serum-opsonized zymosan stimulation. Intraperitoneal injection of a low dose of PEG-SWCNTs into mice induced an increase in percentage of circulating neutrophils and activation of neutrophils and macrophages in the peritoneal cavity, suggesting the evolution of an inflammatory response.

PMID 22884993 · DOI 10.1016/j.taap.2012.07.027 · [PubMed record](#)

473. Effect of chlorination condition and permeability of chlorine species on the chlorination of a polyamide membrane.

2012 · Water research · Water, sanitation & biosecurity · Journal article / other
Authors: Gu, Jounng-Eun; Jun, Byung-Moon; Kwon, Young-Nam

Chlorination in an unpressurized mode showed a flux increase at high pH and a flux decline at low pH due to the compaction and swelling of the polyamide chains, respectively. On the other hand, chlorination performed in a pressurized mode decreased the water flux in both acidic and alkaline conditions, showing that compaction is overwhelming compared to swelling.

PMID 22877880 · DOI 10.1016/j.watres.2012.07.030 · [PubMed record](#)

474. A study for biofilm removing and antimicrobial effects by microbubbled tap water and other functional water, electrolyzed hypochlorite water and ozonated water.

2012 · Dental materials journal · Water, sanitation & biosecurity · Journal article / other
Authors: Ozaki, Miwa; Ohshima, Tomoko; Mukumoto, Mio; Konishi, Hirokazu; Hirashita, Ayao; Maeda, Nobuko; Nakamura, Yoshiaki

When the antimicrobial activities of two types of functional water were compared, the activity of electrolyzed hypochlorite water was significantly stronger than that of the ozonated water ($p < 0.01$). Our results demonstrated that the microbubbled water showed strong biofilm removing effects.

PMID 22864222 · DOI 10.4012/dmj.2012-042 · [PubMed record](#)

475. Myeloperoxidase: a leukocyte-derived protagonist of inflammation and cardiovascular disease.

2013 · Antioxidants & redox signaling · Water, sanitation & biosecurity · Review
Authors: Nussbaum, Claudia; Klinke, Anna; Adam, Matti; Baldus, Stephan; Sperandio, Markus

SIGNIFICANCE: The heme-enzyme myeloperoxidase (MPO) is one of the major neutrophil bactericidal proteins and is stored in large amounts inside azurophilic granules of neutrophils. Recent data also suggest that MPO itself exerts proinflammatory properties independent of its catalytic activity.

PMID 22823200 · DOI 10.1089/ars.2012.4783 · [PubMed record](#)

476. Effects of hypochlorous acid exposure on the rejection of salt, polyethylene glycols, boron and arsenic(V) by nanofiltration and reverse osmosis membranes.

2012 · Water research · Water, sanitation & biosecurity · Journal article / other
Authors: Do, Van Thanh; Tang, Chuyang Y; Reinhard, Martin; Leckie, James O

Elemental composition obtained from X-ray Photoelectron Spectroscopy (XPS) showed that the chlorine content in the PA layer increased with the chlorine concentrations. The boron rejection results paralleled PEG rejection whereas those for arsenic followed NaCl rejection patterns.

PMID 22818949 · DOI 10.1016/j.watres.2012.06.044 · [PubMed record](#)

477. Enhanced inactivation of Salmonella and Pseudomonas biofilms on stainless steel by use of T-128, a fresh-produce washing aid, in chlorinated wash solutions.

2012 · Applied and environmental microbiology · Food & agriculture · Journal article / other
Authors: Shen, Cangliang; Luo, Yaguang; Nou, Xiangwu; Bauman, Gary; Zhou, Bin; Wang, Qin; Millner, Patricia

Application of T-128 decreased the free chlorine depletion rate caused by increasing organic matter in wash waters and significantly ($P < 0.05$) augmented inactivation of bacteria in biofilms compared to treatments without T-128. Image analysis of surfaces stained with SYTO and propidium iodide corroborate the cultural assay results showing that T-128 can aid in reducing pathogen viability in biofilms and thus can aid in sanitizing stainless steel contact...

PMID 22752180 · DOI 10.1128/AEM.01094-12 · [PubMed record](#)

478. PEGylated D-amino acid oxidase restores bactericidal activity of neutrophils in chronic granulomatous disease via hypochlorite.

2012 · Experimental biology and medicine (Maywood, N.J.) · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Nakamura, Hideaki; Fang, Jun; Mizukami, Tomoyuki; Nunoi, Hiroyuki; Maeda, Hiroshi

Furthermore, use of PEG-DAO plus D-amino acids, which increased the amount of intracellular H_2O_2 , restored bactericidal activity of neutrophils treated with diphenylene iodonium, in which nicotinamide adenine dinucleotide phosphate (NADPH) oxidase was defective. These results indicate that PEG-DAO can supply additional H_2O_2 for defective NADPH oxidase of neutrophils from patients with CGD, and thus neutrophils regain bactericidal activity.

PMID 22715431 · DOI 10.1258/ebm.2012.011360 · [PubMed record](#)

479. Hypochlorous acid-induced heme damage of hemoglobin and its inhibition by flavonoids.

2012 · Toxicology in vitro : an international journal published in association with BIBRA · Veterinary & livestock · Animal study
Authors: Gebicka, Lidia; Banasiak, Ewa

Flavonoids present at concentrations comparable with that of hemoglobin inhibit these processes. It is concluded that under conditions used in this study the inhibition of Hb heme damage by flavonoids results from the competition of these compounds with hemoglobin towards HOCl and/or from the formation of Hb-flavonoid complex in which heme group is more resistant against HOCl-induced damage.

PMID 22542755 · DOI 10.1016/j.tiv.2012.04.010 · [PubMed record](#)

480. KCC-Cl cotransport mediates the bactericidal activity of neutrophils by regulating NADPH oxidase activation.

2012 · The Journal of physiology · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Sun, Yuan-Ting; Shieh, Chi-Chang; Delpire, Eric; Shen, Meng-Ru

Activated neutrophils displayed a significant colocalization of KCC3 and early endosomal marker, indicating that KCC3 could be localized on the phagosomes once neutrophils are activated. The NADPH oxidase activity and the phosphorylation level of oxidase component were 50% lower in the neutrophils isolated from KCC3^{-/-} mice than in the neutrophils isolated from KCC3^{+/+} mice. Mortality rate after intraperitoneal challenge with *Staphylococcus aureus* was...

PMID 22526882 · DOI 10.1113/jphysiol.2011.225300 · [PubMed record](#)

481. Microbicidal activity of vascular peroxidase 1 in human plasma via generation of hypochlorous acid.

2012 · Infection and immunity · Water, sanitation & biosecurity · Human observational / experimental
Authors: Li, Hong; Cao, Zehong; Moore, D Ray; Jackson, Patricia L; Barnes, Stephen; Lambeth, J David; Thannickal, Victor J; Cheng, Guangjie

Despite the potent bacterial killing activity of HOCl, individuals who fail to express MPO typically show only a modest increase in some fungal infections. In the presence of erythrocytes, bacterial killing by VPO1 is slightly reduced.

PMID 22526679 · DOI 10.1128/IAI.06337-11 · [PubMed record](#)

482. Chemical fate and genotoxic risk associated with hypochlorite treatment of nicotine.

2012 · The Science of the total environment · Water, sanitation & biosecurity · Human observational / experimental
Authors: Zarrelli, Armando; DellaGreca, Marina; Parolisi, Alice; Iesce, Maria Rosaria; Cermola, Flavio; Temussi, Fabio; Isidori, Marina; Lavorgna, Margherita; Passananti, Monica; Previtera, Lucio

The by-products have been isolated after fractionation by diverse chromatographic procedures and their structures determined using mass spectrometry and (1)H and (13)C NMR spectroscopy. Preliminary genotoxic SOS Chromotests with *Escherichia coli* PQ37 evidence no toxicity of the products.

PMID 22521104 · DOI 10.1016/j.scitotenv.2012.03.047 · [PubMed record](#)

483. Transmission electron microscopic analysis showing structural changes to bacterial cells treated with electrolyzed water and an acidic sanitizer.

2012 · Journal of food science · Food & agriculture · Journal article / other
Authors: Feliciano, Lizanel; Lee, Jaesung; Pascall, Melvin A

It was concluded from the results that the sanitizers reduced the *E. coli* cells between 2 and 3 log CFU/mL. The organic acid formulation and AEW were the most effective sanitizers against bacterial cells, indicating that penetration of acidic substances effectively caused the cell inactivation.

PMID 22515246 · DOI 10.1111/j.1750-3841.2012.02633.x · [PubMed record](#)

484. Laccase- and chloroperoxidase-nanotube paint composites with bactericidal and sporicidal activity.

2012 · Enzyme and microbial technology · Food & agriculture · Journal article / other
Authors: Grover, Navdeep; Borkar, Indrakant V; Dinu, Cerasela Zoica; Kane, Ravi S; Dordick, Jonathan S

The CPO-nanotube based paints also showed >99% antimicrobial activity within 30 min against *E. coli* and *S. aureus* (both challenged with 10⁸ CFU/mL). These enzyme-containing paints may be envisioned to be applied as self-decontaminating coatings onto a wide range of surfaces, such as hospital infrastructure, medical devices and equipment, food processing and packaging, etc.; in all cases effective killing of a variety of infectious organisms is critical.

PMID 22500892 · DOI 10.1016/j.enzmtec.2012.01.006 · [PubMed record](#)

485. Prevalence of dental erosion in adolescent competitive swimmers exposed to gas-chlorinated swimming pool water.

2013 · Clinical oral investigations · Water, sanitation & biosecurity · Human observational / experimental
Authors: Buczkowska-Radlińska, J; Jagocka, R; Kaczmarek, W; Górski, M; Nowicka, A

CONCLUSION: The factors that increase the risk of dental erosion include the duration of swimming and the amount of training. An increased risk of erosion may be related to undersaturation of pool water with hydroxyapatite components.

PMID 22476450 · DOI 10.1007/s00784-012-0720-6 · [PubMed record](#)

486. Enhancement of anti-cholinesterase activity of aqueous samples by hypochlorite oxidation for monitoring traces of organophosphorus pesticides in water.

2012 · The Journal of toxicological sciences · Water, sanitation & biosecurity · Journal article / other
Authors: Kanno, Ayako; Kawakami, Tsuyoshi; Takahashi, Yasuo; Onodera, Sukeo

Greater ChE-inhibiting activities, leading to lower detection limits (ppb levels), were observed for the chlorine-treated solutions fortified with azinphos methyl, diazinon, isoxathion and ronnel etc. No changes in the ChE-inhibiting activities were observed for carbamate pesticide solutions tested before and after chlorination, but an additive effect showed against ChE when these compounds were mixed with paraoxon in water.

PMID 22467030 · DOI 10.2131/jts.37.389 · [PubMed record](#)

487. Myeloperoxidase-derived chlorinating species induce protein carbamylation through decomposition of thiocyanate and urea: novel pathways generating dysfunctional high-density lipoprotein.

2012 · Antioxidants & redox signaling · Water, sanitation & biosecurity · Human observational / experimental
Authors: Holzer, Michael; Zangger, Klaus; El-Gamal, Dalia; Binder, Veronika; Curcic, Sanja; Konya, Viktoria; Schuligoi, Rufina; Heinemann, Akos; Marsche, Gunther

RESULTS: Here, we show that MPO-derived chlorinating species rapidly decompose the plasma components thiocyanate (SCN) and urea, thereby promoting (lipo)protein carbamylation. Cyanate significantly impaired (i) HDL's ability to activate lecithin-cholesterol acyltransferase; (ii) the activity of paraoxonase, a major HDL-associated anti-inflammatory enzyme; and (iii) the antioxidative activity of HDL.

PMID 22462773 · DOI 10.1089/ars.2011.4403 · [PubMed record](#)

488. Evaluation of an automated dental unit water system's contamination control protocol.

2012 · The journal of contemporary dental practice · Water, sanitation & biosecurity · Human observational / experimental
Authors: Puttaiah, Raghunath; Svoboda, Kathy K H; Lin, Shih Ming; Montebugnoli, Lucio; Dolci, Giovanni; Spratt, David; Siebert, Jeff

RESULTS: Baseline water samples showed mean contamination >5.6 log₁₀ cfu/ml. CLINICAL SIGNIFICANCE: Environmental biofilms contaminate dental unit water systems over time and affect the quality of dental treatment water.

PMID 22430686 · [PubMed record](#)

489. The effects of environmental conditions on persistence and inactivation of *Brucella suis* on building material surfaces.

2012 · Letters in applied microbiology · Water, sanitation & biosecurity · Journal article / other
Authors: Calfee, M Worth; Wendling, M

Results indicated that *Br. suis* can persist on environmental surfaces for at least 56 days. In addition, the results suggest that some sporicidal decontaminants may be ineffective on materials such as wood, even for vegetative biological agents such as *Br. suis*.

PMID 22409312 · DOI 10.1111/j.1472-765X.2012.03237.x · [PubMed record](#)

490. Protective role of D-amino acid oxidase against *Staphylococcus aureus* infection.

2012 · Infection and immunity · Veterinary & livestock · In vitro / laboratory
Authors: Nakamura, Hideaki; Fang, Jun; Maeda, Hiroshi

Although DAO plus D-Ala showed less bactericidal activity, addition of myeloperoxidase (MPO) greatly enhanced the bactericidal activity of DAO. These results suggest that DAO, together with myeloperoxidase, may play an important role in antibacterial systems in mammals.

PMID 22271930 · DOI 10.1128/IAI.06214-11 · [PubMed record](#)

491. Hypochlorous acid regulates neutrophil extracellular trap release in humans.

2012 · Clinical and experimental immunology · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Palmer, L J; Cooper, P R; Ling, M R; Wright, H J; Huissoon, A; Chapple, I L C

Treatment with exogenous superoxide dismutase (SOD) supported the established link between hydrogen peroxide and NET production. However, treatment with myeloperoxidase inhibitors and direct addition of hypochlorous acid (HOCl; generated in situ from sodium hypochlorite) established that HOCl was a necessary and sufficient ROI for NET release.

PMID 22236002 · DOI 10.1111/j.1365-2249.2011.04518.x · [PubMed record](#)

492. Degradation of polyamide nanofiltration and reverse osmosis membranes by hypochlorite.

2012 · Environmental science & technology · Water, sanitation & biosecurity · Journal article / other
Authors: Do, Van Thanh; Tang, Chuyang Y; Reinhard, Martin; Leckie, James O

High resolution XPS data support that chlorination increased the number of carboxylic groups on the PA surface, which appear to form by hydrolysis of the amide bonds (C(O)-N). FTIR data indicated the disappearance of the amide II band (1541 cm⁻¹) and aromatic amide peak (1609 cm⁻¹) in both coated and uncoated chlorinated FA membranes, consistent with the N-chlorination suggested by the XPS results.

PMID 22221176 · DOI 10.1021/es203090y · [PubMed record](#)

493. Myeloperoxidase targets apolipoprotein A-I, the major high density lipoprotein protein, for site-specific oxidation in human atherosclerotic lesions.

2012 · The Journal of biological chemistry · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Shao, Baohai; Pennathur, Subramaniam; Heinecke, Jay W

Levels of 3-nitrotyrosine strongly correlated with levels of 3-chlorotyrosine in lesion HDL, and Tyr-18 of apoA-I was the major nitration site in HDL exposed to MPO in vitro, suggesting that MPO is the major pathway for chlorination and nitration of HDL in human atherosclerotic tissue. These observations may have implications for treating cardiovascular disease, because recombinant apoA-I is under investigation as a therapeutic agent and mutant forms of...

PMID 22219194 · DOI 10.1074/jbc.M111.337345 · [PubMed record](#)

494. Assessing the reactivity of free chlorine constituents Cl[•], Cl[•]O, and HOCl toward aromatic ethers.

2012 · Environmental science & technology · Water, sanitation & biosecurity · Journal article / other
Authors: Sivey, John D; Roberts, A Lynn

Our results indicate that as the reactivity of methoxybenzenes decreases, the importance of Cl(2) and Cl(2)O (relative to HOCl) increases. As [Cl(2)] is proportional to [Cl(-)] and [Cl(2)O] is proportional to [HOCl](2), ramifications for DBP control measures may differ significantly for these precursors compared to more reactive NOM moieties likely to react predominantly with HOCl.

PMID 22211432 · DOI 10.1021/es203094z · [PubMed record](#)

495. Severe hypoxaemia due to methaemoglobinaemia and aspiration pneumonia.

2012 · Emergency medicine journal : EMJ · Food & agriculture · Case report
Authors: Mizutani, Tomonori; Hojo, Masayuki

Oxygen saturation measured by pulse oximetry was significantly different from oxygen saturation calculated from arterial blood gas analysis, suggesting the existence of haemoglobin abnormality. To conclude, the patient's hypoxaemia was due to pneumonia and drug-induced acquired methaemoglobinaemia.

PMID 22186266 · DOI 10.1136/emj.03.2011.3937rep · [PubMed record](#)

496. Hypochlorous acid-induced heme degradation from lactoperoxidase as a novel mechanism of free iron release and tissue injury in inflammatory diseases.

2011 · PloS one · Veterinary & livestock · Animal study
Authors: Souza, Carlos Eduardo A; Maitra, Dhiman; Saed, Ghassan M; Diamond, Michael P; Moura, Arlindo A; Pennathur, Subramaniam; Abu-Soud, Husam M

Similar results were obtained when LPO-Fe(II)-O(2), Compound III, was exposed to HOCl. On the basis of the present results we concluded that a complex bi-directional relationship exists between LPO activity and HOCl levels at sites of inflammation; LPO serve as a catalytic sink for HOCl, while HOCl serves to modulate LPO catalytic activity, bioavailability, and function.

PMID 22132121 · DOI 10.1371/journal.pone.0027641 · [PubMed record](#)

497. [Myeloperoxidase-induced biodegradation of single-walled carbon nanotubes is mediated by hypochlorite].

2011 · Bioorganicheskaya khimiya · Food & agriculture · In vitro / laboratory
Authors: Vlasova, I I; Sokolov, A V; Chekanov, A V; Kostevich, V A; Vasil'ev, V B

Titration of SWNTs suspension containing plasma with hypochlorite at high concentrations resulted in the decrease in the optical absorbance of the suspension indicating the degradation of nanotubes. Our results clearly indicate that hypochlorite can serve as a main oxidizing agent which is able to modify and degrade nanotubes in the sites of inflammation and in the phagosomes.

PMID 22096994 · DOI 10.1134/s1068162011040157 · [PubMed record](#)

498. Comparison of different washing treatments for reducing pathogens on orange surfaces and for preventing the transfer of bacterial pathogens to fresh-squeezed orange juice.

2011 · Journal of food protection · Food & agriculture · Human observational / experimental
Authors: Martínez-González, N E; Martínez-Chávez, L; Martínez-Cárdenas, C; Castillo, A

The treatments using hot water or lactic acid showed greater reductions than other treatments. Treatment of oranges before juice extraction may reduce the risk associated with consuming orange juice.

PMID 22004816 · DOI 10.4315/0362-028X.JFP-10-357 · [PubMed record](#)

499. Preparation and X-ray crystal study of benziiodoxaborole derivatives: new hypervalent iodine heterocycles.

2011 · Inorganic chemistry · Water, sanitation & biosecurity · Journal article / other
Authors: Nemykin, Victor N; Maskaev, Andrey V; Geraskina, Margarita R; Yusubov, Mekhman S; Zhdankin, Viktor V

Structural parameters of the five-membered iodoxoborol ring, such as the planar geometry and the short B-O and O-I bonds lengths in 13, 17, and 18 compared to those in 21 and known benziiodoxoles are indicative of partially aromatic character of this ring. Density functional theory (DFT) predicted NIST (0) and NIST (1) indexes for 1-chloro- and 1-trifluoroacetoxy substituted benziiodoxaboroles, however, are indicative of significantly lower aromaticity...

PMID 21988373 · DOI 10.1021/ic201922n · [PubMed record](#)

500. Optimizing acidified bleach solutions to improve sporicidal efficacy on building materials.

2011 · Letters in applied microbiology · Water, sanitation & biosecurity · Journal article / other
Authors: Wood, J P; Calfee, M W; Clayton, M; Griffin-Gatchalian, N; Touati, A

Lowering the pH or increasing the FAC level improved efficacy in some of the tests, but depended on the material, which significantly affected decontamination efficacy. SIGNIFICANCE AND IMPACT OF THE STUDY: These results may be useful in preparing acidified bleach solutions for decontamination of materials contaminated with spores such as *Bacillus anthracis*.

PMID 21981715 · DOI 10.1111/j.1472-765X.2011.03162.x · [PubMed record](#)

501. Antioxidant activity of flavonoids evaluated with myoglobin method.

2012 · Plant cell reports · Food & agriculture · Animal study
Authors: Terashima, Masaaki; Kakuno, Yuri; Kitano, Naruho; Matsuoka, Chiharu; Murase, Mayumi; Togo, Naoko; Watanabe, Ryoko; Matsumura, Saki

The myoglobin method uses the absorbance changes of myoglobin (a probe molecule) due to the reaction with the ROS as an indicator for the antioxidant activity measurement. The four flavonoids show a very similar pattern in the 5-axe cobweb charts, while the patterns of two non-flavonoids are quite different from that of the flavonoids.

PMID 21971747 · DOI 10.1007/s00299-011-1163-2 · [PubMed record](#)

502. Selective and absolute quantification of endogenous hypochlorous acid with quantum-dot conjugated microbeads.

2011 · Analytical chemistry · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Yang, Yi-Cyun; Lu, Hsueh-Han; Wang, Wei-Ti; Liao, Ian

An activated human neutrophil secreted $6.5 \pm 0.9 \times 10^8$ HOCl molecules into its phagosome, and kinetic measurement for the secretions showed that the extracellular generation of HOCl was temporally retarded, but the quantity eventually attained a level comparable with its intraphagosomal counterpart with a delay of about 1.5 h. These results indicate a possibility to extend our approach to not only clinical settings for quantitative assessment of the...

PMID 21950322 · DOI 10.1021/ac202077x · [PubMed record](#)

503. Human apolipoprotein A-I-derived amyloid: its association with atherosclerosis.

2011 · PloS one · Food & agriculture · Human observational / experimental

Authors: Ramella, Nahuel A; Rimoldi, Omar J; Prieto, Eduardo D; Schinella, Guillermo R; Sanchez, Susana A; Jaureguiberry, María S; Vela, María E; Ferreira, Sergio T; Tricerri, M Alejandra

Results showed that mildly acidic pH promotes misfolding, aggregation, and increased binding of apoA-I to extracellular matrix elements, thus favoring protein deposition as amyloid like-complexes. We conclude that, even though apoA-I is not inherently amyloidogenic, it may produce non hereditary amyloidosis as a consequence of the pro-inflammatory microenvironment associated to atherogenesis.

PMID 21811627 · DOI 10.1371/journal.pone.0022532 · [PubMed record](#)

504. Disinfection methods for spores of *Bacillus atrophaeus*, *B. anthracis*, *Clostridium tetani*, *C. botulinum* and *C. difficile*.

2011 · Biological & pharmaceutical bulletin · Water, sanitation & biosecurity · Journal article / other

Authors: Oie, Shigeharu; Obayashi, Akiko; Yamasaki, Hirofumi; Furukawa, Hiroyuki; Kenri, Tsuyoshi; Takahashi, Motohide; Kawamoto, Keiko; Makino, Sou-ichi

To evaluate disinfection methods for environments contaminated with bioterrorism-associated microorganism (*Bacillus anthracis*), we performed the following experiments. These results suggest that hypochlorite containing vinegar is effective for disinfecting vinyl chloride, tile, and cement plates contaminated with *B. anthracis*, and peracetic acid is effective for disinfecting plywood plates contaminated with such microorganism.

PMID 21804226 · DOI 10.1248/bpb.34.1325 · [PubMed record](#)

505. Phenylpropanoid and phenylisoprenoid metabolites from Asteraceae species as inhibitors of protein carbonylation.

2011 · Phytochemistry · Veterinary & livestock · Human observational / experimental

Authors: Marín, Marta; Giner, Rosa M; Recio, M Carmen; Máñez, Salvador

Three phenolic antioxidant and anti-inflammatory compounds: 7-methylaromadendrin, isoprenylhydroquinone glucoside, and 3,5-dicaffeoylquinic acid methyl ester, all isolated from Western Mediterranean Asteraceae species, have been studied for their inhibitory activity against protein carbonylation, a harmful post-translational modification of peptide chains associated with degenerative diseases. All compounds have proven to be effective, with 50% inhibitory...

PMID 21762940 · DOI 10.1016/j.phytochem.2011.06.005 · [PubMed record](#)

506. Influence of pH changes on chlorine-containing endodontic irrigating solutions.

2011 · International endodontic journal · Water, sanitation & biosecurity · Review

Authors: Rossi-Fedele, G; Guastalli, A R; Doñramac, E J; Steier, L; De Figueiredo, J A P

The search resulted in the retrieval of articles studying sodium hypochlorite (NaOCl), superoxidized waters (SOW) and sodium dichloroisocyanurate (NaDCC). Regarding antimicrobial efficacy, the literature suggested that reducing the pH value of NaOCl to between 6 and 7.5 would lead to improved action; SOW was described as having a lower antimicrobial effect.

PMID 21658076 · DOI 10.1111/j.1365-2591.2011.01911.x · [PubMed record](#)

507. Airway exposure to hypochlorite prior to ovalbumin induces airway hyperreactivity without evidence for allergic sensitization.

2011 · Toxicology letters · Veterinary & livestock · Animal study

Authors: Hox, Valérie; Vanoirbeek, Jeroen A; Callebaut, Ina; Bobic, Sonja; De Vooght, Vanessa; Ceuppens, Jan; Hoet, Peter; Nemery, Benoit; Hellings, Peter W

BACKGROUND: Some epidemiologic studies have indicated that attendance to chlorinated swimming pools is associated with airway hyperreactivity (AHR), allergies and asthma. RESULTS: In the first mouse model, airway allergy parameters were not significantly altered upon NaClO administration.

PMID 21570453 · DOI 10.1016/j.toxlet.2011.04.017 · [PubMed record](#)

508. Hydrogen [corrected] peroxide-dependent photocytotoxicity by phloxine B, a xanthene-type food colorant.

2011 · Biochimica et biophysica acta · Veterinary & livestock · In vitro / laboratory

Authors: Qi, Hang; Takano, Hiroshi; Kato, Yoji; Wu, Qian; Ogata, Chiharu; Zhu, Beiwei; Murata, Yoshiyuki; Nakamura, Yoshimasa

The present findings suggested that PhB induced a differential photodynamic action in the MPO-containing leukemia cells through an H₂O₂-dependent mechanism. GENERAL SIGNIFICANCE: Our findings provide new insights into the molecular mechanisms underlying the PhB-induced apoptosis and also evaluated PhB as a promising PDT agent.

PMID 21565256 · DOI 10.1016/j.bbagen.2011.04.010 · [PubMed record](#)

509. 4-fluoro-2-methoxyphenol, an apocynin analog with enhanced inhibitory effect on leukocyte oxidant production and phagocytosis.

2011 · European journal of pharmacology · Water, sanitation & biosecurity · Human observational / experimental

Authors: de Almeida, Ana Carolina; Cabral Marques, Otávio; Arslanian, Christina; Condino-Neto, Antonio; Ximenes, Valdecir F

We discovered that the analogous methoxy-substituted catechol, 4-Fluoro-2-methoxyphenol (F-apocynin), in which the acetyl group present in apocynin was changed to a fluorine atom, was significantly more potent as an inhibitor of NADPH oxidase activity, myeloperoxidase (MPO) chlorinating activity and phagocytosis of microorganisms by neutrophils; it was also as potent as apocynin in inhibiting tumor necrosis factor- α (TNF α) release by peripheral blood...

PMID 21497599 · DOI 10.1016/j.ejphar.2011.03.043 · [PubMed record](#)

510. Synergistic roles of Helicobacter pylori methionine sulfoxide reductase and GroEL in repairing oxidant-damaged catalase.

2011 · The Journal of biological chemistry · Food & agriculture · In vitro / laboratory

Authors: Mahawar, Manish; Tran, ViLinh; Sharp, Joshua S; Maier, Robert J

However, addition of GroEL to the Msr repair mixture significantly enhanced catalase activity recovery. Neutrophils produce large amounts of HOCl at inflammation sites, and bacterial catalase may be a prime target of the host inflammatory response; at high concentrations of HOCl (1:100), we observed loss of catalase secondary structure, oligomerization, and carbonylation.

PMID 21460217 · DOI 10.1074/jbc.M111.223677 · [PubMed record](#)

511. Development of an Si-rhodamine-based far-red to near-infrared fluorescence probe selective for hypochlorous acid and its applications for biological imaging.

2011 · Journal of the American Chemical Society · Veterinary & livestock · Animal study

Authors: Koide, Yuichiro; Urano, Yasuteru; Hanaoka, Kenjiro; Terai, Takuya; Nagano, Tetsuo

The value of MMSiR was confirmed by real-time imaging of phagocytosis using a fluorescence microscope. wsMMSiR, a more hydrophilic derivative of MMSiR, permitted effective in vivo imaging of HOCl generation in a mouse peritonitis model. This probe is expected to be a useful tool for investigating the wide range of biological functions of HOCl.

PMID 21443186 · DOI 10.1021/ja111470n · [PubMed record](#)

512. Hypochlorite-modified high-density lipoprotein promotes induction of HO-1 in endothelial cells via activation of p42/44 MAPK and zinc finger transcription factor Egr-1.

2011 · Archives of biochemistry and biophysics · Water, sanitation & biosecurity · In vitro / laboratory

Authors: Rossmann, Christine; Rauh, Anamaria; Hammer, Astrid; Windischhofer, Werner; Zirkl, Sandra; Sattler, Wolfgang; Malle, Ernst

Our findings revealed that HDL modified by HOCl, added as reagent or generated enzymatically, induced phosphorylation of p42/44 mitogen-activated protein kinase, expression of transcription factor early growth response-1 (Egr-1) and enhanced expression of heme oxygenase-1 in human endothelial cells. The present study demonstrates a novel compensatory pathway against adverse effects of HOCl-HDL, providing cytoprotection in a number of pathological...

PMID 21354100 · DOI 10.1016/j.abb.2011.02.016 · [PubMed record](#)

513. One-electron reduction of N-chlorinated and N-brominated species is a source of radicals and bromine atom formation.

2011 · Chemical research in toxicology · Food & agriculture · Human observational / experimental

Authors: Pattison, David I; O'Reilly, Robert J; Skaff, Ojia; Radom, Leo; Anderson, Robert F; Davies, Michael J

Hydrated electrons reduce these species with $k(2) > 10(9) \text{ M}^{-1} \text{ s}^{-1}$, whereas $\text{O}(2)(\bullet^-)$ reduced only N-halogenated imides with complex kinetics indicative of chain reactions. The calculated reduction potentials are consistent with the experimental observations, with $\text{Br}(\bullet)$ production predicted for N-bromosuccinimide, while halide ion formation is predicted in all other cases.

PMID 21344936 · DOI 10.1021/tx100325z · [PubMed record](#)

514. Efficacy of liquid spray decontaminants for inactivation of *Bacillus anthracis* spores on building and outdoor materials.

2011 · Journal of applied microbiology · Water, sanitation & biosecurity · Journal article / other
Authors: Wood, J P; Choi, Y W; Rogers, J V; Kelly, T J; Riggs, K B; Willenberg, Z J

SIGNIFICANCE AND IMPACT OF THE STUDY: The study results may be useful in the selection of technologies to decontaminate buildings and outdoor areas in the event of contamination with *B. anthracis* spores. These results may also facilitate selection of decontaminant liquids for the inactivation of other spore-forming infectious disease agents.

PMID 21332900 · DOI 10.1111/j.1365-2672.2011.04980.x · [PubMed record](#)

515. Kinetics of 3-chlorotyrosine formation and loss due to hypochlorous acid and chloramines.

2011 · Chemical research in toxicology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Curtis, Matthew P; Hicks, Andrew J; Neidigh, Jonathan W

The kinetics of tyrosine chlorination in the context of a peptide with a nearby lysine residue was also determined and further supports the role of chloramines in the chlorination of protein-bound tyrosine residues. The likelihood of free and protein-bound 3,5-dichlorotyrosine occurring in vivo, given the reported rate constants, is discussed.

PMID 21319831 · DOI 10.1021/tx100380d · [PubMed record](#)

516. Inhibition of tubulin polymerization by hypochlorous acid and chloramines.

2011 · Free radical biology & medicine · Veterinary & livestock · Animal study
Authors: Landino, Lisa M; Hagedorn, Tara D; Kim, Shannon B; Hogan, Katherine M

Total cysteine oxidation by the oxidants was monitored by labeling tubulin with the thiol-selective reagent 5-iodoacetamidofluorescein; by reaction with Ellman's reagent, 5,5'-dithiobis(2-nitrobenzoic acid); and by detecting interchain tubulin disulfides by Western blot under nonreducing conditions. Cysteine oxidation of tubulin, rather than methionine oxidation, was associated with loss of microtubule polymerization activity, and treatment of oxidized...

PMID 21256958 · DOI 10.1016/j.freeradbiomed.2011.01.018 · [PubMed record](#)

517. Hypochlorous and peracetic acid induced oxidation of dairy proteins.

2011 · Journal of agricultural and food chemistry · Veterinary & livestock · Journal article / other
Authors: Kerkaert, Barbara; Mestdagh, Frédéric; Cucu, Tatiana; Aedo, Philip Roger; Ling, Shen Yan; De Meulenaer, Bruno

The results established that the protein carbonyl content was a rather unspecific marker for protein oxidation, which did not allow one to differentiate the oxidant used especially at the lower concentrations. Hypochlorous acid induced oxidation gave rise to protein aggregation, while during peracetic acid induced oxidation, no high molecular weight aggregates were observed.

PMID 21214246 · DOI 10.1021/jf1037807 · [PubMed record](#)

518. Severe hypoxaemia due to methaemoglobinaemia and aspiration pneumonia.

2011 · BMJ case reports · Food & agriculture · Case report
Authors: Mizutani, Tomonori; Hojo, Masayuki

Oxygen saturation measured by pulse oximetry was significantly different from oxygen saturation calculated from arterial blood gas analysis, suggesting the existence of haemoglobin abnormality. To conclude, the patient's hypoxaemia was due to pneumonia and drug-induced acquired methaemoglobinaemia.

PMID 22679183 · DOI 10.1136/bcr.03.2011.3937 · [PubMed record](#)

519. Chemical fate and mutagenic formation potentials of phenothiazine and related compounds during water chlorination.

2010 · The Journal of toxicological sciences · Water, sanitation & biosecurity · Journal article / other
Authors: Sekizawa, Taro; Onodera, Sukeo

For 20 µM, 10H-phenothiazine, 10H-phenoxazine, and phenoxathiin reacted rapidly with active chlorine in neutral pH (7.0), but no phenazine-hypochlorite reaction was observed over pH values of 5-9 for 1 hr. Ames assays for the chlorination byproducts of 10H-phenothiazine and 10H-phenoxazine also showed to be weak mutagenicity in TA98 and TA100 strains without S9 mix, but no chlorination byproducts of phenoxathiin exhibited any mutagenicity in both tester...

PMID 21139335 · DOI 10.2131/jts.35.853 · [PubMed record](#)

520. Kinetic analysis of phagosomal production of reactive oxygen species.

2011 · Free radical biology & medicine · Food & agriculture · In vitro / laboratory
Authors: Tlili, Asma; Dupré-Crochet, Sophie; Erard, Marie; Nüsse, Oliver

Inhibition of the NADPH oxidase rapidly stopped the fluorescence increase of the particles. We conclude that DCFH(2)-yeast is a valuable tool to investigate the kinetics and amplitude of ROS production in individual phagosomes.

PMID 21111807 · DOI 10.1016/j.freeradbiomed.2010.11.024 · [PubMed record](#)

521. Taurine in cardiovascular disease.

2011 · Current opinion in clinical nutrition and metabolic care · Food & agriculture · Review
Authors: Zulli, Anthony

PURPOSE OF REVIEW: The shift of modern dietary regimens from 'Mediterranean' to 'western' style is believed to be responsible, in part, for the increase in cardiovascular disease, obesity, type II diabetes and cancer. RECENT FINDINGS: Taurine has been shown to affect coronary artery disease, blood pressure, plasma cholesterol and myocardial function in animal models of human disease.

PMID 21076292 · DOI 10.1097/MCO.0b013e328340d863 · [PubMed record](#)

522. Feasibility of an electrochemically assisted Fenton method using Fe(2 +)/HOCl system as an advanced oxidation process.

2010 · Water science and technology : a journal of the International Association on Water Pollution Research · Water, sanitation & biosecurity · Journal article / other
Authors: Kishimoto, N; Sugimura, E

The current efficiency of 1,4-dioxane removal remained more than 90% at the current density less than 6.92 mA cm⁻² and the iron concentration not less than 1.0 mmol L⁻¹. Consequently, this technique is thought to be applicable to the treatment of wastewater containing high concentration of chloride ion such as landfill leachate, scrubber wastewater from incineration plants, etc.

PMID 21076218 · DOI 10.2166/wst.2010.203 · [PubMed record](#)

523. Neutrophil- and myeloperoxidase-mediated metabolism of reduced nimesulide: evidence for bioactivation.

2010 · Chemical research in toxicology · Food & agriculture · Human observational / experimental
Authors: Yang, Min; Chordia, Mahendra D; Li, Fengping; Huang, Tao; Linden, Joel; Macdonald, Timothy L

We demonstrate here that the reduced nimesulide, M1, undergoes a facile oxidation with activated neutrophils or with MPO in the presence of H₂O₂ or HOCl to produce a variety of reactive as well as stable metabolites. In summary, our results demonstrate that a known nimesulide metabolite could be bioactivated by MPO through a pathway distinct from HLM-mediated pathways and that the generation of reactive species by the MPO-mediated bioactivation...

PMID 20939553 · DOI 10.1021/tx1001496 · [PubMed record](#)

524. RNA interference against CFTR affects HL60-derived neutrophil microbicidal function.

2010 · Free radical biology & medicine · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Bonvillain, Ryan W; Painter, Richard G; Adams, Daniel E; Viswanathan, Anand; Lanson, Nicholas A Jr; Wang, Guoshun

The resultant CFTR deficiency in the phagocytes compromised their bactericidal capability, thereby recapitulating the phenotype seen in CF patient cells. The results provide further evidence suggesting that CFTR plays an important role in phagocytic host defense.

PMID 20870018 · DOI 10.1016/j.freeradbiomed.2010.09.012 · [PubMed record](#)

525. Microbicidal and cytotoxic effects of functional water in vitro.

2010 · Quintessence international (Berlin, Germany : 1985) · Food & agriculture · In vitro / laboratory
Authors: Gomi, Kazuhiro; Makino, Tomohiko; Suzuki, Shinichi; Hasegawa, Masako; Maeda, Nobuko; Arai, Takashi

RESULTS: SAEW and HAW showed microbicidal effects in the presence of organic substance, with an effect almost similar to sodium hypochlorite solution. The cytotoxicity of SAEW and HAW against pulp cells was mild compared to that of sodium hypochlorite solution.

PMID 20806093 · [PubMed record](#)

526. Lack of cytotoxicity by Trustwater Ecasol™ used to maintain good quality dental unit waterline output water in keratinocyte monolayer and reconstituted human oral epithelial tissue models.

2010 · Journal of dentistry · Veterinary & livestock · In vitro / laboratory
Authors: Boyle, M A; O'Donnell, M J; Russell, R J; Coleman, D C

We previously showed that residual treatment of dental chair unit (DCU) supply water using the electrochemically-activated solution Trustwater Ecasol™ (2.5 ppm) provided an effective long-term solution to the problem of dental unit waterline (DUWL) biofilm resulting in DUWL output water quality consistently superior to potable water. RESULTS: Ecasol at >5.0 ppm resulted in significant (P<0.001) cytotoxicity to keratinocyte monolayers following a 1h...

PMID 20713118 · DOI 10.1016/j.jdent.2010.08.005 · [PubMed record](#)

527. Kinetics and mechanism of the reaction of sodium azide with hypochlorite in aqueous solution.

2010 · Journal of hazardous materials · Water, sanitation & biosecurity · Journal article / other
Authors: Betterton, Eric A; Lowry, Joe; Ingamells, Robin; Venner, Brad

Industrial activity and the return of millions of inflators to automobile recycling facilities are leading to increasing release of NaN(3) to the environment so there is considerable interest in learning more about its environmental fate. Hypochlorite is not recommended for treatment of concentrated azide waste due to formation of the toxic chlorine azide intermediate under acidic conditions and the slow kinetics under basic conditions.

PMID 20667654 · DOI 10.1016/j.jhazmat.2010.06.093 · [PubMed record](#)

528. Conventional oxidation treatments for the removal of arsenic with chlorine dioxide, hypochlorite, potassium permanganate and monochloramine.

2010 · Water research · Water, sanitation & biosecurity · Human observational / experimental
Authors: Sorlini, Sabrina; Gialdini, Francesca

In Italy, Legislative Decree 2001/31 reduced the limit of arsenic from 50 to 10 µg/L, in agreement with the European Directive 98/83/EC. These results were observed both on demineralised and real water for all the tested reagents with the exception of chlorine dioxide that showed a better arsenic oxidation on real groundwater than demineralised water.

PMID 20638704 · DOI 10.1016/j.watres.2010.06.032 · [PubMed record](#)

529. Ability of hypochlorous acid and N-chloramines to chlorinate DNA and its constituents.

2010 · Chemical research in toxicology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Stanley, Naomi R; Pattison, David I; Hawkins, Clare L

5Cl(d)C was the most abundant product on exposure of the nucleotides and DNA to HOCl and His-C, with only low levels of chlorinated products observed with Lys-C, Gly-C, Tau-C, and Mono-C. This study shows that HOCl and the model N-chloramine, His-C, are able to chlorinate cellular genetic material, which may play a role in the development of various inflammatory cancers.

PMID 20593802 · DOI 10.1021/tx100188b · [PubMed record](#)

530. Antimicrobial effects of hypochlorite on Escherichia coli in water and selected vegetables.

2010 · Foodborne pathogens and disease · Food & agriculture · Journal article / other
Authors: Erkmen, Osman

There was an increase of more than 30% in the inactivation of E. coli with 10 degrees C rise in temperature, a remarkable increase in antimicrobial activity at pH 5.0 was also observed with 5.62 log cfu/mL reductions in 30 sec, as well as marked neutralization of the effect in the presence of 0.1% peptone in water was noted. HOCl, thyme oil, and their mixture reduced the number of E. coli between 1.23 and 3.75 log cfu/mL after 5-min exposure on vegetables.

PMID 20524899 · DOI 10.1089/fpd.2009.0509 · [PubMed record](#)

531. Use of propidium monoazide in reverse transcriptase PCR to distinguish between infectious and noninfectious enteric viruses in water samples.

2010 · Applied and environmental microbiology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Parshionikar, Sandhya; Laseke, Ian; Fout, G Shay

The PMA-RT-PCR results indicated that PMA treatment did not interfere with detection of infectious or native viruses but prevented detection of noninfectious or inactivated viruses that were rendered noninfectious or inactivated by treatment at 72 degrees C and 37 degrees C and by hypochlorite treatment. PMA-RT-PCR was also shown to be effective for detecting infectious poliovirus in the presence of noninfectious virus and in an environmental matrix.

PMID 20472736 · DOI 10.1128/AEM.02800-09 · [PubMed record](#)

532. Myeloperoxidase-induced genomic DNA-centered radicals.

2010 · The Journal of biological chemistry · Veterinary & livestock · In vitro / laboratory
Authors: Gomez-Mejiba, Sandra E; Zhai, Zili; Gimenez, Maria S; Ashby, Michael T; Chilakapati, Jaya; Kitchin, Kirk; Mason, Ronald P; Ramirez, Dario C

We also found that resveratrol passed across cell membranes and scavenged HOCl before it reacted with the genomic DNA, thus blocking DNA-centered radical formation. Taken together our results indicate that the formation of DNA-centered radicals by intracellular MPO may be a useful point of therapeutic intervention in inflammation-induced carcinogenesis.

PMID 20406811 · DOI 10.1074/jbc.M109.086579 · [PubMed record](#)

533. Computational studies on metathetical and redox processes of HOCl in gas phase. III. Its self-reaction and interactions with HNO_x (x = 1-3).

2010 · The journal of physical chemistry. A · Food & agriculture · Journal article / other
Authors: Xu, Z F; Lin, M C

The calculation shows that the theoretical rate constants are within the upper limits of experimental results. In addition, we calculated the equilibrium constant for the Cl(2)O + H(2)O --> HOCl + HOCl reaction, which is also in reasonable agreement with experimental data within the error of the available experimental enthalpy change.

PMID 20361765 · DOI 10.1021/jp100977k · [PubMed record](#)

534. Diaphragm tension reduced in dystrophic mice by an oxidant, hypochlorous acid.

2010 · Canadian journal of physiology and pharmacology · Food & agriculture · Animal study
Authors: Lafoux, Aude; Divet, Alexandra; Gervier, Pascal; Huchet-Cadiou, Corinne

The results showed that HOCl, at micromolar or millimolar concentrations, can modify sarcoplasmic reticulum Ca²⁺ uptake and that this effect was more pronounced in diaphragm muscle from mdx mice. We conclude that in dystrophic diaphragm skeletal muscle cells, HOCl activates a cellular pathway that leads to an increase in the intracellular concentration of Ca²⁺.

PMID 20237587 · DOI 10.1139/Y09-117 · [PubMed record](#)

535. Estimation of antioxidant capacity against peroxynitrite and hypochlorite with fluorescein.

2010 · Talanta · Food & agriculture · Journal article / other
Authors: Robaszkiewicz, Agnieszka; Bartosz, Grzegorz

Standard antioxidants show different reactivities for both oxidants. Antioxidant capacity of fruit bodies of edible mushrooms, tea, coffee and wine estimated as exemplary biological material point to considerable differences in the scavenging capacity of various biological material against hypochlorite, peroxynitrite and peroxy radicals.

PMID 20152473 · DOI 10.1016/j.talanta.2009.11.004 · [PubMed record](#)

536. Small molecular, macromolecular, and cellular chloramines react with thiocyanate to give the human defense factor hypothiocyanite.

2010 · Biochemistry · Food & agriculture · Human observational / experimental
Authors: Xulu, Bheki A; Ashby, Michael T

In the present study, we demonstrate that SCN(-) reacts efficiently with chloramines in small molecules, in proteins, and in Escherichia coli cells to give OSCN(-) and the parent amine. Our observations are further evidence for the importance of secondary reactions during the redox cascades that are associated with oxidative stress by hypohalous acids.

PMID 20085320 · DOI 10.1021/bi902089w · [PubMed record](#)

537. Hypochlorite oxidation of select androgenic steroids.

2010 · Water research · Water, sanitation & biosecurity · Journal article / other
Authors: Mash, Heath; Schenck, Kathleen; Rosenblum, Laura

The results show compounds that possess a ketonic functional group conjugated with a double bond inhibit oxidation by hypochlorite in the absence of biological or indirect oxidative pathways. Oxidative reactivity in the presence of hypochlorite was favorably correlated with the presence of isolated unsaturated carbon bonds and resulted in various transformation products.

PMID 20031185 · DOI 10.1016/j.watres.2009.11.051 · [PubMed record](#)

538. HOCl-mediated glycerophosphocholine and glycerophosphoethanolamine generation from plasmalogens in phospholipid mixtures.

2010 · Lipids · Veterinary & livestock · Animal study
Authors: Lessig, Jacqueline; Fuchs, Beate

Furthermore, there is increasing evidence that plasmalogen degradation products have harmful effects in inflammatory processes. Using MALDI-TOF mass spectrometry and (31)P NMR spectroscopy, we confirmed that the first step of the HOCl-induced degradation of GPL mixtures containing plasmalogens is the attack of the vinyl-ether bond resulting in the generation of 1-lysophosphatidylcholine (lysoPtdCho) or 1-lysophosphatidylethanolamine.

PMID 19937395 · DOI 10.1007/s11745-009-3365-8 · [PubMed record](#)

539. Chloramination of organophosphorus pesticides found in drinking water sources.

2010 · Water research · Water, sanitation & biosecurity · Human observational / experimental
Authors: Duirk, Stephen E; Desetto, Lisa M; Davis, Gary M; Lindell, Cristal; Cornelison, Christopher T

Due to monochloramine autodecomposition, it is difficult to observe the direct reaction of monochloramine with each OP pesticide. This demonstrates the ability of models to be used as tools to elucidate degradation pathways and parameterize critical reaction parameters when used with select yet comprehensive data sets.

PMID 19900689 · DOI 10.1016/j.watres.2009.10.012 · [PubMed record](#)

540. Comparative study of HOCl-inflicted damage to bacterial DNA ex vivo and within cells.

2010 · Archives of biochemistry and biophysics · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Suquet, Christine; Warren, Jeffrey J; Seth, Nimulrith; Hurst, James K

At concentration levels of HOCl exceeding lethal doses, genomic bacterial DNA underwent extensive fragmentation and the amount of precipitable DNA-protein complexes increased several-fold. Genomic DNA recovered from *E. coli* that had been subjected to phagocytosis by human neutrophils occasionally showed small increases in 5-chlorocytosine content when compared to analogous cellular reactions where myeloperoxidase activity was inhibited by azide ion.

PMID 19850004 · DOI 10.1016/j.abb.2009.10.006 · [PubMed record](#)

541. Hypochlorous acid reacts with the N-terminal methionines of proteins to give dehydromethionine, a potential biomarker for neutrophil-induced oxidative stress.

2009 · Biochemistry · Food & agriculture · Journal article / other
Authors: Beal, Jennifer L; Foster, Steven B; Ashby, Michael T

Hypothiocyanite does not react with methionine residues. We suggest that dehydromethionine may be a useful biomarker for the myeloperoxidase-induced oxidative stress associated with many inflammatory diseases.

PMID 19839600 · DOI 10.1021/bi901343d · [PubMed record](#)

542. Mitigation of *Alicyclobacillus* spp. spores on food contact surfaces with aqueous chlorine dioxide and hypochlorite.

2009 · Food microbiology · Food & agriculture · Human observational / experimental
Authors: Friedrich, Loretta M; Goodrich-Schneider, Renee; Parish, Mickey E; Danyluk, Michelle D

Reductions ranged from 0 to 4.5 log CFU/coupon. Chlorine dioxide was least effective when applied to wood.

PMID 19835785 · DOI 10.1016/j.fm.2009.06.011 · [PubMed record](#)

543. Methionine oxidation contributes to bacterial killing by the myeloperoxidase system of neutrophils.

2009 · Proceedings of the National Academy of Sciences of the United States of America · Water, sanitation & biosecurity · Human observational / experimental
Authors: Rosen, Henry; Klebanoff, Seymour J; Wang, Yi; Brot, Nathan; Heinecke, Jay W; Fu, Xiaoyun

Together, our findings indicate that MPO-mediated methionine oxidation contributes to bacterial killing by neutrophils. The findings further suggest that protein translocation to the cell envelope is one important pathway targeted for damage.

PMID 19833874 · DOI 10.1073/pnas.0909464106 · [PubMed record](#)

544. Site-specific hypochlorous acid-induced oxidation of recombinant human myoglobin affects specific amino acid residues and the rate of cytochrome b5-mediated heme reduction.

2010 · Free radical biology & medicine · Water, sanitation & biosecurity · Human observational / experimental
Authors: Szuchman-Sapir, Andrea J; Pattison, David I; Davies, Michael J; Witting, Paul K

HOCl-mediated oxidation of wild-type HMB resulted in a dose-dependent decrease in the observed rate constant for ferric heme reduction (approx two-fold at HOCl:Mb of 10:1 mol:mol). These data indicate that Cys110 influences the oxidation of HMB by HOCl and that oxidation of Cys, Met, and Trp residues is associated with a decrease in the one-electron reduction of ferric HMB by other proteins; such heme-Fe(3+) reduction is critical to the maintenance of...

PMID 19800968 · DOI 10.1016/j.freeradbiomed.2009.09.023 · [PubMed record](#)

545. Analysis of myeloperoxidase promotor polymorphism and enzyme activity in Turkish patients with vitiligo.

2009 · European journal of dermatology : EJD · Veterinary & livestock · Human observational / experimental
Authors: Aksoy, S Nur; Erbagci, Zulal; Saygili, E Ilker; Sever, Tugce; Erbagci, A Binnur; Pehlivan, Sacide

The plasma MPO level was significantly lower in vitiligo patients than in the healthy controls ($p = 0.005$), however, it was not significantly different among subtypes of vitiligo ($p = 0.8$). A significant difference was not observed for G-463A genotype and allele distribution in patients with vitiligo.

PMID 19758957 · DOI 10.1684/ejd.2009.0793 · [PubMed record](#)

546. Semicarbazide is non-specific as a marker metabolite to reveal nitrofurazone abuse as it can form under Hofmann conditions.

2009 · Food additives & contaminants. Part A, Chemistry, analysis, control, exposure & risk assessment · Veterinary & livestock · Animal study
Authors: Bendall, Justin G

Dosed hydroxyurea generated semicarbazide at any pH, with greatest levels formed at high pH. Detecting nitrofurazone abuse can be better accomplished by analysis either for nitrofurazone itself or for the marker metabolite 5-nitro-2-furaldehyde, rather than semicarbazide.

PMID 19680870 · DOI 10.1080/02652030802190276 · [PubMed record](#)

547. Chlorhexidine prevents hypochlorous acid-induced inactivation of alpha1-antitrypsin.

2009 · Clinical and experimental pharmacology & physiology · Veterinary & livestock · Human observational / experimental
Authors: Montecucco, Fabrizio; Bertolotto, M; Ottonello, L; Pende, A; Dapino, P; Quercioli, A; Mach, F; Dallegri, F

Chlorhexidine (0, 0.5, 1, 5 and 10 micromol/L) dose-dependently prevented HOCl-induced inactivation of alpha1-AT and reduced HOCl recovery from phorbol myristate acetate (PMA)-treated human neutrophils, but did not inhibit superoxide anion and MPO release. These data suggest that chlorhexidine prevents neutrophil-induced alpha1-AT inactivation via a direct inhibitory action on HOCl.

PMID 19671069 · DOI 10.1111/j.1440-1681.2009.05270.x · [PubMed record](#)

548. A centralised, automated dental hospital water quality and biofilm management system using neutral Ecasol maintains dental unit waterline output at better than potable quality: a 2-year longitudinal study.

2009 · Journal of dentistry · Water, sanitation & biosecurity · Human observational / experimental
Authors: O'Donnell, M J; Boyle, M; Swan, J; Russell, R J; Coleman, D C

DUWL supply water and output water aerobic heterotrophic bacterial counts averaged <1 and 18.1 cfu/mL, respectively, from the 10 DCUs, compared to 88 cfu/mL for unprocessed mains water. No adverse effects due to Ecasol treatment of supply water were observed for DUWLs or DCU instruments.

PMID 19573971 · DOI 10.1016/j.jdent.2009.06.001 · [PubMed record](#)

549. Pathways for the decay of organic dichloramines and liberation of antimicrobial chloramine gases.

2008 · Chemical research in toxicology · Water, sanitation & biosecurity · Journal article / other
Authors: Coker, Melanie S A; Hu, Wan-Ping; Senthilmohan, Senti T; Kettle, Anthony J

Amino acid dichloramines were extremely unstable, indicating that an alpha-carboxyl group facilitated decomposition. In general, the absence of a substituent enhanced stability.

PMID 19548354 · DOI 10.1021/tx800232v · [PubMed record](#)

550. Effect of electrolyzed strong acid water on peritoneal irrigation of experimental perforated peritonitis.

2009 · Surgery today · Water, sanitation & biosecurity · Animal study

Authors: Kubota, Akio; Nose, Keisuke; Yonekura, Takeo; Kosumi, Takuya; Yamauchi, Katsuji; Oyanagi, Harumasa

RESULTS: No adverse effects of ESAW were observed in the experimental group. Therefore, the results of this study are considered to warrant and support the clinical application of ESAW.

PMID 19468808 · DOI 10.1007/s00595-008-3914-4 · [PubMed record](#)

551. Possible role of reactive chlorine in microbial antagonism and organic matter chlorination in terrestrial environments.

2009 · Environmental microbiology · Food & agriculture · Review

Authors: Bengtson, Per; Bastviken, David; de Boer, Wietse; Oberg, Gunilla

Our review shows that it is by no means rare that biotic processes create conditions that render biocidal concentrations of reactive chlorine compounds, which suggest that extracellular production of reactive chlorine may have an important role in antagonistic microbial interactions. The results of the in silico screening were supported by various field and laboratory studies on natural chlorination.

PMID 19453612 · DOI 10.1111/j.1462-2920.2009.01915.x · [PubMed record](#)

552. Methylamine dichloramine may play a role in the process of colorectal disease through architectural and oxidative changes in crypts in mice.

2009 · Life sciences · Veterinary & livestock · Animal study

Authors: Tachikawa, Mariko; Amano, Kayoko; Nishiyama, Kotaro; Urano, Atsushi; Kato, Koichi; Yamanaka, Kenzo

KEY FINDINGS: CH(3)NCI(2) oxidized erythrocyte hemoglobin more effectively than HOCl, indicating it has high cell permeability and selective oxidation ability. SIGNIFICANCE: The results suggest that CH(3)NCI(2) derived from primed neutrophils may play the most important role in promoting the development of colon tumor formation and colitis by oxidative stress through its high degree of cell permeability.

PMID 19389412 · DOI 10.1016/j.lfs.2009.04.007 · [PubMed record](#)

553. Upflow anaerobic filter for the degradation of adsorbable organic halides (AOX) from bleach composite wastewater of pulp and paper industry.

2009 · Chemosphere · Water, sanitation & biosecurity · Journal article / other

Authors: Deshmukh, N S; Lapsiya, K L; Savant, D V; Chiplonkar, S A; Yeole, T Y; Dhakephalkar, P K; Ranade, D R

Results showed significant improvement in AOX degradation when electron donors such as acetate and glucose were supplemented to the influent. The GC-MS analysis data indicated that supplementation of the influent with electron donor increased the biodegradability of number of chlorinated organic compounds.

PMID 19327815 · DOI 10.1016/j.chemosphere.2009.02.042 · [PubMed record](#)

554. What are the plasma targets of the oxidant hypochlorous acid? A kinetic modeling approach.

2009 · Chemical research in toxicology · Water, sanitation & biosecurity · Human observational / experimental

Authors: Pattison, David I; Hawkins, Clare L; Davies, Michael J

In contrast, elevated levels of thiocyanate ions (SCN(-)), as detected in heavy smokers, can modulate HOCl-mediated reactions as a result of the formation of the highly specific oxidant hypothiocyanous acid (HOSCN). These observations support the hypothesis that MPO-generated HOSCN is a key agent in smoking-enhanced atherosclerosis.

PMID 19326902 · DOI 10.1021/tx800372d · [PubMed record](#)

555. Chlorogenic acid protects paraoxonase 1 activity in high density lipoprotein from inactivation caused by physiological concentrations of hypochlorite.

2009 · Fitoterapia · Water, sanitation & biosecurity · Human observational / experimental

Authors: Gugliucci, Alejandro; Bastos, Deborah H Markowicz

Of interest, 5 caffeoylquinic acid at 5 micromol/L affords more than 60% protection of the activity reaching 100% at 25 micromol/L. This compound and the plant sources that are rich in them may be protectors of paraoxonase 1 activity.

PMID 19248222 · DOI 10.1016/j.fitote.2009.01.001 · [PubMed record](#)

556. Hypochlorite treatments are not a significant source of perchlorate exposure in lettuce.

2009 · Journal of agricultural and food chemistry · Food & agriculture · Human observational / experimental
Authors: Sanchez, C A; Fonseca, J M; Blount, B C; Krieger, R I

The perchlorate content of iceberg and romaine lettuce averaged 6.2 and 7.2 microg/kg fw in southern Colorado and 14.0 and 56.7 microg/kg fw in southwestern Arizona and there were no significant ($P > 0.05$) increases in the perchlorate content of lettuce due to hypochlorite treatments. Because of the relatively low concentrations of perchlorate present after dilution and the low volumes applied to lettuce, hypochlorite solutions do not appear to be a...

PMID 19245207 · DOI 10.1021/jf8033013 · [PubMed record](#)

557. Spatio-temporal analysis of infra-specific genetic variations among a *Pseudomonas aeruginosa* water network hospital population: invasion and selection of clonal complexes.

2008 · Journal of applied microbiology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Lavenir, R; Sanroma, M; Gibert, S; Crouzet, O; Laurent, F; Kravtsoff, J; Mazoyer, M-A; Cournoyer, B

CONCLUSIONS: An important turnover among the *P. aeruginosa* hospital population was observed. SIGNIFICANCE AND IMPACT OF THE STUDY: High *P. aeruginosa* infra-specific population diversity suggested a broad ability in colonizing water networks but persistence analysis indicated a strong selection leading to the emergence of dominant clones.

PMID 19146487 · DOI 10.1111/j.1365-2672.2008.03907.x · [PubMed record](#)

558. Phagocytosis, oxidative burst, and produced reactive species are affected by iron deficiency anemia and anemia of chronic diseases in elderly.

2009 · Biological trace element research · Food & agriculture · Human observational / experimental
Authors: Paino, I M M; Miranda, J C; Marzocchi-Machado, C M; Cesarino, E J; de Castro, F A; de Souza, A M

There was an overproduction of *NO from monocytes, whereas the fundamental generation of HOCl appeared to be lower. Phagocytosis, oxidative burst, and *NO and HOCl production are involved in iron metabolism regulation in elderly patients with ACD and IDA.

PMID 19129984 · DOI 10.1007/s12011-008-8303-8 · [PubMed record](#)

559. Chemical fate and changes in mutagenic activity of antibiotics nitrofurazone and furazolidone during aqueous chlorination.

2008 · The Journal of toxicological sciences · Water, sanitation & biosecurity · Journal article / other
Authors: Nakamura, Hitomi; Kawakami, Tsuyoshi; Niino, Tatsuhiro; Takahashi, Yasuo; Onodera, Sukeo

Nevertheless, the strong mutagenic parents disappeared completely after the hypochlorite reactions, and the chlorination byproducts were observed to exert a weak mutagenic effect on *Salmonella typhimurium* TA100 without S9-mix. The extent of the reactions depended on the chlorine dose, solution pH and compound structures.

PMID 19043283 · DOI 10.2131/jts.33.621 · [PubMed record](#)

560. Unusual products of the aqueous chlorination of atenolol.

2009 · Chemosphere · Water, sanitation & biosecurity · Journal article / other
Authors: DellaGreca, Marina; Iesce, Maria Rosaria; Pistillo, Paola; Previtera, Lucio; Temussi, Fabio

When the reaction was stopped at shorter times only 2-(4-(3-amino-2-hydroxypropoxy)phenyl) acetamide and the dichlorinated product were detected. Tests performed on the seeds of *Lactuca sativa* show that chlorinated products have phytotoxic activity.

PMID 18996563 · DOI 10.1016/j.chemosphere.2008.09.067 · [PubMed record](#)

561. Neutral super-oxidised solutions are effective in killing *P. aeruginosa* biofilms.

2009 · Biofouling · Water, sanitation & biosecurity · Human observational / experimental
Authors: Sauer, Karin; Thatcher, Eileen; Northey, Robert; Gutierrez, Andres A

As a result of this increased resistance, biofilms and biofilm-related infections cannot be effectively treated with conventional antibiotic therapy. Because OIS-125 and OIS-200 enhance the disaggregation of biofilms, their use in the treatment of surface-related biofilm infections deserves further investigation.

PMID 18846439 · DOI 10.1080/08927010802441412 · [PubMed record](#)

562. Hypochlorite-induced oxidation of dairy proteins: impact of pH and oxidant concentration.

2008 · Communications in agricultural and applied biological sciences · Veterinary & livestock · Animal study
Authors: Kerkaert, B; Mestdagh, F; Cucu, T; De Meulenaer, B

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 18831266 · [PubMed record](#)

563. Examination of hypochlorous acid-induced damage to cytosine residues in a CpG dinucleotide in DNA.

2008 · Chemical research in toxicology · Water, sanitation & biosecurity · Journal article / other
Authors: Kang, Joseph I Jr; Sowers, Lawrence C

Overall, we observe that the reactivity of cytosine at CpG and non-CpG sites toward hypochlorous acid induced damage is similar (5-chlorocytosine > 5-hydroxycytosine > 5-hydroxyuracil > 5-chlorouracil), with a greater proportion of chlorination damage at CpG sites. These results are in accord with the potential of inflammation-mediated DNA damage to both induce transition mutations and to perturb epigenetic signals.

PMID 18826175 · DOI 10.1021/tx800037h · [PubMed record](#)

564. Effects of a low concentration hypochlorous Acid nasal irrigation solution on bacteria, fungi, and virus.

2008 · The Laryngoscope · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Kim, Hyun Jik; Lee, Jeung-Gweon; Kang, Ju Wan; Cho, Hyung-Ju; Kim, Hyun Su; Byeon, Hyung Kwon; Yoon, Joo-Heon

RESULTS: : In the cytotoxicity assay and in the morphological examination, the cells did not show anytoxicity at 30 minute or 2 hours after treatment with HOCl. CONCLUSIONS: A low concentration HOCl solution can be used as an effective nasal irrigation solution.

PMID 18677274 · DOI 10.1097/MLG.0b013e31817f4d34 · [PubMed record](#)

565. Hypochlorous acid oxidizes methionine and tryptophan residues in myoglobin.

2008 · Free radical biology & medicine · Veterinary & livestock · In vitro / laboratory
Authors: Szuchman-Sapir, Andrea J; Pattison, David I; Ellis, Natasha A; Hawkins, Clare L; Davies, Michael J; Witting, Paul K

Peptide mass mapping revealed that Met55 was oxidized at a lower HOCl/Mb ratio than Met131 and this preceded Trp7/14 modification (susceptibility Met55>Met131>Trp7>Trp14). These data indicate that Mb undergoes site-specific oxidation depending on the HOCl/protein ratio.

PMID 18625300 · DOI 10.1016/j.freeradbiomed.2008.06.010 · [PubMed record](#)

566. Galloylated catechins as potent inhibitors of hypochlorous acid-induced DNA damage.

2008 · Chemical research in toxicology · Veterinary & livestock · In vitro / laboratory
Authors: Kawai, Yoshichika; Matsui, Yuri; Kondo, Hajime; Morinaga, Hiroshi; Uchida, Koji; Miyoshi, Noriyuki; Nakamura, Yoshimasa; Osawa, Toshihiko

Mass spectrometric and nuclear magnetic resonance analyses showed that ECg and EGCg can effectively scavenge HOCl and/or chloramine species resulting in the formation of mono- and dichlorinated ECg and EGCg. These results showed that green tea catechins, especially 3-galloylated catechins, may be the plausible candidate for the prevention of inflammation-derived DNA damage and perhaps carcinogenesis.

PMID 18512968 · DOI 10.1021/tx800069e · [PubMed record](#)

567. Comparing the efficacy of chlorine, chlorine dioxide, and ozone in the inactivation of *Cryptosporidium parvum* in water from Parana State, Southern Brazil.

2008 · Applied biochemistry and biotechnology · Veterinary & livestock · In vitro / laboratory
Authors: Pereira, Juliana Tracz; Costa, Adriana Oliveira; de Oliveira Silva, Márcia Benedita; Schuchard, Wagner; Osaki, Silvia Cristina; de Castro, Edilene Alcântara; Paulino, Rosângela Clara; Soccol, Vanete Thomaz

Ozone was the most effective product, rendering an inactivation of 100% with the concentration of 24 mg/l. Resistance of *Cryptosporidium* to the usual disinfectants and the need for more effective water treatments to prevent waterborne diseases in Brazil are discussed in this manuscript.

PMID 18498060 · DOI 10.1007/s12010-008-8214-3 · [PubMed record](#)

568. Inactivation of mitochondrial NADP⁺-dependent isocitrate dehydrogenase by hypochlorous acid.

2008 · Free radical research · Veterinary & livestock · Human observational / experimental
Authors: Park, Sin Young; Lee, Su-Min; Shin, Seoung Woo; Park, Jeon-Woo

Transfection of HeLa cells with an IDPm small interfering RNA (siRNA) markedly enhanced HOCl-induced oxidative damage to cells. The HOCl-mediated damage to IDPm may result in the perturbation of the cellular antioxidant defense mechanisms and subsequently lead to a pro-oxidant condition.

PMID 18484410 · DOI 10.1080/10715760802098834 · [PubMed record](#)

569. Hypothiocyanous acid is a more potent inducer of apoptosis and protein thiol depletion in murine macrophage cells than hypochlorous acid or hypobromous acid.

2008 · The Biochemical journal · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Lloyd, Mitchell M; van Reyk, David M; Davies, Michael J; Hawkins, Clare L

In the present study, HOCl and HOBr are shown to react rapidly with macrophage (J774A.1) cells, resulting in a greater extent of cell lysis compared with HOSCN. Similarly, apoptosis is observed on treating the cells in the presence of a caspase inhibitor, suggesting that it is mediated by a caspase-independent pathway.

PMID 18459943 · DOI 10.1042/BJ20080468 · [PubMed record](#)

570. Hypochlorous acid damages histone proteins forming 3-chlorotyrosine and 3,5-dichlorotyrosine.

2008 · Chemical research in toxicology · Water, sanitation & biosecurity · Journal article / other
Authors: Kang, Joseph I Jr; Neidigh, Jonathan W

Our results indicate that up to 25% of the tyrosine in histone proteins become chlorinated by excess HOCl. We also observe significant formation of 3-chlorotyrosine and 3,5-dichlorotyrosine at low HOCl concentrations and short reaction times.

PMID 18452314 · DOI 10.1021/tx7003486 · [PubMed record](#)

571. The combined performance of UV light and chlorine during reclaimed water disinfection.

2008 · Water science and technology : a journal of the International Association on Water Pollution Research · Water, sanitation & biosecurity · Animal study
Authors: Montemayor, M; Costan, A; Lucena, F; Jofre, J; Muñoz, J; Dalmau, E; Mujerigo, R; Sala, L

However, ultraviolet light was more effective than hypochlorite at reducing the concentrations of bacteriophages, viruses and pathogenic protozoa such as *Cryptosporidium* spp. We conclude that a combination of these two disinfectant agents is effective in protecting public health, as each agent acts to a different degree against the different groups of microorganisms studied.

PMID 18413956 · DOI 10.2166/wst.2008.206 · [PubMed record](#)

572. Loss of 3-chlorotyrosine by inflammatory oxidants: implications for the use of 3-chlorotyrosine as a bio-marker in vivo.

2008 · Biochemical and biophysical research communications · Water, sanitation & biosecurity · Human observational / experimental
Authors: Whiteman, Matthew; Spencer, Jeremy P E

Furthermore, incubation of 3-chlorotyrosine with activated RAW264.7 macrophages or neutrophil-like HL-60 cells resulted in significant loss of 3-chlorotyrosine. This finding could account for some of the discrepancies reported between 3-chlorotyrosine levels in tissues in the literature.

PMID 18405660 · DOI 10.1016/j.bbrc.2008.03.153 · [PubMed record](#)

573. The role of chloride anion and CFTR in killing of *Pseudomonas aeruginosa* by normal and CF neutrophils.

2008 · Journal of leukocyte biology · Food & agriculture · Human observational / experimental
Authors: Painter, Richard G; Bonvillain, Ryan W; Valentine, Vincent G; Lombard, Gisele A; LaPlace, Stephanie G; Nauseef, William M; Wang, Guoshun

The data demonstrate that the killing rate by CF neutrophils was significantly lower than that by normal neutrophils. These results suggest that CFTR-dependent chloride anion transport contributes significantly to killing PsA by normal neutrophils and when defective as in CF, may compromise the ability to clear PsA.

PMID 18353929 · DOI 10.1189/jlb.0907658 · [PubMed record](#)

574. Effect of N-chloroamino acids on the erythrocyte.

2008 · Free radical research · Water, sanitation & biosecurity · Human observational / experimental

Authors: Robaszekiewicz, A; Bartosz, G; Soszynski, M

They had a weaker haemolytic action than HOCl/OCl(-); HOCl/OCl(-), AlaCl and PheCl increased osmotic fragility of erythrocytes at a concentration of 1 mM. Oxidation of glutathione, formation of protein-glutathione mixed disulphides and efflux of GSSG from erythrocytes were observed for erythrocytes treated with all the employed chloroderivatives, while increased oxidation of 2',7'-dichlorofluorescein was detected only after treatment of the cells with 1 mM...

PMID 18324521 · DOI 10.1080/10715760701774873 · [PubMed record](#)

575. Myeloperoxidase-catalyzed chlorination: the quest for the active species.

2008 · Journal of inorganic biochemistry · Water, sanitation & biosecurity · Journal article / other

Authors: Ramos, Daniel R; García, M Victoria; Canle L, Moisés; Santaballa, J Arturo; Furtmüller, Paul G; Obinger, Christian

A maximum of chlorination rate is observed for Pro-Gly-Gly and Tau when [H₂O₂] approximately 0.3-0.7 mM and pH approximately 4.5-5.0. Electronic structure calculations show the size of Pro-Gly-Gly comparable to the available gap in the substrate channel, this tripeptide being unable to reach the active site, and its chlorination is only possible by free HOCl outside the enzyme.

PMID 18279963 · DOI 10.1016/j.jinorgbio.2008.01.003 · [PubMed record](#)

576. Effectiveness of selected premilking teat-cleaning regimes in reducing teat microbial load on commercial dairy farms.

2008 · Letters in applied microbiology · Veterinary & livestock · Animal study

Authors: Gibson, H; Sinclair, L A; Brizuela, C M; Worton, H L; Protheroe, R G

In the second experiment, the chlorine wash and dry wipe was significantly more effective in reducing teat TVC than a water wash and dry, chlorine dip and dry or a dry wipe. SIGNIFICANCE AND IMPACT OF THE STUDY: The premilking teat-cleaning techniques studied reduced the teat microbial load and therefore reduced the potential for milk contamination; however, a wash including an effective disinfectant followed by a dry wipe was the most effective.

PMID 18179447 · DOI 10.1111/j.1472-765X.2007.02308.x · [PubMed record](#)

577. Comparison of the inactivation of *Bacillus subtilis* spores and MS2 bacteriophage by MIOX, ClorTec and hypochlorite.

2007 · Journal of applied microbiology · Water, sanitation & biosecurity · Journal article / other

Authors: Clevenger, T; Wu, Y; DeGruson, E; Brazos, B; Banerji, S

Four indicator organisms were exposed to four disinfectant treatments for comparing the effectiveness of inactivation: hypochlorite, ClorTec, MIOX and MIOX-anode. The results indicated that the two electrolytic generation systems were as effective as the conventional chlorination for the inactivation of micro-organisms used.

PMID 18045412 · DOI 10.1111/j.1365-2672.2007.03481.x · [PubMed record](#)

578. Toxicogenomic response to chlorination includes induction of major virulence genes in *Staphylococcus aureus*.

2007 · Environmental science & technology · Water, sanitation & biosecurity · Human observational / experimental

Authors: Chang, Matthew Wook; Toghrul, Freshteh; Bentley, William E

Our results suggest that hypochlorous acid repressed transcription of genes involved in cell wall synthesis, membrane transport, protein synthesis, and primary metabolism, while amino acid synthesis genes were induced. This work implies that chlorination may stimulate production of virulence factors, which provides new insight into host-pathogen interactions and effects of chlorine application for microbial control.

PMID 18044543 · DOI 10.1021/es070929k · [PubMed record](#)

579. Myricitrin as a substrate and inhibitor of myeloperoxidase: implications for the pharmacological effects of flavonoids.

2008 · Free radical biology & medicine · Food & agriculture · In vitro / laboratory

Authors: Meotti, Flavia Carla; Senthilmohan, Revathy; Harwood, D Tim; Missau, Fabiana Cristina; Pizzolatti, Moacir G; Kettle, Anthony J

The number of hydroxyl groups in the B ring of the flavonoids and the presence of a free hydroxyl m-phenol group in the A ring were important for the inhibitory effects. We conclude that myricitrin will be oxidized by neutrophils at sites of inflammation to produce reactive free radicals and quinones.

PMID 17963707 · DOI 10.1016/j.freeradbiomed.2007.09.017 · [PubMed record](#)

580. Study of sugar beet cyst nematode life cycle using plant tissue culture method.

2007 · Pakistan journal of biological sciences : PJBS · Food & agriculture · In vitro / laboratory
Authors: Shadmehr, Atena; Nouroozi, Payman; Garousi, Ghasemali; Ahmadi, Ali-Reza

Results showed that 70% ethanol for 1 min followed by 2.5% hypochlorite sodium for 5 minutes and 0.1% hypochlorite sodium for 20 min were best treatments for disinfecting cysts and larvae, respectively. As a result, it seems that this technique can be used for sugar beet germplasm evaluation to screen nematode resistant genotypes in in vitro controlled condition.

PMID 19090198 · DOI 10.3923/pjbs.2007.2910.2914 · [PubMed record](#)

581. Chlorination products: emerging links with allergic diseases.

2007 · Current medicinal chemistry · Water, sanitation & biosecurity · Review
Authors: Bernard, A

Populations regularly in contact with chlorination products such as swimmers, lifeguards or workers using chlorine as cleaning or bleaching agent show increased risks of allergic diseases or of respiratory disorders frequently associated with allergy. These findings led to the chlorine hypothesis proposing that the rise of allergic diseases could result less from the declining exposure to microbial agents (the hygiene hypothesis) than from the increasing...

PMID 17627515 · DOI 10.2174/092986707781058940 · [PubMed record](#)

582. Inhibition of the myeloperoxidase chlorinating activity by non-steroidal anti-inflammatory drugs: flufenamic acid and its 5-chloro-derivative directly interact with a recombinant human myeloperoxidase to inhibit the synthesis of hypochlorous acid.

2007 · European journal of pharmacology · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Van Antwerpen, Pierre; Dufrasne, François; Lequeux, Mathieu; Boudjeltia, Karim Zouaoui; Lessgyer, Ilham; Babar, Sajida; Moreau, Patrick; Moguilevsky, Nicole; Vanhaeverbeek, Michel; Ducobu, Jean; Nève, Jean

Flufenamic acid has the best inhibiting activity towards the MPO/H(2)O(2)/Cl(-) system. However, in models that assess the LDL oxidation, flufenamic acid and its derivatives were unable to properly inhibit MPO activity as the enzyme is adsorbed on macrostructures such as LDL molecules.

PMID 17610876 · DOI 10.1016/j.ejphar.2007.05.057 · [PubMed record](#)

583. S-allylcysteine scavenges singlet oxygen and hypochlorous acid and protects LLC-PK(1) cells of potassium dichromate-induced toxicity.

2007 · Food and chemical toxicology : an international journal published for the British Industrial Biological Research Association · Veterinary & livestock · In vitro / laboratory
Authors: Medina-Campos, Omar Noel; Barrera, Diana; Segoviano-Murillo, Sabina; Rocha, Diana; Maldonado, Perla D; Mendoza-Patiño, Nicandro; Pedraza-Chaverri, José

When the ability of SAC to scavenge these species was compared to those of the reference compounds it was found that the efficacy of SAC (a) to scavenge O(2)(-), H(2)O(2), OH(), and ONOO(-) was lower, (b) to scavenge HOCl was similar, and (c) to scavenge (1)O(2) was higher. It was showed for the first time that SAC is able to scavenge (1)O(2) and HOCl and to ameliorate the K(2)Cr(2)O(7)-induced toxicity.

PMID 17576034 · DOI 10.1016/j.fct.2007.05.002 · [PubMed record](#)

584. Detection and characterization of N-alpha-chloramines by electrospray tandem mass spectrometry.

2007 · Analytical biochemistry · Water, sanitation & biosecurity · Journal article / other
Authors: Raftery, Mark J

Oxidation of Met and formation of disulfide dimers was observed after incubation of either N-alpha-Cl-LeuEnk or N-alpha-Cl2-LeuEnk with a protein, indicating that both peptide N-alpha-chloramines were able to readily modify sulfur-containing amino acids within proteins. These data indicate initial formation of stable N-alpha-chlorinated peptides after incubation with HOCl and suggest that N-alpha-chlorinated peptides may exist for some hours in the absence...

PMID 17537392 · DOI 10.1016/j.ab.2007.04.016 · [PubMed record](#)

585. Proteomic analysis of a hypochlorous acid-tolerant *Listeria monocytogenes* cultural variant exhibiting enhanced biofilm production.

2007 · Journal of food protection · Food & agriculture · Human observational / experimental
Authors: Folsom, James P; Frank, Joseph F

The objective of this research was to compare the protein expression of a cultural variant to SA and to identify proteins that might be associated with biofilm production and chlorine tolerance. Protein expression of planktonic and biofilm cells of SBS was compared to SA by two-dimensional difference gel electrophoresis.

PMID 17536671 · DOI 10.4315/0362-028x-70.5.1129 · [PubMed record](#)

586. "Solvent effects on the silylation-gas chromatography-mass spectrometric determination of natural and synthetic estrogenic steroid hormones" Comment on "Formation of chlorinated estrones via hypochlorous disinfection of wastewater effluent containing estrone" by Hideyuki Nakamura, Ryoko Kuruto-Niwa, Mitsuo Uchida and Yoshiyasu Terao [Chemosphere 66 (2007) 1441-1448].

2007 · Chemosphere · Water, sanitation & biosecurity · Journal article / other
Authors: Zuo, Yuegang; Lin, Yuejuan

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 17499335 · DOI 10.1016/j.chemosphere.2007.03.065 · [PubMed record](#)

587. Modification of tryptophan and methionine residues is implicated in the oxidative inactivation of surfactant protein B.

2007 · Biochemistry · Veterinary & livestock · Animal study
Authors: Manzanares, Dahis; Rodriguez-Capote, Karina; Liu, Suyu; Haines, Thomas; Ramos, Yudith; Zhao, Lin; Doherty-Kirby, Amanda; Lajoie, Gilles; Possmayer, Fred

Fenton reaction resulted in immediate increases in gammamin and gammamax. These studies provide insight into the manner by which ROS generated during acute lung injury and the acute respiratory distress syndrome act to inhibit not only endogenous surfactant but also therapeutic surfactants administered to counteract these conditions.

PMID 17425286 · DOI 10.1021/bi062304p · [PubMed record](#)

588. Investigation of pathways of advanced glycation end-products accumulation in macrophages.

2007 · Molecular nutrition & food research · Veterinary & livestock · In vitro / laboratory
Authors: Nagai, Ryoji; Fujiwara, Yukio; Mera, Katsumi; Otagiri, Masaki

In contrast, the cells showed no ligand activity for mildly modified AGE-BSA, prepared by incubating BSA with 50 mM glucose for 24 weeks. Taken together, our results indicate that AGE detected inside foam cells in atherosclerotic lesions are generated intracellularly rather than representing endocytic uptake of extracellular AGE-proteins by scavenger receptors.

PMID 17390398 · DOI 10.1002/mnfr.200600255 · [PubMed record](#)

589. Comparison of rinsing and sanitizing procedures for reducing bacterial pathogens on fresh cantaloupes and bell peppers.

2007 · Journal of food protection · Food & agriculture · Human observational / experimental
Authors: Alvarado-Casillas, S; Ibarra-Sánchez, S; Rodríguez-García, O; Martínez-González, N; Castillo, A

However, this reduction was not observed on cantaloupes, indicating a possible surface effect. These results indicate that selected produce commodities could be sanitized at the packing facility.

PMID 17388055 · DOI 10.4315/0362-028x-70.3.655 · [PubMed record](#)

590. Chlorination of lignin by ubiquitous fungi has a likely role in global organochlorine production.

2007 · Proceedings of the National Academy of Sciences of the United States of America · Water, sanitation & biosecurity · Journal article / other
Authors: Ortiz-Bermúdez, Patricia; Hirth, Kolby C; Srebotnik, Ewald; Hammel, Kenneth E

Fractionation of the extractable proteins followed by tandem mass spectrometric analysis showed that the colonized wood contained a previously described *C. inaequalis* chloroperoxidase that very likely catalyzed lignin chlorination. Chlorolignin produced by this route and humus derived from it are probably significant components of the global chlorine cycle because chloroperoxidase-producing fungi are ubiquitous in decaying lignocellulose and lignin is the...

PMID 17360449 · DOI 10.1073/pnas.0610074104 · [PubMed record](#)

591. An original route to immobilize an organic biocide onto a transparent tin dioxide electrode.

2007 · Langmuir : the ACS journal of surfaces and colloids · Veterinary & livestock · Animal study
Authors: Debiemme-Chouvy, Catherine; Haskouri, Sanae; Folcher, Guy; Cachet, Hubert

In this paper it is shown, for the first time, that an electrochemical treatment performed in the presence of chlorides and proteins allows the immobilization of an organic biocide (chloramine) on the electrode. It is polarized to oxidize chloride ions into hypochlorous acid, which reacts with the organic matter (bovine serum albumin) present at the electrode/solution interface, leading on one hand to the chlorination of the proteins with in particular...

PMID 17311439 · DOI 10.1021/la063613j · [PubMed record](#)

592. Chlorination by a long-lived intermediate in the mechanism of flavin-dependent halogenases.

2007 · Biochemistry · Water, sanitation & biosecurity · Journal article / other
Authors: Yeh, Ellen; Blasiak, Leah C; Koglin, Alexander; Drennan, Catherine L; Walsh, Christopher T

Herein, we demonstrate the formation of a long-lived chlorinating intermediate ($t_{1/2} = 63$ h at 4 degrees C) when RebH, FADH₂, Cl⁻, and O₂ react in the absence of substrate tryptophan. The identity of this intermediate is suggested by the X-ray crystal structure of RebH, which revealed an active site Lys79 located in a central position between flavin and tryptophan binding sites and just 4.1 Å above C7 of tryptophan.

PMID 17260957 · DOI 10.1021/bi0621213 · [PubMed record](#)

593. Hypochlorous acid-derived modification of phospholipids: characterization of aminophospholipids as regulatory molecules for lipid peroxidation.

2006 · Biochemistry · Veterinary & livestock · Journal article / other
Authors: Kawai, Yoshichika; Kiyokawa, Hitomi; Kimura, Yuki; Kato, Yoji; Tsuchiya, Koichiro; Terao, Junji

Upon incubation with HOCl, the peroxidation of egg yolk phosphatidylcholine was significantly enhanced in the presence of phosphatidylethanolamine (PE). In contrast, the peroxidation was significantly inhibited in the presence of phosphatidylserine (PS).

PMID 17115715 · DOI 10.1021/bi0610909 · [PubMed record](#)

594. [Disinfection efficiency of peracetic acid, alone and in combination with hypochlorite, against Mycobacterium avium in drinking water].

2006 · Annali di igiene : medicina preventiva e di comunita · Water, sanitation & biosecurity · Journal article / other
Authors: Schiavano, G F; Sisti, M; De Santi, M; Brandi, G

In this study PAA did not show appreciable activity against the greater number of tested strains (16/21) up to 5 ppm of PAA, a weak activity was seen on 4 strains, while a significant reduction in viable cells (about 50%) was seen only on 1 strain after 48 h of treatment with 5 ppm of PAA. In conclusion, our result would indicate that PAA is an unlikely candidate for the disinfection of drinking water from M. avium and further strategies are required to...

PMID 17089953 · [PubMed record](#)

595. Modeling the reactions of superoxide and myeloperoxidase in the neutrophil phagosome: implications for microbial killing.

2006 · The Journal of biological chemistry · Water, sanitation & biosecurity · Journal article / other
Authors: Winterbourn, Christine C; Hampton, Mark B; Livesey, John H; Kettle, Anthony J

In the absence of myeloperoxidase, superoxide increases to >100 microM but hydrogen peroxide to only approximately 30 microM. Hydroxyl radicals should form only after all susceptible protein targets are consumed.

PMID 17074761 · DOI 10.1074/jbc.M605898200 · [PubMed record](#)

596. Study on inactivation kinetics of hepatitis A virus and enteroviruses with peracetic acid and chlorine. New ICC/PCR method to assess disinfection effectiveness.

2006 · Journal of preventive medicine and hygiene · Food & agriculture · Human observational / experimental
Authors: Bigliardi, L; Sansebastiano, G

A comparison between these data and those resulting from the kinetics with peracetic acid (PA) showed that PA is less effective than chlorine. As a preliminary to future research, the PCR-test integrated with cell-cultures was experimentally introduced for a quick evaluation of the HAV-infectiveness, with the aim of possible application in the field of disinfection and of viruses-isolation from environmental and food samples.

PMID 17066904 · [PubMed record](#)

597. Effect of hypochloride on microbial ecology of bulking and foaming activated sludge treatment for tannery wastewater.

2006 · Journal of environmental science and health. Part A, Toxic/hazardous substances & environmental engineering · Veterinary & livestock · Journal article / other

Authors: Ovez, Süleyman; Ors, Canan; Murat, Selda; Orhon, Derin

Chlorine application at an average rate of 3 g Cl(-1)(kg MLSS.day)(-1) for 12 days provide an effective solution for bulking and foaming, restoring the effluent quality. Therefore, chlorine remediation of bulking and foaming, although temporarily effective, is only superficial as the Gordonia seeding inside the floc remains intact and potentially available for excessive growth in the next favorable conditions.

PMID 17018406 · DOI 10.1080/10934520600867813 · [PubMed record](#)

598. Characterization of the microbial flora in disinfecting footbaths with hypochlorite.

2006 · Journal of food protection · Veterinary & livestock · Journal article / other

Authors: Langsrud, Solveig; Seifert, Linn; Møretrø, Trond

The degree of attachment to plastic varied between strains and species and bacteria attached to surfaces were in general more resistant than suspended bacteria. The results of the survey indicated that disinfecting footbaths containing chlorine may act as contamination sources in food factories and should not be used without regular hygienic monitoring.

PMID 16995523 · DOI 10.4315/0362-028x-69.9.2193 · [PubMed record](#)

599. CFTR Expression in human neutrophils and the phagolysosomal chlorination defect in cystic fibrosis.

2006 · Biochemistry · Food & agriculture · In vitro / laboratory

Authors: Painter, Richard G; Valentine, Vincent G; Lanson, Nicholas A Jr; Leidal, Kevin; Zhang, Qiang; Lombard, Gisele; Thompson, Connie; Viswanathan, Anand; Nauseef, William M; Wang, Guangdi; Wang, Guoshun

In contrast, both normal and CF neutrophils exhibited normal extracellular production of HOCl when stimulated with phorbol ester, indicating that CF neutrophils had the normal ability to produce this oxidant in the extracellular medium. This report provides evidence which suggests that CFTR channel expression in neutrophils and its dysfunction affect neutrophil chlorination of phagocytosed bacteria.

PMID 16922501 · DOI 10.1021/bi060490t · [PubMed record](#)

600. Arthritogenicity of collagen type II is increased by chlorination.

2006 · Clinical and experimental immunology · Food & agriculture · Animal study

Authors: Westman, E; Lundberg, K; Erlandsson Harris, H

Analysis of cytokine mRNA expression in lymph nodes 10 days after immunization revealed an increased expression of interferon (IFN)-gamma mRNA and interleukin (IL)-1beta mRNA in CII-Cl-immunized rats compared to CII-immunized rats. As neutrophils, monocytes and macrophages are abundant cells in arthritic joints of patients with rheumatoid arthritis, chlorination might be a mechanism by which immunoreactivity to CII is induced and by which chronic joint...

PMID 16879255 · DOI 10.1111/j.1365-2249.2006.03129.x · [PubMed record](#)

601. Modified low-density lipoproteins and high-density lipoproteins. From investigation tools to real in vivo players.

2006 · Pathophysiology of haemostasis and thrombosis · Food & agriculture · Review

Authors: Koller, Elisabeth; Volf, Ivo; Gurvitz, Aner; Koller, Franz

Much less is known about the interaction of oxidised HDL with platelets, since platelet activation was observed in some, but not all studies. More recently, alterations to lipoproteins performed using hypochloric acid and myeloperoxidase redirected the attention to the role of modified apoproteins in triggering platelet responses.

PMID 16877881 · DOI 10.1159/000093225 · [PubMed record](#)

602. [Comparison on the in vitro hatching methods for Taenia solium eggs].

2006 · Zhongguo ji sheng chong xue yu ji sheng chong bing za zhi = Chinese journal of parasitology & parasitic diseases · Food & agriculture · In vitro / laboratory

Authors: Zhao, Yan-bing

Sodium hypochlorite digestion (NaClO) method and enzyme method were compared in the hatching of Taenia solium eggs. Both methods are effective, but the sodium hypochlorite digestion shows higher hatching rate (96.4%) and viability (89.0%) in a shorter reaction time (< 5 min) without needing expensive reagents.

PMID 16866155 · [PubMed record](#)

603. Surface detail, compressive strength, and dimensional accuracy of gypsum casts after repeated immersion in hypochlorite solution.

2006 · The Journal of prosthetic dentistry · Water, sanitation & biosecurity · Human observational / experimental
Authors: Abdullah, Mohammed Aleem

The type IV casts treated with slurry with sodium hypochlorite showed significantly less ($P < .0001$) mean linear dimensional change (0.025%) compared with type III stone casts (0.063%), and the values remained within the ANSI/ADA specified standards.
CONCLUSION: The results demonstrated that repeated immersion of type III and type IV stone specimens in slurry with distilled water and slurry with 0.525% sodium hypochlorite, along with drying in air, caused a...

PMID 16765160 · DOI 10.1016/j.prosdent.2006.03.019 · [PubMed record](#)

604. Evidence that monochloramine disinfectant could lead to elevated Pb levels in drinking water.

2006 · Environmental science & technology · Food & agriculture · Journal article / other
Authors: Switzer, Jay A; Rajasekharan, Vishnu V; Boonsalee, Sansanee; Kulp, Elizabeth A; Bohannon, Eric W

X-ray diffraction analysis shows that the NH_2Cl oxidizes Pb to Pb(II) species such as $\text{Pb}_3(\text{OH})_2(\text{CO}_3)_2$, whereas the stronger oxidant, HOCl/OCl^- , oxidizes Pb to Pb(IV) as an insoluble PbO_2 conversion coating. Although NH_2Cl may produce less halogenated organic byproducts than HOCl/OCl^- when used as a disinfectant, it may lead to increased Pb levels in drinking water.

PMID 16749710 · DOI 10.1021/es052411r · [PubMed record](#)

605. Redox-sensitive impairment of porcine coronary artery vasodilation by hypochlorite-modified LDL.

2007 · Atherosclerosis · Veterinary & livestock · Human observational / experimental
Authors: Plass, Christian A; Schmid, Werner; Holy, Erik W; Kreatschitsch, Ursula; Laggner, Hildegard; Volf, Ivo

LDL oxidation by hypochlorite differs from most other forms of LDL oxidation in that hypochlorite-mediated oxidation shows a predilection for the protein moiety of LDL and does not result in lipid peroxidation. As application of the scavenger receptor antagonist maleylated albumin strongly interferes with the effects of hyp-OxLDL on vasomotion, we conclude that specific binding of hypochlorite-modified apoB is likely to be involved in mediating the...

PMID 16730731 · DOI 10.1016/j.atherosclerosis.2006.04.001 · [PubMed record](#)

606. L-arginine chlorination results in the formation of a nonselective nitric-oxide synthase inhibitor.

2006 · The Journal of pharmacology and experimental therapeutics · Food & agriculture · Animal study
Authors: Yang, Jian; Ji, Ruirui; Cheng, Yunhui; Sun, Ju-Zhong; Jennings, Lisa K; Zhang, Chunxiang

The results demonstrated that Cl-L-Arg potently inhibited all three NOS isoform-mediated vessel reactivities, as well as the NOS signaling molecule cGMP. Cl-L-Arg might serve as a novel endogenous NOS inhibitor and an important mediator for vascular dysfunction under inflammatory conditions such as atherosclerosis.

PMID 16717106 · DOI 10.1124/jpet.106.104422 · [PubMed record](#)

607. Effects of biological oxidants on the catalytic activity and structure of group VIA phospholipase A2.

2006 · Biochemistry · Food & agriculture · Animal study
Authors: Song, Haowei; Bao, Shunzhong; Ramanadham, Sasanka; Turk, John

Cys651-sulfenic acid formation could be one DTT-reversible inactivation event because Cys651 modification correlates closely with activity loss and its mutagenesis reduces sensitivity to inhibition. These findings raise the possibility that redox reactions affect iPLA(2)beta functions.

PMID 16700550 · DOI 10.1021/bi060502a · [PubMed record](#)

608. Inactivation of biological agents using neutral oxone-chloride solutions.

2006 · Environmental science & technology · Water, sanitation & biosecurity · Journal article / other
Authors: Delcomyn, Carrie A; Bushway, Karen E; Henley, Michael V

Seawater was an effective substitute for solid sodium chloride and inactivated 5 to 8 logs of each organism in 10 min over temperatures ranging from -5 degrees C to 55 degrees C. Sporidical effectiveness increased as free chlorine concentrations shifted from OCl^- to HOCl .

PMID 16683620 · DOI 10.1021/es052146+ · [PubMed record](#)

609. Triclosan reactivity in chloraminated waters.

2006 · Environmental science & technology · Water, sanitation & biosecurity · Journal article / other
Authors: Greychock, Aimee E; Vikesland, Peter J

Experimental and modeling results show that monochloramine directly reacts with the phenolate form of triclosan; however, the reaction is relatively slow as evinced by the second-order rate constant $k(\text{ArO})\text{-NH}_2\text{Cl} = 0.025 \text{ M}^{-1} \text{ s}^{-1}$. Kinetic modeling indicates that for pH values less than 9.5, reactions between triclosan and two monochloramine autodecomposition intermediates, hypochlorous acid ($k(\text{ArO})\text{-HOCl} = 5.4 \times 10^3 \text{ M}^{-1} \text{ s}^{-1}$) and dichloramine...

PMID 16683600 · DOI 10.1021/es051952d · [PubMed record](#)

610. Paullinia pinnata extracts rich in polyphenols promote vascular relaxation via endothelium-dependent mechanisms.

2006 · Journal of cardiovascular pharmacology · Veterinary & livestock · In vitro / laboratory
Authors: Zamble, Alexis; Carpentier, Marie; Kandoussi, Abdelmejid; Sahpaz, Sevser; Petrault, Olivier; Ouk, Tawarak; Hennuyer, Nathalie; Fruchart, Jean-Charles; Staels, Bart; Bordet, Régis; Duriez, Patrick; Bailleul, François; Martin-Nizard, Françoise

N-nitro-L-arginine methyl ester significantly attenuated the capacity of both extracts to induce arterial relaxation, indicating that this arterial relaxation was mediated by endothelial nitric oxide release. It could be suggested that the arterial relaxation induced by both extracts could be mainly linked to their capacities to inhibit nitric oxide oxidation through their antioxidant properties.

PMID 16680075 · DOI 10.1097/01.fjc.0000211734.53798.1d · [PubMed record](#)

611. Captopril inhibits the oxidative modification of apolipoprotein B-100 caused by myeloperoxidase in a comparative in vitro assay of angiotensin converting enzyme inhibitors.

2006 · European journal of pharmacology · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Van Antwerpen, Pierre; Legssyer, Ilham; Zouaoui Boudjeltia, Karim; Babar, Sajida; Moreau, Patrick; Moguilevsky, Nicole; Vanhaeverbeek, Michel; Ducobu, Jean; Nève, Jean

Based on recent observations with several anti-inflammatory and thiol-containing drugs, the present study was designed to test the hypothesis that anti-hypertensive agents from the angiotensin converting enzyme (ACE) inhibitors group inhibit the oxidative modifications of Apo B-100 caused by MPO. Only captopril, a thiol-containing ACE inhibitor, was able to significantly decrease the oxidative modification of LDL in a dose dependent manner and this by...

PMID 16631159 · DOI 10.1016/j.ejphar.2006.03.022 · [PubMed record](#)

612. A perspective on the environmental risk of halogenated by-products from uses of hypochlorite using a whole effluent toxicity based approach.

2006 · Environmental toxicology and chemistry · Food & agriculture · Animal study
Authors: Johnson, Ian; Pickup, John A; van Wijk, Dolf

However, after degradation, the amount of potentially bioaccumulable halogenated substances in the RSS and C/D-RSS samples was comparable, indicating that these substances were degradable. The results are discussed in the context of the overall risk assessment for sodium hypochlorite.

PMID 16629158 · DOI 10.1897/05-195r.1 · [PubMed record](#)

613. Reactive oxygen species inactivation of surfactant involves structural and functional alterations to surfactant proteins SP-B and SP-C.

2006 · Biophysical journal · Veterinary & livestock · Animal study
Authors: Rodríguez-Capote, Karina; Manzanares, Dahis; Haines, Thomas; Possmayer, Fred

Exposing bovine lipid extract surfactant (BLES), a clinical surfactant, to reactive oxygen species arising from hypochlorous acid or the Fenton reaction resulted in an increase in lipid (conjugated dienes, lipid aldehydes) and protein (carbonyls) oxidation products and a reduction in surface activity. We conclude that surfactant oxidation arising from reactive oxygen species generated by air pollution or leukocytes interferes with surfactant function...

PMID 16443649 · DOI 10.1529/biophysj.105.073106 · [PubMed record](#)

614. A sensitive and selective assay for chloramine production by myeloperoxidase.

2005 · Free radical biology & medicine · Water, sanitation & biosecurity · Human observational / experimental
Authors: Dypbukt, Jeannette M; Bishop, Cynthia; Brooks, Wendy M; Thong, Bob; Eriksson, Håkan; Kettle, Anthony J

This allows for discrimination between heme peroxidases that generate either hypochlorous acid or hypobromous acid. The assay has distinct advantages over existing assays for myeloperoxidase with regard to sensitivity, specificity, and its ease and versatility of use.

PMID 16274882 · DOI 10.1016/j.freeradbiomed.2005.07.008 · [PubMed record](#)

615. Generation of free radicals during decomposition of hydroperoxide in the presence of myeloperoxidase or activated neutrophils.

2005 · Biochemistry · Biokhimiia · Water, sanitation & biosecurity · Human observational / experimental
Authors: Panasenkov, O M; Chekanov, A V; Arnhold, J; Sergienko, V I; Osipov, A N; Vladimirov, Yu A

Inhibitory analysis performed with traps of hypochlorite (taurine and methionine), free radical scavengers (2,6-di-tert-butyl-4-methylphenol and mannitol), and MPO inhibitors (salicylhydroxamic acid and 4-aminobenzoic acid hydrazide) revealed that the destruction of the hydroperoxide group in the presence of isolated MPO or activated neutrophils was directly caused by the activity of MPO: some radical intermediates appeared as a result of the chlorination...

PMID 16266270 · DOI 10.1007/s10541-005-0215-z · [PubMed record](#)

616. Tryptophan 7-halogenase (PrnA) structure suggests a mechanism for regioselective chlorination.

2005 · Science (New York, N.Y.) · Water, sanitation & biosecurity · Journal article / other
Authors: Dong, Changjiang; Flecks, Silvana; Unversucht, Susanne; Haupt, Caroline; van Pée, Karl-Heinz; Naismith, James H

On the basis of biochemical studies, crystal structures, and by analogy with monooxygenases, we predict that FADH₂ reacts with O₂ to make peroxyflavin, which is decomposed by Cl⁻. The resulting HOCl is guided through the tunnel to tryptophan, where it is activated to participate in electrophilic aromatic substitution.

PMID 16195462 · DOI 10.1126/science.1116510 · [PubMed record](#)

617. Superoxide-dependent oxidation of melatonin by myeloperoxidase.

2005 · The Journal of biological chemistry · Veterinary & livestock · Human observational / experimental
Authors: Ximenes, Valdecir F; Silva, Sueli de O; Rodrigues, Maria R; Catalani, Luiz H; Maghzal, Ghassan J; Kettle, Anthony J; Campa, Ana

Formation of AFMK was almost completely eliminated by superoxide dismutase but weakly inhibited by catalase. In contrast, production of melatonin dimer was enhanced by superoxide dismutase and blocked by catalase.

PMID 16148002 · DOI 10.1074/jbc.M506384200 · [PubMed record](#)

618. Bromination and chlorination reactions of myeloperoxidase at physiological concentrations of bromide and chloride.

2006 · Archives of biochemistry and biophysics · Food & agriculture · Human observational / experimental
Authors: Senthilmohan, Revathy; Kettle, Anthony J

The level of 3-bromotyrosine increased to 16-fold greater than that for 3-chlorotyrosine. We conclude that at physiological concentrations of chloride and bromide, hypobromous acid can be a major oxidant produced by myeloperoxidase.

PMID 16125131 · DOI 10.1016/j.abb.2005.07.005 · [PubMed record](#)

619. Inactivation of Escherichia coli O157:H7 in biofilm on stainless steel by treatment with an alkaline cleaner and a bacteriophage.

2005 · Journal of applied microbiology · Food & agriculture · Journal article / other
Authors: Sharma, M; Ryu, J-H; Beuchat, L R

Treatment with 100% alkaline cleaners reduced populations by 5-6 log CFU per coupon, a significant ($P < \text{or} = 0.05$) reduction compared with treatment with water. Treatment with bacteriophage KH1 reduces populations of cells attached to coupon surfaces but not cells in biofilms.

PMID 16108786 · DOI 10.1111/j.1365-2672.2005.02659.x · [PubMed record](#)

620. Methionine sulfoxide and proteolytic cleavage contribute to the inactivation of cathepsin G by hypochlorous acid: an oxidative mechanism for regulation of serine proteinases by myeloperoxidase.

2005 · The Journal of biological chemistry · Food & agriculture · In vitro / laboratory
Authors: Shao, Baohai; Belaaouaj, Abderrazzaq; Verlinde, Christophe L M J; Fu, Xiaoyun; Heinecke, Jay W

Tandem mass spectrometric analysis of oxidized cathepsin G revealed that loss of a peptide containing Asp108, which lies in the active site, associated quantitatively with loss of enzymatic activity. They also suggest that methionine oxidation could render cathepsin G susceptible to autolytic cleavage.

PMID 15967795 · DOI 10.1074/jbc.M504040200 · [PubMed record](#)

621. Reactive sulfur species: kinetics and mechanism of the oxidation of cystine by hypochlorous acid to give N,N'-dichlorocystine.

2005 · Chemical research in toxicology · Food & agriculture · Journal article / other
Authors: Nagy, Péter; Ashby, Michael T

This result could be explained by two mechanisms: rapid disproportionation of NCC to produce NDC and cystine or a faster reaction of the second equivalent of HOCl with NCC than the first equivalent of HOCl reacts with cystine. The latter mechanism is favored because of our observation by NMR spectroscopy that NDC decomposes via a species that we have assigned as NCC.

PMID 15962926 · DOI 10.1021/tx050079r · [PubMed record](#)

622. Oxidation of heparan sulphate by hypochlorite: role of N-chloro derivatives and dichloramine-dependent fragmentation.

2005 · The Biochemical journal · Veterinary & livestock · Animal study
Authors: Rees, Martin D; Pattison, David I; Davies, Michael J

In contrast, dichloramine decay is rapid at 37 degrees C and results in fragmentation of the polymer backbone. These results suggest that HOCl may be an important mediator of damage to glycosaminoglycans and proteoglycans at inflammatory foci.

PMID 15932347 · DOI 10.1042/BJ20050630 · [PubMed record](#)

623. Mechanism of interaction of betanin and indicaxanthin with human myeloperoxidase and hypochlorous acid.

2005 · Biochemical and biophysical research communications · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Allegra, Mario; Furtmüller, Paul Georg; Jantschko, Walter; Zederbauer, Martina; Tesoriere, Luisa; Livrea, Maria A; Obinger, Christian

It is shown that both betalains are good peroxidase substrates for MPO and function as one-electron reductants of its redox intermediates, compound I and compound II. At neutral pH and depending on their concentration, both betalains can exhibit a stimulating and inhibitory effect on the chlorination activity of MPO, whereas at pH 5.0 only inhibitory effects were observed even at micromolar concentrations.

PMID 15913556 · DOI 10.1016/j.bbrc.2005.05.031 · [PubMed record](#)

624. Modeling physiological resistance in bacterial biofilms.

2005 · Bulletin of mathematical biology · Water, sanitation & biosecurity · Journal article / other
Authors: Cogan, N G; Cortez, Ricardo; Fauci, Lisa

We find that reversing the flow increases the effectiveness of dosing. In addition, we show that overall survival decreases with increasing surface roughness.

PMID 15893555 · DOI 10.1016/j.bulm.2004.11.001 · [PubMed record](#)

625. Green fluorescent protein-expressing Escherichia coli as a selective probe for HOCl generation within neutrophils.

2005 · Biochemistry · Veterinary & livestock · Human observational / experimental
Authors: Palazzolo, Amy M; Suquet, Christine; Konkel, Michael E; Hurst, James K

Exposure of serum-opsonized bacteria to human neutrophils resulted in extensive loss of GFP fluorescence; fluorescence microscopy revealed that phagocytosed bacteria were completely quenched but that bacteria remaining in the external media were unquenched. Because the amount of HOCl required to inhibit bacterial fluorescence was an order of magnitude greater than required to inhibit colonial growth, these results imply that sufficient HOCl was formed...

PMID 15865436 · DOI 10.1021/bi047342s · [PubMed record](#)

626. New methods in the evaluation of chemical disinfectants used in health care services.

2005 · American journal of infection control · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Vieira, Cristina Dutra; Farias, Luiz de Macêdo; Diniz, Cláudio Galuppo; Alvarez-Leite, Maria Eugênia; Camargo, Elizabeth Ribeiro da Silva; Carvalho, Maria Auxiliadora Roque de

RESULTS: The results showed microbial growth in chemical solutions at concentrations recommended by the literature or at very close concentrations to them. CONCLUSION: These findings pointed out the need of periodic surveillance of disinfectants' activity used in Health Care Services and the need of reviewing routines of disinfection protocols.

PMID 15798671 · DOI 10.1016/j.ajic.2004.10.007 · [PubMed record](#)

627. [Semicarbazide in food].

2004 · Shokuhin eiseigaku zasshi. Journal of the Food Hygienic Society of Japan · Food & agriculture · Review
Authors: Yamamoto, Miyako; Uneyama, Chikako; Toda, Miou; Morikawa, Kaoru

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 15794098 · [PubMed record](#)

628. Genotoxicity of the disinfection by-products resulting from peracetic acid- or hypochlorite-disinfected sewage wastewater.

2005 · Water research · Water, sanitation & biosecurity · Human observational / experimental
Authors: Crebelli, R; Conti, L; Monarca, S; Feretti, D; Zerbini, I; Zani, C; Veschetti, E; Cutilli, D; Ottaviani, M

Negative results were obtained in the *A. cepa* anaphase aberration test. These results indicate that, in the conditions applied, wastewater disinfection with PAA and NaClO does not lead to the formation of significant amounts of genotoxic by-products.

PMID 15766965 · DOI 10.1016/j.watres.2004.12.029 · [PubMed record](#)

629. Hypochlorous acid scavenging properties of local Mediterranean plant foods.

2004 · Lipids · Veterinary & livestock · In vitro / laboratory
Authors: Schaffer, Sebastian; Eckert, Gunter P; Müller, Walter E; Llorach, Rafael; Rivera, Diego; Grande, Simona; Galli, Claudio; Visioli, Francesco

The formation of 3-nitrotyrosine was significantly lower in bovine endothelial aortic cells incubated with *C. cardunculus* or *T. pulegioides*. In synthesis, our study shows that local Mediterranean plant foods prevent HOCl toxicity in vitro and, thus, suggests further mechanisms responsible for the reported health-beneficial effect of the Mediterranean diet.

PMID 15736921 · DOI 10.1007/s11745-004-1353-9 · [PubMed record](#)

630. ¹H NMR analysis as a diagnostic probe for human saliva.

2005 · Biochemical and biophysical research communications · Water, sanitation & biosecurity · Human observational / experimental
Authors: Grootveld, Martin; Silwood, Christopher J L

We also demonstrate that hypochlorous acid/hypochlorite (HOCl/OCl(-))-induced modifications to the (¹H) NMR profiles of human salivary supernatants arise from the chlorination and, where appropriate, oxidation of amino acids and malodorous amines, together with the oxidation of carbohydrates and alpha-keto acid anions. 323 (2004) 377-381].

PMID 15721264 · DOI 10.1016/j.bbrc.2005.01.112 · [PubMed record](#)

631. Chlorine transfer between glycine, taurine, and histamine: reaction rates and impact on cellular reactivity.

2005 · Free radical biology & medicine · Food & agriculture · Human observational / experimental
Authors: Peskin, Alexander V; Midwinter, Robyn G; Harwood, David T; Winterbourn, Christine C

For cells in full medium, high chloramine concentrations were needed to inhibit GAPDH because of scavenging by methionine and other constituents. In methionine-free medium, chlorine exchange resulted in GAPDH inhibition by Tau-Cl, whereas Gly-Cl was less effective than in Hanks' buffer.

PMID 15693173 · DOI 10.1016/j.freeradbiomed.2004.11.006 · [PubMed record](#)

632. Myeloperoxidase plays critical roles in killing *Klebsiella pneumoniae* and inactivating neutrophil elastase: effects on host defense.

2005 · Journal of immunology (Baltimore, Md. : 1950) · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Hirche, Tim O; Gaut, Joseph P; Heinecke, Jay W; Belaouaj, Azzaq

Our observations provide strong evidence that MPO, like NE, is a key player in the killing of *K. pneumoniae* bacteria. They also suggest that MPO may modulate NE to protect the host from the tissue-degrading activity of this proteinase.

PMID 15661916 · DOI 10.4049/jimmunol.174.3.1557 · [PubMed record](#)

633. Aqueous chlorination kinetics of some endocrine disruptors.

2004 · Environmental science & technology · Water, sanitation & biosecurity · Journal article / other
Authors: Deborde, Marie; Rabouan, Sylvie; Gallard, Hervé; Legube, Bernard

The results showed that chlorination exhibits a second-order reaction rate. For a total chlorine concentration of 1 mg/L, the corresponding half-life times at pH 7 were about 65 min for 4-n-nonylphenol and 6-8 min for hormones.

PMID 15575274 · DOI 10.1021/es040006e · [PubMed record](#)

634. Effects of phenylbutazone, indomethacin, prostaglandin E2, butyrate, and glutamine on restitution of oxidant-injured right dorsal colon of horses in vitro.

2004 · American journal of veterinary research · Veterinary & livestock · In vitro / laboratory
Authors: Rötting, Anna K; Freeman, David E; Constable, Peter D; Eurell, Jo Ann C; Wallig, Matthew A

RESULTS: The HOCl-injured mucosa had lower resistance and higher permeability to mannitol, compared with control tissue. Phenylbutazone and indomethacin increased resistance, but these increases were not significant.

PMID 15566100 · DOI 10.2460/ajvr.2004.65.1589 · [PubMed record](#)

635. Safety and protective effect of a disinfectant (STEL water) for white spot syndrome viral infection in shrimp.

2004 · Diseases of aquatic organisms · Veterinary & livestock · Animal study
Authors: Park, Jong-Hwan; Seok, Seung-Hyeok; Cho, Sun-a; Baek, Min-Won; Lee, Hui-Young; Kim, Dong-Jae; Kim, Han-Yun; Chang, Se-Ok; Park, Jae-Hak

Low concentrations of STEL water effectively prevented mortality of shrimp at this challenge dose. Results suggested that continuous disinfection of seawater with STEL water may be effective for preventing WSSV infection in shrimp.

PMID 15521325 · DOI 10.3354/dao060253 · [PubMed record](#)

636. Contribution of brominated organic disinfection by-products to the mutagenicity of drinking water.

2004 · Water science and technology : a journal of the International Association on Water Pollution Research · Water, sanitation & biosecurity · Journal article / other
Authors: Echigo, S; Itoh, S; Natsui, T; Araki, T; Ando, R

On the other hand, bromate ion, a major ozonation DBP, was not a major contributor to the activity inducing chromosomal aberrations of the water treated with an ozone/chlorine sequential process. Therefore, ozonation is one possible option to reduce the health risk caused by DBPs even in the presence of bromide.

PMID 15497864 · [PubMed record](#)

637. Chlorine transfer between glycine, taurine, and histamine: reaction rates and impact on cellular reactivity.

2004 · Free radical biology & medicine · Food & agriculture · Human observational / experimental
Authors: Peskin, Alexander V; Midwinter, Robyn G; Harwood, David T; Winterbourn, Christine C

For cells in full medium, high chloramine concentrations were needed to inhibit GAPDH because of scavenging by methionine and other constituents. In methionine-free medium, chlorine exchange resulted in GAPDH inhibition by Tau-Cl, whereas Gly-Cl was less effective than in Hanks' buffer.

PMID 15477013 · DOI 10.1016/j.freeradbiomed.2004.08.010 · [PubMed record](#)

638. Oxidative modification of type II collagen differentially affects its arthritogenic and tolerogenic capacity in experimental arthritis.

2004 · Archivum immunologiae et therapiae experimentalis · Water, sanitation & biosecurity · Human observational / experimental
Authors: Marcinkiewicz, Janusz; Biedron, Rafał; Maresz, Katarzyna; Kwaśny-Krochin, Beata; Bobek, Małgorzata; Kontny, Ewa; Małiński, Włodzimierz; Chain, Benjamin

CNAT also exerted tolerogenic properties when injected intravenously either before or shortly after primary immunization, resulting in decreased incidence and severity of CIA, reduced MPO activity in inflamed joints, and lowered serum levels of anti-CNAT IgG anti-bodies. CONCLUSIONS: These results suggest that chlorination of collagen may selectively affect functional epitopes of collagen.

PMID 15467493 · [PubMed record](#)

639. Oxidized caprine alpha-2-macroglobulin: damaged but not completely dysfunctional.

2004 · Biochimica et biophysica acta · Veterinary & livestock · Human observational / experimental
Authors: Khan, Shakil A; Khan, Fahim H

At physiologically attainable concentration, we found that HOCl significantly compromised functional integrity of the inhibitor. Structure function analysis demonstrated that oxidized caprine inhibitor, unlike its human counterpart, retained its tetrameric configuration as well as its characteristic ability to undergo major conformational change upon trypsinization.

PMID 15374618 · DOI 10.1016/j.bbagen.2004.06.008 · [PubMed record](#)

640. Endogenous formation of novel halogenated 2'-deoxycytidine. Hypohalous acid-mediated DNA modification at the site of inflammation.

2004 · The Journal of biological chemistry · Water, sanitation & biosecurity · Human observational / experimental
Authors: Kawai, Yoshichika; Morinaga, Hiroshi; Kondo, Hajime; Miyoshi, Noriyuki; Nakamura, Yoshimasa; Uchida, Koji; Osawa, Toshihiko

The formation of the dihalogenated 2'-deoxycytidine in vivo was immunohistochemically demonstrated in the lung and liver nuclei of mice treated with lipopolysaccharides, an experimental inflammatory model. These results strongly suggest that phagocyte-derived oxidants, hypohalous acids, endogenously generate the halogenated DNA bases such as a novel dihalogenated 2'-deoxycytidine in vivo.

PMID 15364942 · DOI 10.1074/jbc.M408210200 · [PubMed record](#)

641. Effects of cleaning and disinfection in reducing the spread of Norovirus contamination via environmental surfaces.

2004 · The Journal of hospital infection · Food & agriculture · Human observational / experimental
Authors: Barker, J; Vipond, I B; Bloomfield, S F

The effectiveness of detergent- and disinfectant-based cleaning regimes typical of those that might be used to decontaminate faecally contaminated surfaces and reduce spread of NV was also compared. Where there was faecal soiling, although a combined hypochlorite/detergent formulation at 5000 ppm of available chlorine produced a significant risk reduction, NV contamination could still be detected on up to 28% of surfaces.

PMID 15350713 · DOI 10.1016/j.jhin.2004.04.021 · [PubMed record](#)

642. Comparison of the inhibition of myeloperoxidase-catalyzed hypochlorite formation in vitro and in whole blood by different plant extracts contained in a phytopharmacon treating functional dyspepsia.

2004 · Arzneimittel-Forschung · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Schempp, Harald; Hippeli, Susanne; Weiser, Dieter; Kelber, Olaf; Elstner, Erich F

If one of the component extracts of IG is omitted, the antioxidant activity is reduced. Thus we conclude that all the single extracts combined in IG are of importance for the therapeutical effect, working in concert.

PMID 15344843 · DOI 10.1055/s-0031-1296989 · [PubMed record](#)

643. Hypochlorous acid impairs endothelium-derived nitric oxide bioactivity through a superoxide-dependent mechanism.

2004 · Arteriosclerosis, thrombosis, and vascular biology · Veterinary & livestock · Animal study
Authors: Stocker, Roland; Huang, Annong; Jeranian, Erin; Hou, Jing Yun; Wu, Tina T; Thomas, Shane R; Keaney, John F Jr

Finally, we found that HOCl reduced endothelial nitric oxide synthase dimer stability, an effect that was also inhibited by superoxide dismutase. CONCLUSIONS: Taken together, these data indicate that HOCl imparts a defect in endothelial NO production due to a superoxide-dependent reduction in endothelial nitric oxide synthase dimer stability.

PMID 15331437 · DOI 10.1161/01.ATV.0000143388.20994.fa · [PubMed record](#)

644. Internalization of bacterial pathogens in tomatoes and their control by selected chemicals.

2004 · Journal of food protection · Food & agriculture · Journal article / other
Authors: Ibarra-Sánchez, L S; Alvarado-Casillas, S; Rodríguez-García, M O; Martínez-González, N E; Castillo, A

The effect of different washing or sanitizing agents was compared for preventing or reducing surface and internal contamination of tomatoes by Salmonella Typhimurium and Escherichia coli O157:H7. No significantly different results were obtained ($P > 0.05$) with the dipping and spraying techniques.

PMID 15270485 · DOI 10.4315/0362-028x-67.7.1353 · [PubMed record](#)

645. Hypochlorite scavenging activity of flavonoids.

2004 · The Journal of pharmacy and pharmacology · Food & agriculture · In vitro / laboratory
Authors: Firuzi, Omidreza; Mladenka, Premysl; Petrucci, Rita; Marrosu, Giancarlo; Saso, Luciano

Most of them inhibited human serum albumin oxidation at micro-molar concentrations and appeared more active than Trolox, a water-soluble equivalent of vitamin E. It was observed that the greater the number of hydroxyl substitutions, the greater the scavenging activity.

PMID 15231046 · DOI 10.1211/0022357023556 · [PubMed record](#)

646. *Renibacterium salmoninarum*: effect of hypochlorite treatment, and survival in water.

2004 · Diseases of aquatic organisms · Veterinary & livestock · Journal article / other
Authors: Hirvelä-Koski, Varpu

Treatment with sodium hypochlorite effectively reduced the number of culturable cells of *R. salmoninarum*, but use of the recovery broth showed that small numbers of cells remained viable at all concentrations of free chlorine. Viable cells of *R. salmoninarum* were still detected in subcultures of all strains after 20 wk of incubation in river water.

PMID 15212289 · DOI 10.3354/dao059027 · [PubMed record](#)

647. Formation of semicarbazide (SEM) in food by hypochlorite treatment: is SEM a specific marker for nitrofurazone abuse?

2004 · Food additives and contaminants · Food & agriculture · Human observational / experimental
Authors: Hoenicke, K; Gatermann, R; Hartig, L; Mandix, M; Otte, S

The present studies have shown that SEM can occur naturally, e.g. in algae, shrimps and eggs, and is formed from natural substances, e.g. arginine and creatine. A significant formation of SEM was observed in samples treated with hypochlorite commonly used in food processing for disinfection or bleaching.

PMID 15204530 · DOI 10.1080/02652030410001712484 · [PubMed record](#)

648. Alteration of an autoantigen by chlorination, a process occurring during inflammation, can overcome adaptive immune tolerance.

2004 · Scandinavian journal of immunology · Water, sanitation & biosecurity · Animal study
Authors: Westman, E; Harris, H E

Several potential mechanisms of tolerance breaking have been postulated, one being inflammation-associated events. T cells specific for the chlorinated protein can confer help to B cells recognizing both the chlorinated and the native form of the protein, leading to the formation of high-affinity autoreactive antibodies and possibly autoimmune disease.

PMID 15140055 · DOI 10.1111/j.0300-9475.2004.01428.x · [PubMed record](#)

649. The reactions of oxicam and sulfoanilide non steroidal anti-inflammatory drugs with hypochlorous acid: determination of the rate constants with an assay based on the competition with para-aminobenzoic acid chlorination and identification of some oxidation products.

2004 · Free radical research · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Van Antwerpen, P; Dubois, J; Gelbcke, M; Neve, J

The specificity of the system was improved by a liquid chromatography (LC) which allows the separation of the drugs and their oxidation products. Meloxicam therefore reacted significantly faster than the other oxicams and nimesulide, which is the weakest scavenger of the studied series.

PMID 15129733 · DOI 10.1080/10715760310001659404 · [PubMed record](#)

650. Epigallocatechin gallate markedly enhances formation of 8-oxo-7,8-dihydro-2'-deoxyguanosine in the reaction of 2'-deoxyguanosine with hypochlorous acid.

2004 · Free radical biology & medicine · Veterinary & livestock · Journal article / other
Authors: Suzuki, Toshinori; Nakano, Toshiki; Masuda, Mitsuharu; Ohshima, Hiroshi

EGCG effectively inhibited this HOCl-mediated loss of 8-oxo-dG in the oxidized DNA, resulting in an apparent increase in 8-oxo-dG levels in the oxidized DNA, compared with the levels found without EGCG. Thus, our results suggest that as a biomarker of oxidative DNA damage, not only 8-oxo-dG but also the products of its further oxidation should be analyzed.

PMID 15082062 · DOI 10.1016/j.freeradbiomed.2004.02.004 · [PubMed record](#)

651. Evaluation of products upon the reaction of hypohalous acid with unsaturated phosphatidylcholines.

2004 · Chemistry and physics of lipids · Food & agriculture · Journal article / other
Authors: Spalteholz, Holger; Wenske, Kathrin; Panasenkov, Oleg M; Schiller, Jürgen; Arnhold, Jürgen

First, chlorohydrins as well as bromohydrins were formed whereby the oxygen introduced was derived from water as shown by using H₂ 16O or H₂ 18O. These results are consistent with the view that two principal possibilities of stabilisation of pi-complexes formed after binding of Cl(+) or Br(+) to the pi-system of the double bond exist.

PMID 14998730 · DOI 10.1016/j.chemphyslip.2003.12.005 · [PubMed record](#)

652. Minimizing prion risk without compromising the microbial composition of biofilms grown in vivo in a human plaque model.

2004 · Letters in applied microbiology · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Watson, P S; Sissons, C H; Devine, D A; Shore, R C; Kirkham, J; Nattress, B R; Marsh, P D; Robinson, C

SIGNIFICANCE: Several in situ models allow generation of plaque in the oral cavity, followed by recovery of intact biofilms for experimentation. Hypochlorite treatment of biological material, as an adjunct to autoclaving, reduces infection risk without compromising biofilm composition and should be adopted in all future studies using plaque-generating devices incorporating enamel, where there is a potential prion threat, and further investigated in other...

PMID 14962042 · DOI 10.1111/j.1472-765x.2003.01477.x · [PubMed record](#)

653. Degradation of isoxaflutole (balance) herbicide by hypochlorite in tap water.

2003 · Journal of agricultural and food chemistry · Water, sanitation & biosecurity · Journal article / other
Authors: Lin, Chung-Ho; Lerch, Robert N; Garrett, Harold E; George, Milon F

As a result, the herbicide solutions prepared with tap water at 500 microg/L will no longer possess any herbicidal activity after 48 h of storage. Results of this study show that current chlorination disinfection protocols in municipal water systems would completely eliminate the phytotoxic form of this new herbicide, DKN, from drinking water supplies; yet, farmers can use chlorinated tap water without significant loss of efficacy.

PMID 14690388 · DOI 10.1021/jf034473b · [PubMed record](#)

654. Hypochlorite action on plasma fibronectin promotes its extended conformation in complexes with antibodies.

2003 · Journal of protein chemistry · Water, sanitation & biosecurity · Human observational / experimental
Authors: Olszowski, Slawomir; Olszowska, Ewa; Kusior, Dorota; Piwowarczyk, Mirosław; Stelmaszynska, Teresa

Quenching experiments revealed that in chlorinated Fn the percentage of intact tryptophan moieties buried in the hydrophobic Fn core increases as compared to unchlorinated Fn. In general, ELISA experiments showed that chlorination of plasma Fn diminished the number of available epitopes but for lower HOCl/OCl⁻ concentrations (1-2 mM) the reverse effect is observed--the number of accessible fibronectin epitopes is increased when Fn adopts extended...

PMID 14690247 · DOI 10.1023/b:jopc.0000005460.94172.1d · [PubMed record](#)

655. Lysine residues direct the chlorination of tyrosines in YXXK motifs of apolipoprotein A-I when hypochlorous acid oxidizes high density lipoprotein.

2004 · The Journal of biological chemistry · Water, sanitation & biosecurity · Human observational / experimental
Authors: Bergt, Constanze; Fu, Xiaoyun; Huq, Nabiha P; Kao, Jeff; Heinecke, Jay W

NMR and MS analyses revealed that the N(epsilon) amino group of lysine was initially chlorinated, which suggests that chloramine formation is the first step in tyrosine chlorination. Our observations suggest that HOCl selectively targets tyrosine residues that are suitably juxtaposed to primary amino groups in proteins.

PMID 14660678 · DOI 10.1074/jbc.M309046200 · [PubMed record](#)

656. Interaction of myeloperoxidase with vascular NAD(P)H oxidase-derived reactive oxygen species in vasculature: implications for vascular diseases.

2003 · American journal of physiology. Heart and circulatory physiology · Food & agriculture · Animal study
Authors: Zhang, Chunxiang; Yang, Jian; Jacobs, Jonathan D; Jennings, Lisa K

In the present study, ANG II was used to stimulate vascular NAD(P)H oxidases and increase their H₂O₂ production in the vascular wall, and vascular dysfunction was used as the vascular injury parameter. We demonstrated that vascular-bound MPO has sustained activity in the vasculature.

PMID 14613914 · DOI 10.1152/ajpheart.00435.2003 · [PubMed record](#)

657. Histamine chloramine reactivity with thiol compounds, ascorbate, and methionine and with intracellular glutathione.

2003 · Free radical biology & medicine · Food & agriculture · Human observational / experimental
Authors: Peskin, Alexander V; Winterbourn, Christine C

There was irreversible oxidation and losses to the medium, as observed with HOCl and other cell types. Thus, histamine chloramine shows high preference for thiols both in isolation and in cells, and in this respect is more selective than HOCl.

PMID 14607524 · DOI 10.1016/s0891-5849(03)00502-1 · [PubMed record](#)

658. Effects of acetylcysteine and migration of resident eosinophils in an in vitro model of mucosal injury and restitution in equine right dorsal colon.

2003 · American journal of veterinary research · Veterinary & livestock · In vitro / laboratory
Authors: Rötting, Anna K; Freeman, David E; Eurell, Jo Ann C; Constable, Peter D; Wallig, Matthew

The permeability to mannitol increased to the same extent in tissues treated with HOCl alone or with acetylcysteine and HOCl. This novel finding could be relevant to inflammation in equine colon and a pathophysiologic feature of many colonic diseases.

PMID 14596455 · DOI 10.2460/ajvr.2003.64.1205 · [PubMed record](#)

659. In vitro inhibition of human neutrophil histotoxicity by ambroxol: evidence for a multistep mechanism.

2003 · British journal of pharmacology · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Ottonello, Luciano; Arduino, Nicoletta; Bertolotto, Maria; Dapino, Patrizia; Mancini, Marina; Dallegri, Franco

Among drugs currently available for in vivo use in humans, ambroxol is unique by virtue of its ability to prevent neutrophil-mediated A1AT inactivation via inhibition of HOCl production as well as HOCl scavenging. Also taking into account its capacity for curbing elastase release, the drug displays the potential to lessen the burden of oxidants/proteases and to increase the antiprotease shield at the site of inflammation.

PMID 14534155 · DOI 10.1038/sj.bjp.0705497 · [PubMed record](#)

660. Growth of Escherichia coli in model distribution system biofilms exposed to hypochlorous acid or monochloramine.

2003 · Applied and environmental microbiology · Water, sanitation & biosecurity · Journal article / other
Authors: Williams, Margaret M; Braun-Howland, Ellen B

Furthermore, although it was undetected using routine monitoring techniques, the observation of rRNA-containing E. coli within biofilms demonstrated not only survival but also metabolic activity of this organism within the model distribution systems. The persistence of diverse bacterial species within disinfectant-treated biofilms suggests that current testing practices underestimate the risk to immunocompromised individuals of contracting waterborne...

PMID 12957935 · DOI 10.1128/AEM.69.9.5463-5471.2003 · [PubMed record](#)

661. MCLA-dependent chemiluminescence suggests that singlet oxygen plays a pivotal role in myeloperoxidase-catalysed bactericidal action in neutrophil phagosomes.

2003 · Luminescence : the journal of biological and chemical luminescence · Food & agriculture · Human observational / experimental
Authors: Arisawa, Fumio; Tatsuzawa, Hidetaka; Kambayashi, Yasuhiro; Kuwano, Hiroyuki; Fujimori, Ken; Nakano, Minoru

Bactericidal action may result from (a) the direct reactions of HOCl with biological components (through amine chlorination) or (b) (1)O(2), formed non-enzymatically from HOCl and H(2)O(2), that mainly works to kill microorganisms through bacterial respiratory chain injury. Combining these observations and the results reported by Segal et al., we concluded that (1)O(2) is a major chemical species in the killing of bacteria in neutrophil phagosomes.

PMID 12950060 · DOI 10.1002/bio.728 · [PubMed record](#)

662. Fragmentation of extracellular matrix by hypochlorous acid.

2003 · The Biochemical journal · Veterinary & livestock · In vitro / laboratory
Authors: Woods, Alan A; Davies, Michael J

Matrix damage is enhanced by species that increase chloramine/chloramide decomposition, with copper and iron ions being effective catalysts, and decreased by compounds which scavenge chloramines/chloramides, or species derived from them. The observed matrix modifications reported here may therefore modulate cellular behaviour in diseases such as atherosclerosis where MPO-derived oxidants are generated.

PMID 12911330 · DOI 10.1042/BJ20030715 · [PubMed record](#)

663. Myeloperoxidase-derived hypochlorous acid antagonizes the oxidative stress-mediated activation of iron regulatory protein 1.

2003 · The Journal of biological chemistry · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Mütze, Sebina; Hebling, Ulrike; Stremmel, Wolfgang; Wang, Jian; Arnhold, Jürgen; Pantopoulos, Kostas; Mueller, Sebastian

We further demonstrate that HOCl antagonizes the H2O2-mediated increase in the levels of transferrin receptor, which is a downstream target of IRP1. Our findings suggest that HOCl can modulate signaling pathways in a concerted action with H2O2.

PMID 12888561 · DOI 10.1074/jbc.M307159200 · [PubMed record](#)

664. Reassessment of the microbicidal activity of reactive oxygen species and hypochlorous acid with reference to the phagocytic vacuole of the neutrophil granulocyte.

2003 · Journal of medical microbiology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Reeves, Emer P; Nagl, Markus; Godovac-Zimmermann, Jasminca; Segal, Anthony W

During phagocytosis, neutrophils undergo a burst of respiration in which oxygen is reduced to superoxide ($O_2^{\cdot-}$), which dismutates to form H_2O_2 . The targets of these iodination reactions were largely those of the host cell rather than those of the engulfed microbe.

PMID 12867557 · DOI 10.1099/jmm.0.05181-0 · [PubMed record](#)

665. Collagen type II modification by hypochlorite.

2003 · Acta biochimica Polonica · Water, sanitation & biosecurity · Animal study
Authors: Olszowski, Sławomir; Mak, Paweł; Olszowska, Ewa; Marcinkiewicz, Janusz

Taking into account the fact that chlorinated collagen is partially degraded, the DLS results suggest that smaller micelles are formed of the 10-90 kDa peptide fraction. Moreover, collagen chlorination results in epitope modification which affects CII recognition by anti-CII antibodies.

PMID 12833171 · [PubMed record](#)

666. Biological and dietary antioxidants protect against DNA nitration induced by reaction of hypochlorous acid with nitrite.

2003 · Archives of biochemistry and biophysics · Veterinary & livestock · Animal study
Authors: Chen, Hauh-Jyun Candy; Wu, Shi-Bei; Chang, Chia-Ming

For sulfur-containing compounds, the more highly reduced compounds are stronger inhibitors of DNA nitration. The major product of N-acetyl-L-cysteine reaction with nitryl chloride is characterized as the (R)-2-acetylamino-3-sulfopropionic acid, a physiologically irreversible product, suggesting that nitryl chloride is a strong oxidizing agent.

PMID 12801519 · DOI 10.1016/s0003-9861(03)00220-0 · [PubMed record](#)

667. Oxidative degradation of indigocarmine by hypochlorite--a tool for determination of hypochlorite in commercial samples.

2003 · Journal of environmental science and health. Part A, Toxic/hazardous substances & environmental engineering · Food & agriculture · Journal article / other
Authors: Harriram, A; Govender, V; Jonnalagadda, S B

The suitability of reaction between hypochlorite and indigocarmine as an indicator reaction for the determination of high levels of hypochlorite in synthetic and commercial samples is investigated. A simple and reliable kinetic-analytical method is developed for the determination of hypochlorite ion at alkaline pH, based on its oxidizing activity.

PMID 12774908 · DOI 10.1081/ese-120019863 · [PubMed record](#)

668. Phagocytes produce 5-chlorouracil and 5-bromouracil, two mutagenic products of myeloperoxidase, in human inflammatory tissue.

2003 · The Journal of biological chemistry · Food & agriculture · In vitro / laboratory
Authors: Henderson, Jeffrey P; Byun, Jaeman; Takeshita, Junko; Heinecke, Jay W

These observations indicate that the myeloperoxidase system promotes nucleobase halogenation in vivo. Because 5-chlorouracil and 5-bromouracil can be incorporated into nuclear DNA, and these thymine analogs are well known mutagens, our observations raise the possibility that halogenation reactions initiated by phagocytes provide one pathway for mutagenesis and cytotoxicity at sites of inflammation.

PMID 12707270 · DOI 10.1074/jbc.M303928200 · [PubMed record](#)

669. Inhibition of hypochlorous acid-induced oxidative reactions by nitrite: is nitrite an antioxidant?

2003 · Biochemical and biophysical research communications · Food & agriculture · Human observational / experimental
Authors: Whiteman, Matthew; Rose, Peter; Halliwell, Barry

At physiologically attainable concentrations, we found that NO_2^- significantly inhibits HOCl-mediated DNA strand breakage and ascorbate depletion. NO_2^- was more effective than ascorbate, GSH, and urate at inhibiting HOCl-mediated toxicity to human HepG2 cells in culture.

PMID 12684065 · DOI 10.1016/s0006-291x(03)00503-5 · [PubMed record](#)

670. Transformation and activation of benzidine by oxidants of the inflammatory response.

2003 · Chemical research in toxicology · Veterinary & livestock · Human observational / experimental
Authors: Lakshmi, Vijaya M; Hsu, Fong Fu; Zenser, Terry V

At a concentration equal to DEA NONOate, a 5-fold increase in BZ nitrosation was observed, while at higher concentrations nitrosation was greatly diminished and formation of AZO-BZ occurred. More binding was observed at both pH values with 4'-OH-ABP than ABP.

PMID 12641437 · DOI 10.1021/tx0200966 · [PubMed record](#)

671. The physiology and pharmacology of singlet oxygen.

2003 · Medical hypotheses · Food & agriculture · Human observational / experimental
Authors: Stief, Thomas W

Chloramines at blood concentrations between 1 and 2 mmol/L inactivate lipid enveloped virus and chloramines at blood concentrations below 0.5 mmol/L, i.e. at oxidant concentrations that do not affect thrombocytes or hemostasis factors, act antithrombotically by activation of the physiologic PMN mediated fibrinolysis; this thrombolysis is of selective nature, i.e. it does not impair the hemostasis system of the patient allowing the antithrombotic treatment...

PMID 12615524 · DOI 10.1016/s0306-9877(03)00026-4 · [PubMed record](#)

672. Pulmonary surfactant protein-A (SP-A) restores the surface properties of surfactant after oxidation by a mechanism that requires the Cys6 interchain disulfide bond and the phospholipid binding domain.

2003 · The Journal of biological chemistry · Veterinary & livestock · Animal study
Authors: Rodriguez Capote, Karina; McCormack, Francis X; Possmayer, Fred

Captive bubble tensiometer studies of H-BLES demonstrated prolonged adsorption times, film instability at low surface tensions during film compression, and reduced respreadability during film expansion. F-BLES exhibited prolonged adsorption times, a marked effect on increasing compressibility during compression, and a lesser effect on reducing respreadability on expansion.

PMID 12600986 · DOI 10.1074/jbc.M212697200 · [PubMed record](#)

673. Oxidation of Cu, Zn-superoxide dismutase by the myeloperoxidase/hydrogen peroxide/chloride system: functional and structural effects.

2002 · Free radical research · Veterinary & livestock · Animal study
Authors: Auchère, Françoise; Capeillère-Blandin, Chantal

Results from isoelectric focusing gels showed that exposure to HOCl induced the formation of modified protein derivatives, with a more acidic net electric charge than the parent molecule, consistent with the presence of additional ions observed in the electrospray ionization mass spectra. Collectively, the results suggest that the decrease of the dismutase activity is probably related to both dissociation into protomers and unfolding due to extensive...

PMID 12592671 · DOI 10.1080/1071576021000016454 · [PubMed record](#)

674. Relative contributions of myeloperoxidase and NADPH-oxidase to the early host defense against pulmonary infections with *Candida albicans* and *Aspergillus fumigatus*.

2002 · Medical mycology · Water, sanitation & biosecurity · Animal study
Authors: Aratani, Y; Kura, F; Watanabe, H; Akagawa, H; Takano, Y; Suzuki, K; Dinuer, M C; Maeda, N; Koyama, H

Both MPO-deficient (MPO^{-/-}) and NADPH-oxidase-deficient (X-linked chronic granulomatous disease [X-CGD]) mice showed increased susceptibility to pulmonary infections with *Candida albicans* and *Aspergillus fumigatus* compared with normal mice, and the X-CGD mice exhibited shorter survivals than MPO^{-/-} mice. We also observed that MPO^{-/-}/X-CGD double knockout mice showed comparable levels of susceptibility to the X-CGD mice against *C. albicans* and A....

PMID 12521119 · DOI 10.1080/mmy.40.6.557.563 · [PubMed record](#)

675. Capsid functions of inactivated human picornaviruses and feline calicivirus.

2003 · Applied and environmental microbiology · Food & agriculture · In vitro / laboratory
Authors: Nuanualsuwan, Suphachai; Cliver, Dean O

The capsids of all 37 degrees C-inactivated viruses still protected the viral RNA against RNase, even in the presence of proteinase K, which contrasted with findings with viruses inactivated at 72 degrees C. These findings indicate that the primary target of UV, hypochlorite, and 72 degrees C inactivation is the capsid and that the target of thermal inactivation (37 degrees C versus 72 degrees C) is temperature dependent.

PMID 12514015 · DOI 10.1128/AEM.69.1.350-357.2003 · [PubMed record](#)

676. Biological reactivity and biomarkers of the neutrophil oxidant, hypochlorous acid.

2002 · Toxicology · Food & agriculture · Review
Authors: Winterbourn, Christine C

On the other, specific biomarkers are needed so that oxidative damage can be quantified in clinical material and related to disease severity. This presentation considers biologically relevant reactions of HOCl and the biomarker assays that can be applied to probing the pathological role of myeloperoxidase and its products.

PMID 12505315 · DOI 10.1016/s0300-483x(02)00286-x · [PubMed record](#)

677. Inhibition of human surfactant protein A function by oxidation intermediates of nitrite.

2002 · Free radical biology & medicine · Water, sanitation & biosecurity · Human observational / experimental
Authors: Davis, Ian C; Zhu, Sha; Sampson, Jacinda B; Crow, John P; Matalon, Sadi

SP-A nitration and oxidation by MPO is markedly enhanced in the presence of physiological concentrations of Cl⁻ and the lipid aggregation function of SP-A is completely abolished. Collectively, our results suggest that MPO released by activated neutrophils during inflammation utilizes physiological or pathological levels of NO²⁻ to nitrate proteins, and may provide an additional mechanism in addition to ONOO⁻ formation, for tissue injury in ARDS and...

PMID 12488138 · DOI 10.1016/s0891-5849(02)01170-x · [PubMed record](#)

678. Augmenting effect of acetic acid for acidification on bactericidal activity of hypochlorite solution.

2003 · Letters in applied microbiology · Water, sanitation & biosecurity · Journal article / other
Authors: Kuroiwa, K; Nakayama, H; Kuwahara, T; Tamagawa, K; Hattori, K; Murakami, K; Korai, H; Ohnishi, Y

METHODS AND RESULTS: The bactericidal activities of acidic hypochlorite solutions that had been adjusted to pH 5.0 with hydrochloric acid, acetic acid, citric acid, lactic acid, formic acid, phosphoric acid or sulphuric acid against *Bacillus subtilis* spores were compared. SIGNIFICANCE AND IMPACT OF THE STUDY: The results of this study provide useful information for establishing a method for safe and effective use of an acidic hypochlorite solution.

PMID 12485341 · DOI 10.1046/j.1472-765x.2003.01261.x · [PubMed record](#)

679. Pyrrolidine dithiocarbamate is a potent antioxidant against hypochlorous acid-induced protein damage.

2002 · FEBS letters · Water, sanitation & biosecurity · Human observational / experimental
Authors: Zhu, Ben-Zhan; Carr, Anita C; Frei, Balz

The effects of PDTC were compared to those of reduced glutathione (GSH) and N-acetylcysteine (NAC). These data demonstrate that PDTC is a potent antioxidant against HOCl-induced protein oxidative damage, suggesting that PDTC might be useful in the prevention and treatment of inflammatory conditions.

PMID 12459467 · DOI 10.1016/s0014-5793(02)03637-2 · [PubMed record](#)

680. Detection of HOCl-mediated protein oxidation products in the extracellular matrix of human atherosclerotic plaques.

2003 · The Biochemical journal · Veterinary & livestock · Human observational / experimental
Authors: Woods, Alan A; Linton, Stuart M; Davies, Michael J

In this study proteins extracted from extracellular matrix material obtained from advanced human atherosclerotic lesions are shown to contain elevated levels of oxidized amino acids [3,4-dihydroxyphenylalanine (DOPA), di-tyrosine, 2-hydroxyphenylalanine (o-Tyr)] when compared with healthy (human and pig) arterial tissue. The detection of elevated levels of DOPA and o-Tyr, which have been previously attributed to the occurrence of oxygen-radical-mediated...

PMID 12456264 · DOI 10.1042/BJ20021710 · [PubMed record](#)

681. Predicting drug-induced agranulocytosis: characterizing neutrophil-generated metabolites of a model compound, DMP 406, and assessing the relevance of an in vitro apoptosis assay for identifying drugs that may cause agranulocytosis.

2002 · Chemico-biological interactions · Food & agriculture · In vitro / laboratory
Authors: Iverson, S; Zahid, N; Uetrecht, J P

We usually find that HOCl is a good model system for the production of reactive metabolites of drugs that are formed by activated neutrophils, but in the case of both DMP 406 and mianserin, the products produced were significantly different than those formed by activated neutrophils. These results indicate that this assay is unable to reliably predict the ability of different types of drugs to cause agranulocytosis.

PMID 12399162 · DOI 10.1016/s0009-2797(02)00061-3 · [PubMed record](#)

682. Nitration and chlorination of folic acid by peroxynitrite and hypochlorous acid, and the selective binding of 10-nitro-folate to folate receptor beta.

2002 · Biochemical and biophysical research communications · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Nakamura, Motoyuki; Nagayoshi, Ryusaku; Ijiri, Kosei; Nakashima-Matsushita, Noriko; Takeuchi, Toru; Matsuyama, Takami

Nitrated folate species were identified as 10-nitro-folate and 12-nitro-folate, and chlorinated folate was identified as 12-chloro-folate. The 10-nitro-folate showed the selective binding to FR-beta, compared to folic acid.

PMID 12372420 · DOI 10.1016/s0006-291x(02)02359-8 · [PubMed record](#)

683. Reaction of lactoperoxidase compound I with halides and thiocyanate.

2002 · Biochemistry · Veterinary & livestock · Animal study
Authors: Furtmüller, Paul Georg; Jantschko, Walter; Regelsberger, Günther; Jakopitsch, Christa; Arnhold, Jürgen; Obinger, Christian

At pH 7 and 15 degrees C, the two-electron reduction of compound I to native LPO by bromide and iodide has a second-order rate constant of $(4.1 \pm 0.1) \times 10(4) \text{ M}^{-1} \text{ s}^{-1}$ and $(1.2 \pm 0.04) \times 10(8) \text{ M}^{-1} \text{ s}^{-1}$, respectively. The results are discussed with respect to known kinetic data of homologous mammalian peroxidases and to the physiological role of LPO in antimicrobial defense.

PMID 12269834 · DOI 10.1021/bi026326x · [PubMed record](#)

684. Skin toxicokinetics of mustard gas in the guinea pig: effect of hypochlorite and safety aspects.

2002 · Archives of toxicology · Veterinary & livestock · In vitro / laboratory
Authors: Wormser, Uri; Brodsky, Berta; Sintov, Amnon

Similar findings were obtained when hypochlorite was replaced by water (64% reduction). In vitro studies showed that incubation of SM with 0.5% hypochlorite at a ratio of 10:1 (v/v) did not cause SM inactivation, whereas 4% hypochlorite reduced SM levels by 17%.

PMID 12242609 · DOI 10.1007/s00204-002-0362-6 · [PubMed record](#)

685. Inhibition of hypochlorous acid-induced cellular toxicity by nitrite.

2002 · Proceedings of the National Academy of Sciences of the United States of America · Food & agriculture · In vitro / laboratory
Authors: Whiteman, Matthew; Hooper, D Craig; Scott, Gwen S; Koprowski, Hilary; Halliwell, Barry

Chronic inflammation results in increased nitrogen monoxide (.NO) formation and the accumulation of nitrite (NO(2-)). These data suggest that NO(2-) accumulation at chronic inflammatory sites, where both HOCl and .NO are overproduced, may be cytoprotective against damage caused by HOCl.

PMID 12221280 · DOI 10.1073/pnas.152462399 · [PubMed record](#)

686. Development of a standard test to assess the resistance of Staphylococcus aureus biofilm cells to disinfectants.

2002 · Applied and environmental microbiology · Water, sanitation & biosecurity · Journal article / other
Authors: Luppens, Suzanne B I; Reij, Martine W; van der Heijden, Rob W L; Rombouts, Frank M; Abee, Tjakko

For biofilms exposed to BAC and hypochlorite the concentrations needed to achieve 4-log killing were 50 and 600 times higher, respectively, than the concentrations needed to achieve this level of killing with the European phase 1 suspension test cells. Our results show that a standardized disinfectant test for biofilm cells is a useful addition to the current standard tests.

PMID 12200265 · DOI 10.1128/AEM.68.9.4194-4200.2002 · [PubMed record](#)

687. Loss of oxidized and chlorinated bases in DNA treated with reactive oxygen species: implications for assessment of oxidative damage in vivo.

2002 · Biochemical and biophysical research communications · Veterinary & livestock · Human observational / experimental
Authors: Whiteman, Matthew; Hong, Huang Shan; Jenner, Andrew; Halliwell, Barry

Our data indicate the possibility that when ONOO(-), nitrite in regions of low pH or .OH are produced at sites of inflammation, levels of certain damaged DNA bases could represent an underestimate of ongoing DNA damage. This study emphasizes the need to examine more than one modified DNA base when assessing the role of reactive species in human disease.

PMID 12200130 · DOI 10.1016/s0006-291x(02)02018-1 · [PubMed record](#)

688. [Perspectives of improvement of water disinfection technology in superficial sources].

2002 · Gigiena i sanitariia · Water, sanitation & biosecurity · Human observational / experimental
Authors: Terent'ev, V I; Gritsenko, V K; Lopatin, S A; Kir'ianova, L F; Raevski, K K; Fokanov, V P; Shallar', A V

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 12198898 · [PubMed record](#)

689. Human neutrophils use the myeloperoxidase-hydrogen peroxide-chloride system to chlorinate but not nitrate bacterial proteins during phagocytosis.

2002 · The Journal of biological chemistry · Water, sanitation & biosecurity · Human observational / experimental
Authors: Rosen, Henry; Crowley, Jan R; Heinecke, Jay W

Mass spectrometric analysis revealed that levels of 3-chlorotyrosine in *E. coli* proteins increased markedly after the bacteria were internalized by human neutrophils. Our observations support the view that the phagolysosome of human neutrophils uses the myeloperoxidase-hydrogen peroxide-chloride system to chlorinate bacterial proteins.

PMID 12060654 · DOI 10.1074/jbc.M202331200 · [PubMed record](#)

690. Neutrophil hypochlorous acid production is impaired in multiple organ failure patients with candidaemia; reversal with antifungal agents.

2002 · Inflammation research : official journal of the European Histamine Research Society ... [et al.] · Water, sanitation & biosecurity · Clinical trial
Authors: Hussien, M; Delecata, R J; Carey, P D

RESULTS: The maximum PMN-HOCL production rate for group 1 increased from 0.24 nmol/million PMN/min to 0.8 nmol/million PMN/min after treatment with antifungal agents ($p < 0.01$) (Mann-Whitney U test) whereas the PMN-HOCL kinetic (rate) curves for group 1 post-treatment and for group 2 were similar (student's-t-test). CONCLUSIONS: These findings suggest that antifungal treatment improve PMN-HOCL production in MOF patients with *C. albicans* fungaemia and may...

PMID 12058960 · DOI 10.1007/pl000000295 · [PubMed record](#)

691. Novel products generated from 2'-deoxyguanosine by hypochlorous acid or a myeloperoxidase-H₂O₂-Cl⁻ system: identification of diimino-imidazole and amino-imidazolone nucleosides.

2002 · Nucleic acids research · Water, sanitation & biosecurity · Journal article / other
Authors: Suzuki, Toshinori; Masuda, Mitsuharu; Friesen, Marlin D; Fenet, Bernard; Ohshima, Hiroshi

These results imply that dDiz and dIz are generated from dGuo via chlorination by electrophilic attack of HOCl and subsequent dechlorination by N-AcCys. These products may play a role in cytotoxic and/or genotoxic effects of HOCl.

PMID 12034845 · DOI 10.1093/nar/30.11.2555 · [PubMed record](#)

692. Efficacy of HOCl scavenging by sulfur-containing compounds: antioxidant activity of glutathione disulfide?

2002 · Biological chemistry · Water, sanitation & biosecurity · Human observational / experimental
Authors: den Hartog, Gertjan J M; Haenen, Guido R M M; Vegt, Erik; van der Vijgh, Wim J F; Bast, Aalt

Surprisingly, glutathione disulfide was an effective protector of acetylcholinesterase against hypochlorous acid. The implications of this finding are discussed.

PMID 12033460 · DOI 10.1515/BC.2002.073 · [PubMed record](#)

693. Human neutrophils oxidize low-density lipoprotein by a hypochlorous acid-dependent mechanism: the role of vitamin C.

2002 · Biological chemistry · Food & agriculture · Human observational / experimental
Authors: Carr, Anitra C; Frei, Balz

Experiments using specific enzyme inhibitors and oxidant scavengers showed that HOCl, but not hydrogen peroxide nor superoxide, plays a critical role in LDL thiol oxidation by neutrophils. Thus, activated neutrophils oxidize LDL thiols by HOCl- and N-chloramine-dependent mechanisms and physiological concentrations of vitamin C delay this process, most likely due to scavenging of extracellular oxidants, rather than by attenuating neutrophil oxidant...

PMID 12033452 · DOI 10.1515/BC.2002.065 · [PubMed record](#)

694. The reactions of hypochlorous acid, the reactive oxygen species produced by myeloperoxidase, with lipids.

2000 · Acta biochimica Polonica · Water, sanitation & biosecurity · Review
Authors: Spickett, C M; Jerlich, A; Panasencko, O M; Arnhold, J; Pitt, A R; Stelmazyńska, T; Schaur, R J

In phospholipids carrying a primary amino group such as phosphatidylethanolamine chloramines are the preferred products compared to chlorohydrins. It has been shown that chlorohydrins of both unsaturated fatty acids as well as of cholesterol may cause lysis of target cells, possibly by disruption of membrane structures.

PMID 11996112 · [PubMed record](#)

695. Immunology. Lethal weapons.

2002 · Science (New York, N.Y.) · Water, sanitation & biosecurity · Animal study
Authors: Roos, Dirk; Winterbourn, Christine C

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 11976433 · DOI 10.1126/science.1071271 · [PubMed record](#)

696. Vitamin C protects against hypochlorous Acid-induced glutathione depletion and DNA base and protein damage in human vascular smooth muscle cells.

2002 · Arteriosclerosis, thrombosis, and vascular biology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Jenner, Andrew M; Ruiz, J Emilio; Dunster, Christina; Halliwell, Barry; Mann, Giovanni E; Siow, Richard C M

Pretreatment of smooth muscle cells with vitamin C significantly reduced the extent of HOCl-induced DNA and protein damage and attenuated decreases in intracellular ATP and GSH. Our findings suggest that physiological levels of vitamin C provide an important antioxidant defense against HOCl-mediated injury in atherosclerosis.

PMID 11950693 · DOI 10.1161/01.atv.0000013785.03265.5c · [PubMed record](#)

697. Effects of Rosa canina fruit extract on neutrophil respiratory burst.

2002 · Phytotherapy research : PTR · Food & agriculture · In vitro / laboratory
Authors: Daels-Rakotoarison, D A; Gressier, B; Trotin, F; Brunet, C; Luyckx, M; Dine, T; Bailleul, F; Cazin, M; Cazin, J-C

The results showed that the extract can inhibit ROS tested in acellular and cellular systems. Therefore, the antioxidative effects of Rosa canina are due not only to vitamin C but also to polyphenolics.

PMID 11933119 · DOI 10.1002/ptr.985 · [PubMed record](#)

698. Mechanisms contributing to hypochlorous acid resistance of a Salmonella isolate from a poultry-processing plant.

2002 · Journal of applied microbiology · Veterinary & livestock · Animal study
Authors: Mokgatla, R M; Gouws, P A; Brözel, V S

CONCLUSIONS: Strain 104 is believed to grow in the presence of 28 mg I(-1) HOCl by protecting itself against HOCl by decreasing the levels of species that could react with HOCl to generate toxic reactive oxygen radicals and by improved DNA damage repair mechanisms. SIGNIFICANCE AND IMPACT OF THE STUDY: The occurrence of Salmonella able to grow in the presence of 28 mg I(-1) HOCl is of relevance to the food-processing and drinking water treatment...

PMID 11872134 · DOI 10.1046/j.1365-2672.2002.01565.x · [PubMed record](#)

699. The role of advanced oxidation protein products in regulation of dendritic cell function.

2002 · Free radical biology & medicine · Veterinary & livestock · In vitro / laboratory
Authors: Alderman, Charles J J; Shah, Sachit; Foreman, John C; Chain, Benjamin M; Katz, David R

However, at higher cell concentrations AOPP-treated DCs were more potent inducers in an oxidative mitogenesis assay than controls. Thus, AOPP may act like superantigens, allowing for bypass of upregulation of costimulation, and, either alone or in synergy with oxidants themselves, serving as amplifiers of DC function.

PMID 11864777 · DOI 10.1016/s0891-5849(01)00735-3 · [PubMed record](#)

700. Indirect electrochemical treatment of saline dyestuff wastewater.

2001 · Environmental technology · Water, sanitation & biosecurity · Journal article / other
Authors: Zhan, X M; Wang, J L; Wen, X H; Qian, Y

Current efficiency of the indirect process was 1 while that of the direct process was 0.16; cost efficiency of the two processes was 8,000 mg-COD (kWh)(-1) and 1,000 mg-COD (kWh)(-1) respectively. It can be concluded that the indirect electrochemical process is a promising method for the disposal of saline dyestuff wastewater.

PMID 11816771 · DOI 10.1080/09593332208618222 · [PubMed record](#)

701. Hypochlorite-induced damage to DNA, RNA, and polynucleotides: formation of chloramines and nitrogen-centered radicals.

2002 · Chemical research in toxicology · Water, sanitation & biosecurity · Journal article / other
Authors: Hawkins, Clare L; Davies, Michael J

Preformed nucleoside chloramines also induce plasmid cleavage, though this only occurs to a significant extent with unstable thymidine- and uridine-derived chloramines, where radical formation is rapid. Overall the data rationalize the preferential formation of chlorinated 2'-deoxycytidine and 2'-deoxyadenosine in DNA and suggest that DNA damage induced by HOCl, and preformed chloramines, occurs at sequence-specific sites.

PMID 11800600 · DOI 10.1021/tx015548d · [PubMed record](#)

702. Superoxide radicals can act synergistically with hypochlorite to induce damage to proteins.

2002 · FEBS letters · Veterinary & livestock · Journal article / other
Authors: Hawkins, Clare L; Rees, Martin D; Davies, Michael J

Here we show that superoxide radicals catalyse the decomposition of chloramines and chloramides to reactive nitrogen-centred radicals, and increase the extent of protein fragmentation compared to that observed with either superoxide radicals or HOCl, alone. This synergistic action may be of significance at sites of inflammation, where both superoxide radicals and chloramines/chloramides are formed simultaneously.

PMID 11755528 · DOI 10.1016/s0014-5793(01)03226-4 · [PubMed record](#)

703. Chlorination of bacterial and neutrophil proteins during phagocytosis and killing of *Staphylococcus aureus*.

2002 · The Journal of biological chemistry · Water, sanitation & biosecurity · Journal article / other
Authors: Chapman, Anna L P; Hampton, Mark B; Senthilmohan, Revathy; Winterbourn, Christine C; Kettle, Anthony J

Inhibitor studies revealed that chlorination was dependent on myeloperoxidase. We conclude that hypochlorous acid is a major intracellular product of the respiratory burst.

PMID 11733505 · DOI 10.1074/jbc.M106134200 · [PubMed record](#)

704. Reconstitution of bactericidal activity in chronic granulomatous disease cells by glucose-oxidase-containing liposomes.

2001 · Blood · Food & agriculture · In vitro / laboratory
Authors: Gerber, C E; Bruchelt, G; Falk, U B; Kimpfler, A; Hauschild, O; Kuçi, S; Bächli, T; Niethammer, D; Schubert, R

The failure of CGD phagocytes to produce reactive oxygen species (ROS) results in a marked increase in the susceptibility of affected patients to life-threatening bacterial and fungal infections. Results indicate that GO encapsulated in liposomes enabled NADPH oxidase-deficient phagocytes to use H₂O₂ for the production of highly bactericidal HOCl.

PMID 11698296 · DOI 10.1182/blood.v98.10.3097 · [PubMed record](#)

705. Effects of the reactive oxygen species hydrogen peroxide and hypochlorite on endothelial nitric oxide production.

2001 · Hypertension (Dallas, Tex. : 1979) · Veterinary & livestock · Animal study
Authors: Jaimes, E A; Sweeney, C; Raji, L

These concentrations of H₂O₂ and HOCl did not result in increased EC lethality as assessed by lactate dehydrogenase release. The present studies show that H₂O₂ impairs NO production in response to both receptor-dependent and receptor-independent agonists and that these effects are due, at least in part, to inactivation of eNOS cofactors, whereas HOCl inhibits NO production by interfering with receptor-operated mechanisms at the level of the cell...

PMID 11641302 · [PubMed record](#)

706. Neutrophils employ the myeloperoxidase system to generate antimicrobial brominating and chlorinating oxidants during sepsis.

2001 · Proceedings of the National Academy of Sciences of the United States of America · Food & agriculture · In vitro / laboratory
Authors: Gaut, J P; Yeh, G C; Tran, H D; Byun, J; Henderson, J P; Richter, G M; Brennan, M L; Lusa, A J; Belaaouaj, A; Hotchkiss, R S; Heinecke, J W

In a mouse model of polymicrobial sepsis, we observed that mice deficient in myeloperoxidase were more likely than wild-type mice to die from infection. Surprisingly, levels of 3-bromotyrosine also were elevated in peritoneal fluid from septic wild-type mice and were markedly reduced in peritoneal fluid from septic myeloperoxidase-deficient mice.

PMID 11593004 · DOI 10.1073/pnas.211190298 · [PubMed record](#)

707. Antioxidant properties of alpha-crystallin.

2001 · Journal of protein chemistry · Veterinary & livestock · In vitro / laboratory

Authors: Manzanares, D; Bauby, C; de la Peña, R; García, J C; Sanchez, R; Martinez, S; Romay, C H; López-Reconde, J L; Pino, E; Lissi, E A

In the present work we have evaluated the antioxidant and free radical scavenging properties of bovine alpha-crystallin in a series of in vitro models: zimosan-induced, luminol-enhanced chemiluminescence response of polymorphonuclear leukocytes, the autoxidation of brain homogenate, bleaching of 2,2'-azinobis(3-ethylbenzothiazoline-6-sulfonic acid)-derived radical cations, trapping of peroxy radicals, and reactivity toward hypochlorous acid. It is...

PMID 11565898 · DOI 10.1023/a:1010996528884 · [PubMed record](#)

708. Endothelial dysfunction is induced by proinflammatory oxidant hypochlorous acid.

2001 · American journal of physiology. Heart and circulatory physiology · Veterinary & livestock · In vitro / laboratory

Authors: Zhang, C; Patel, R; Eiserich, J P; Zhou, F; Kelpke, S; Ma, W; Parks, D A; Darley-Usmar, V; White, C R

The reduction in total NO metabolite production in bovine aortic endothelial cells was also reversed by addition of L-arginine. These data suggest that HOCl induces endothelial dysfunction via modification of L-arginine.

PMID 11557534 · DOI 10.1152/ajpheart.2001.281.4.H1469 · [PubMed record](#)

709. Biofilm penetration and disinfection efficacy of alkaline hypochlorite and chlorosulfamates.

2001 · Journal of applied microbiology · Water, sanitation & biosecurity · Animal study

Authors: Stewart, P S; Rayner, J; Roe, F; Rees, W M

Poor biofilm killing despite direct measurement of effective physical penetration of the antimicrobial agent into the biofilm demonstrates that bacteria in the biofilm are protected by some mechanism other than simple physical shielding by the biofilm matrix. SIGNIFICANCE AND IMPACT OF THE STUDY: This study lends support to the theory that the penetration of antimicrobial agents into microbial biofilms is controlled by the reactivity of the antimicrobial...

PMID 11556920 · DOI 10.1046/j.1365-2672.2001.01413.x · [PubMed record](#)

710. ¹⁵N chemically induced dynamic nuclear polarization during reaction of N-acetyl-L-tyrosine with the nitrating systems nitrite/hydrogen peroxide/horseradish peroxidase and nitrite/hypochlorous acid.

2001 · Archives of biochemistry and biophysics · Veterinary & livestock · Animal study

Authors: Lehnig, M

The (¹⁵N) NMR signals of (¹⁵N)NO(-)(2) and of (¹⁵N)NO(-)(3) show enhanced absorption. If N-acetyl-L-tyrosine is not present, (¹⁵N)NO(-)(3) does not show (¹⁵N) CIDNP, indicating that peroxynitrite is not formed as an intermediate during the reaction.

PMID 11556811 · DOI 10.1006/abbi.2001.2494 · [PubMed record](#)

711. Chlorination of guanosine and other nucleosides by hypochlorous acid and myeloperoxidase of activated human neutrophils. Catalysis by nicotine and trimethylamine.

2001 · The Journal of biological chemistry · Veterinary & livestock · Human observational / experimental

Authors: Masuda, M; Suzuki, T; Friesen, M D; Ravanat, J L; Cadet, J; Pignatelli, B; Nishino, H; Ohshima, H

Micromolar concentrations of tertiary amines such as nicotine and trimethylamine dramatically enhanced chlorination of free (2'-deoxy)nucleosides and nucleosides in RNA by HOCl. As the G-463A polymorphism of the MPO gene, which strongly reduces myeloperoxidase mRNA expression, is associated with a reduced risk of lung cancer, chlorination damage of DNA /RNA and nucleosides by myeloperoxidase and its enhancement by nicotine may be important in the...

PMID 11533049 · DOI 10.1074/jbc.M102700200 · [PubMed record](#)

712. Hypochlorite-induced damage to nucleosides: formation of chloramines and nitrogen-centered radicals.

2001 · Chemical research in toxicology · Water, sanitation & biosecurity · Journal article / other

Authors: Hawkins, C L; Davies, M J

Experiments with nucleoside mixtures show that the propensity for radical formation is cytidine > adenosine = guanosine > uridine = thymidine. These data are inconsistent with the selectivity of HOCl attack and the stability of the resulting chloramines, but can be rationalized if chlorine transfer between bases is rapid and yields the most stable chloramine, with such transfer preceding radical formation.

PMID 11511181 · DOI 10.1021/tx010071r · [PubMed record](#)

713. Reactive carbonyl formation by oxidative and non-oxidative pathways.

2001 · Frontiers in bioscience : a journal and virtual library · Veterinary & livestock · In vitro / laboratory
Authors: Adams, S; Green, P; Claxton, R; Simcox, S; Williams, M V; Walsh, K; Leeuwenburgh, C

The high levels observed are due to the innate absorbance of hemoglobin, myoglobin, and cytochrome c near the assay spectra of DNPH. These studies show that carbonyl content could be due to oxidative as well as non-oxidative mechanisms and that heme-containing compounds may effect carbonyl quantification.

PMID 11487471 · DOI 10.2741/adams · [PubMed record](#)

714. Treatment of arsenic in Bangladesh well water using a household co-precipitation and filtration system.

2001 · Water research · Water, sanitation & biosecurity · Journal article / other
Authors: Meng, X; Korfiatis, G P; Christodoulatos, C; Bang, S

A field demonstration study was performed to test the treatment system in seven households in Bangladesh in March and April 2000. Experimental results obtained from the participating families proved that the household treatment process removed arsenic from approximately 300 microg/L in the well water to less than 50 microg/L.

PMID 11471680 · DOI 10.1016/s0043-1354(01)00007-0 · [PubMed record](#)

715. Characterization of the O(2)-evolving reaction catalyzed by [(terpy)(H₂O)Mn(III)(O)2Mn(IV)(OH2)(terpy)](NO₃)₃ (terpy = 2,2':6,2''-terpyridine).

2001 · Journal of the American Chemical Society · Food & agriculture · Journal article / other
Authors: Limburg, J; Vrettos, J S; Chen, H; de Paula, J C; Crabtree, R H; Brudvig, G W

Isotope-labeling studies using H(2)(18)O and KHS(16)O(5) show that O(2) evolution proceeds via an intermediate that can exchange with water, where Raman spectroscopy has been used to confirm that the active oxygen of HSO(5-) is nonexchanging (t(1/2) >> 1 h). These results show that 1 serves as a functional model for photosynthetic water oxidation.

PMID 11456544 · DOI 10.1021/ja001090a · [PubMed record](#)

716. Chlorination of N-acetyltyrosine with HOCl, chloramines, and myeloperoxidase-hydrogen peroxide-chloride system.

2001 · Acta biochimica Polonica · Food & agriculture · Human observational / experimental
Authors: Drabik, G; Naskalski, J W

The study results indicate that direct chlorination of tyrosyl residues which are not incorporated into the polypeptide structure occurs with excess HOCl/OCl- in acidic media. Semistable amino-acid chloramines also appeared not effective as chlorine donors in direct tyrosyl chlorination.

PMID 11440179 · [PubMed record](#)

717. Reaction of acylated homoserine lactone bacterial signaling molecules with oxidized halogen antimicrobials.

2001 · Applied and environmental microbiology · Water, sanitation & biosecurity · Journal article / other
Authors: Borchardt, S A; Allain, E J; Michels, J J; Stearns, G W; Kelly, R F; McCoy, W F

Recent discoveries have shown that acylated homoserine lactone cell-to-cell signaling molecules are important for biofilm formation in *Pseudomonas aeruginosa*, suggesting that biofouling can be controlled by interfering with bacterial cell-to-cell communication. The results demonstrated that 3-oxo acyl homoserine lactone activity was rapidly lost upon exposure to oxidized halogens; however, acylated homoserine lactones lacking the 3-oxo group retained...

PMID 11425738 · DOI 10.1128/AEM.67.7.3174-3179.2001 · [PubMed record](#)

718. Effects of rice seed surface sterilization with hypochlorite on inoculated *Burkholderia vietnamiensis*.

2001 · Applied and environmental microbiology · Food & agriculture · Journal article / other
Authors: Miché, L; Balandreau, J

When growth resumed, a significant increase in the frequency of rifampin- and nalidixic acid-resistant mutants in the population was observed compared to the control without seeds. It was also not observed when the effect of hypochlorite was counteracted by sodium thiosulfate.

PMID 11425720 · DOI 10.1128/AEM.67.7.3046-3052.2001 · [PubMed record](#)

719. Effects of hypochlorite on cultured respiratory epithelial cells.

2001 · Free radical research · Food & agriculture · Human observational / experimental
Authors: Kampf, C; Roomans, G M

X-ray microanalysis showed an increase in the intracellular Na⁺ /K⁺ ratio, which indicates cell damage. Oxygen radicals could hence contribute to the observed epithelial damage in respiratory diseases.

PMID 11378533 · DOI 10.1080/10715760100300441 · [PubMed record](#)

720. 8-Nitroxanthine, an adduct derived from 2'-deoxyguanosine or DNA reaction with nitryl chloride.

2001 · Chemical research in toxicology · Veterinary & livestock · Journal article / other
Authors: Chen, H J; Chen, Y M; Wang, T F; Wang, K S; Shiea, J

Previous studies showed that peroxynitrite reacted with guanine, 2'-deoxyguanosine, or DNA forming 8-nitroguanine. The identity of 8-nitroxanthine in nitryl chloride-treated dG and DNA was confirmed by co-injection with synthetic 8-nitroxanthine and by its reduction to 8-aminoxanthine.

PMID 11368552 · DOI 10.1021/tx0002334 · [PubMed record](#)

721. Inhibition of the myeloperoxidase chlorinating activity by non-steroidal anti-inflammatory drugs investigated with a human recombinant enzyme.

2001 · European journal of pharmacology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Nève, J; Parij, N; Moguilevsky, N

A spectroscopic method used to measure the myeloperoxidase compound II lifetime in presence of the different drugs showed that all the drugs, which inhibited chlorination activity were able to induce accumulation of compound II. This further demonstrates that myeloperoxidase is an interesting target for anti-inflammatory therapy.

PMID 11301057 · DOI 10.1016/s0014-2999(01)00895-0 · [PubMed record](#)

722. Hypochlorous acid produced by the myeloperoxidase system of human phagocytes induces covalent cross-links between DNA and protein.

2001 · Biochemistry · Veterinary & livestock · Human observational / experimental
Authors: Kulcharyk, P A; Heinecke, J W

DNA-protein cross-links were generated in Escherichia coli exposed to HOCl, suggesting that double-stranded DNA is also a target for the reaction. These results indicate that long-lived chloramines and HOCl generated by myeloperoxidase can generate covalent DNA-protein cross-links that may contribute to the mutagenic and cytotoxic effects of phagocytes on microbial pathogens and host tissue.

PMID 11297432 · DOI 10.1021/bi001962l · [PubMed record](#)

723. Degradation of chlortoluron in water disinfection processes: a kinetic study.

2000 · Journal of environmental monitoring : JEM · Water, sanitation & biosecurity · Journal article / other
Authors: Losito, I; Zambonin, C G; Palmisano, F

The results showed that chlortoluron degradation starts with two parallel pathways, namely, chlorination and hydroxylation of the aromatic ring, which are then followed by consecutive chlorination reactions, and after almost 2 weeks by ring opening and partial mineralisation, as confirmed by head-space solid-phase microextraction gas chromatography-MS (SPME-GC-MS) and total organic carbon (TOC) measurements. Kinetic constants for the first reactions of...

PMID 11296745 · DOI 10.1039/b005673l · [PubMed record](#)

724. Biofilm formation by salmonella spp. on food contact surfaces and their sensitivity to sanitizers.

2001 · International journal of food microbiology · Veterinary & livestock · Animal study
Authors: Joseph, B; Otta, S K; Karunasagar, I; Karunasagar, I

Biofilm formation of both the isolates showed a similar trend with the highest density being on plastic followed by cement and steel. Biofilm cells offered greater resistance when compared to their planktonic counterparts.

PMID 11294359 · DOI 10.1016/s0168-1605(00)00466-9 · [PubMed record](#)

725. Enhanced antioxidant activity after chlorination of quercetin by hypochlorous acid.

2001 · Alcoholism, clinical and experimental research · Water, sanitation & biosecurity · Human observational / experimental
Authors: Binsack, R; Boersma, B J; Patel, R P; Kirk, M; White, C R; Darley-Usmar, V; Barnes, S; Zhou, F; Parks, D A

RESULTS: Stable mono- and dichlorinated derivatives were detected for both quercetin and the glycoside derivative, rutin, which suggests that both the conjugated and unconjugated forms of quercetin reacted with HOCl similarly. CONCLUSIONS: These data suggest that under certain pathological conditions in vivo (e.g., inflammation), flavonols may be converted to chlorinated derivatives, which exhibit an enhanced antioxidant potential and thereby play a role in...

PMID 11290856 · [PubMed record](#)

726. Protection of erythrocytes by the macrophage synthesized antioxidant 7,8 dihydroneopterin.

2001 · Free radical research · Veterinary & livestock · Human observational / experimental
Authors: Gieseg, S P; Maghzal, G; Glubb, D

Using red blood cells as a cellular model, we demonstrated that micromolar concentrations can inhibit or reduce red blood cell haemolysis induced by 2,2'-azobis(amidinopropane)dihydrochloride (AAPH), hydrogen peroxide, or hypochlorite. Using dityrosine as an indicator of protein damage, we demonstrated 200 microM 78NP reduced dityrosine formation in H(2) O(2) /Fe(++) treated red blood cell ghosts by 30%.

PMID 11264890 · DOI 10.1080/10715760100300121 · [PubMed record](#)

727. Macrophage myeloperoxidase regulation by granulocyte macrophage colony-stimulating factor in human atherosclerosis and implications in acute coronary syndromes.

2001 · The American journal of pathology · Food & agriculture · In vitro / laboratory
Authors: Sugiyama, S; Okada, Y; Sukhova, G K; Virmani, R; Heinecke, J W; Libby, P

This study documents increased numbers of myeloperoxidase-expressing macrophages in eroded or ruptured plaques causing acute coronary syndromes. These results identify granulocyte macrophage colony-stimulating factor as an endogenous regulator of macrophage myeloperoxidase expression in human atherosclerosis and support a particular role for the myeloperoxidase-expressing macrophages in atheroma complication and the acute coronary syndromes.

PMID 11238037 · DOI 10.1016/S0002-9440(10)64036-9 · [PubMed record](#)

728. Increased atherosclerosis in myeloperoxidase-deficient mice.

2001 · The Journal of clinical investigation · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Brennan, M L; Anderson, M M; Shih, D M; Qu, X D; Wang, X; Mehta, A C; Lim, L L; Shi, W; Hazen, S L; Jacob, J S; Crowley, J R; Heinecke, J W; Lusis, A J

Similar results were obtained in a genetic cross with LDL receptor-deficient mice. These data suggest an unexpected, protective role for MPO-generated reactive intermediates in murine atherosclerosis.

PMID 11181641 · DOI 10.1172/JCI8797 · [PubMed record](#)

729. Reactions of hypochlorous acid with tyrosine and peptidyl-tyrosyl residues give dichlorinated and aldehydic products in addition to 3-chlorotyrosine.

2000 · The Journal of biological chemistry · Veterinary & livestock · Human observational / experimental
Authors: Fu, S; Wang, H; Davies, M; Dean, R

A significant amount of 3,5-dichlorotyrosine (diCl-Tyr) was obtained from the bovine serum albumin, low density lipoprotein, and some biological samples, in addition to Cl-Tyr, indicating that Cl-Tyr competes effectively for HOCl even when tyrosine is present in great excess. These results indicate the importance of assessing other products of HOCl action in addition to Cl-Tyr.

PMID 10753880 · DOI 10.1074/jbc.275.15.10851 · [PubMed record](#)

730. Production of brominating intermediates by myeloperoxidase. A transhalogenation pathway for generating mutagenic nucleobases during inflammation.

2001 · The Journal of biological chemistry · Food & agriculture · Human observational / experimental
Authors: Henderson, J P; Byun, J; Williams, M V; Mueller, D M; McCormick, M L; Heinecke, J W

Moreover, taurine inhibited 5-bromodeoxycytidine production by the myeloperoxidase-H₂O₂-Cl(-)-Br(-) system but not by the eosinophil peroxidase-H₂O₂-Cl(-)-Br(-) system, indicating that bromination by myeloperoxidase involves the initial production of HOCl. Our observations therefore raise the possibility that transhalogenation reactions initiated by phagocytes provide one pathway for mutagenesis and cytotoxicity at sites of inflammation.

PMID 11096071 · DOI 10.1074/jbc.M005379200 · [PubMed record](#)

731. Hair-discoloration of Japanese elite swimmers.

2000 · The Journal of dermatology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Nanko, H; Mutoh, Y; Atsumi, R; Kobayashi, Y; Ikeda, M; Yoshikawa, N; Fukuda, S; Kawa, Y; Mizoguchi, M

The 14C-tyrosine uptake test of hairbulbs found no significant difference between the swimmers and the normal controls. These findings suggest that hair discoloration was mainly due to cuticle damage by friction with water.

PMID 11092265 · DOI 10.1111/j.1346-8138.2000.tb02243.x · [PubMed record](#)

732. Inflammatory properties of IgG modified by oxygen radicals and peroxynitrite.

2000 · Journal of immunology (Baltimore, Md. : 1950) · Veterinary & livestock · In vitro / laboratory
Authors: Uesugi, M; Yoshida, K; Jasin, H E

Rheumatoid synovial fluids contained significantly greater concentrations of nitrosated and chlorinated IgG compared with osteoarthritic specimens. HOCl-treated IgG monomer was 10 times less effective in competing for binding compared with native IgG, and ONOO-treated IgG was 2.5 times less effective.

PMID 11086095 · DOI 10.4049/jimmunol.165.11.6532 · [PubMed record](#)

733. Ultraviolet spectrophotometric characterization and bactericidal properties of electrolyzed oxidizing water as influenced by amperage and pH.

2000 · Journal of food protection · Water, sanitation & biosecurity · Journal article / other
Authors: Len, S V; Hung, Y C; Erickson, M; Kim, C

The maximum concentration of HOCl was observed around pH 4 where the maximum log reduction (2.3 log10 CFU/ml) of *Bacillus cereus* F4431/73 vegetative cells also occurred. The high correlation ($r = 0.95$) between HOCl concentrations and bactericidal effectiveness of EO water supports HOCl's role as the primary inactivation agent.

PMID 11079696 · DOI 10.4315/0362-028x-63.11.1534 · [PubMed record](#)

734. Relative reactivity of lysine and other peptide-bound amino acids to oxidation by hypochlorite.

2000 · Free radical biology & medicine · Food & agriculture · Journal article / other
Authors: Nightingale, Z D; Lancha, A H Jr; Handelman, S K; Dolnikowski, G G; Busse, S C; Dratz, E A; Blumberg, J B; Handelman, G J

In contrast, the presence of equimolar Met-containing peptide, or N-Acetyl-Trp, both inhibited the formation of the dichloramine at Lys. The hierarchy of amino acid reactivities examined here will aid in the prediction of residues in biological samples most likely to be modified by hypochlorite.

PMID 11020664 · DOI 10.1016/s0891-5849(00)00262-8 · [PubMed record](#)

735. Mechanism of reaction of myeloperoxidase with hydrogen peroxide and chloride ion.

2000 · European journal of biochemistry · Veterinary & livestock · Human observational / experimental
Authors: Furtmüller, P G; Obinger, C; Hsuanyu, Y; Dunford, H B

Results of this study yielded $k_2 = 2.2 \times 10^6 \text{ M}^{-1}\text{s}^{-1}$, $k_{-2} = 1.9 \times 10^5 \text{ s}^{-1}$ and $k_3 = 5.2 \times 10^4 \text{ s}^{-1}$. Essentially identical results were obtained using human myeloperoxidase and beef spleen myeloperoxidase.

PMID 10998045 · DOI 10.1046/j.1432-1327.2000.01491.x · [PubMed record](#)

736. Dissociation of DNA double strand by hypohalous acids.

2000 · Redox report : communications in free radical research · Veterinary & livestock · Human observational / experimental
Authors: Shishido, N; Nakamura, S; Nakamura, M

No significant decrease in the fluorescence was observed when the chlorination was carried out in the presence of a concentration of monochlorodimedone (MCD) equivalent to that of HOCl. We conclude that good chlorine acceptors and antioxidants protect DNA from hypohalous acid-induced oxidative damage.

PMID 10994880 · DOI 10.1179/135100000101535690 · [PubMed record](#)

737. Kinetics of chlorination of monochlorodimedone by myeloperoxidase.

2000 · International journal of clinical & laboratory research · Water, sanitation & biosecurity · Human observational / experimental
Authors: Jerlich, A; Tschabuschnig, S; Fabjan, J S; Schaur, R J

In the presence of high concentrations of glycine the progress curve rises continuously, yielding a greatly increased concentration of chlorinating species, either hypochlorous acid or chloramines. We concluded that glycine protects myeloperoxidase against hypochlorous acid-induced self-destruction.

PMID 10984130 · DOI 10.1007/s005990070031 · [PubMed record](#)

738. Oxidation of 7,8-dihydroneopterin by hypochlorous acid yields neopterin.

2000 · Biochemical and biophysical research communications · Food & agriculture · In vitro / laboratory
Authors: Widner, B; Mayr, C; Wirleitner, B; Fuchs, D

Neopterin is less affected by hypochlorous acid, and in a mixture of both pteridines similar to the in vivo situation, only 7,8-dihydroneopterin is oxidized, thereby increasing the ratio towards neopterin. The findings may be of relevance for the in vivo situation since hypochlorous acid shifts the neopterin/7, 8-dihydroneopterin ratio towards the side of neopterin, hence probably increasing the oxidative potential in a micro-environment.

PMID 10964663 · DOI 10.1006/bbrc.2000.3323 · [PubMed record](#)

739. Improved sensitivity proteomics by postharvest alkylation and radioactive labelling of proteins.

2000 · Electrophoresis · Food & agriculture · Human observational / experimental
Authors: Vuong, G L; Weiss, S M; Kammer, W; Priemer, M; Vingron, M; Nordheim, A; Cahill, M A

Database protein sequence analysis suggested that cysteine is not suitable for detection of the entire proteome, but that cysteine alkylating reagents can increase the number of proteins able to be detected by iodination chemistry. However, we argue that significantly improved methods of protein separation will be necessary to resolve the large number of proteins expected to be detectable with this sensitivity.

PMID 10949135 · DOI 10.1002/1522-2683(20000701)21:13<2594::AID-ELPS2594>3.0.CO;2-K · [PubMed record](#)

740. Survival of *Yersinia enterocolitica* and mesophilic aerobic bacteria on eggshell after washing with hypochlorite and organic acid solutions.

2000 · Journal of food protection · Veterinary & livestock · Animal study
Authors: Favier, G I; Escudero, M E; Mattar, M A; de Guzmán, A M

Highest reductions of mesophilic aerobic bacterial populations (normal flora) on trypticase soy agar were 1.28 and 2.15 log₁₀ cycles with 100 and 200 mg/liter of chlorine, 0.28 and 0.36 log₁₀ cycles with 1% and 3% acetic acid, and 0.70 and 0.71 log₁₀ cycles with 1% and 3% lactic acid, respectively, as compared to the control group. On *Y. enterocolitica* O:9-inoculated eggs, reductions of 2.66, 2.77, and 2.92 log₁₀ cycles by 50, 100, and 200 mg/liter of...

PMID 10945580 · DOI 10.4315/0362-028x-63.8.1053 · [PubMed record](#)

741. Antimicrobial and cytotoxic activity of hypochlorous acid: interactions with taurine and nitrite.

2000 · Inflammation research : official journal of the European Histamine Research Society ... [et al.] · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Marcinkiewicz, J; Chain, B; Nowak, B; Grabowska, A; Bryniarski, K; Baran, J

Nitrite prevented HOCl-mediated bacterial killing, inhibition of MPO activity, cellular cytotoxicity and inhibition of TNF- α production. CONCLUSION: We have shown that nitrite may react in vitro with HOCl but not with TauCl, to form new biologically active product(s).

PMID 10939618 · DOI 10.1007/PL00000208 · [PubMed record](#)

742. Efficacy of novel organic acid and hypochlorite treatments for eliminating *Escherichia coli* O157:H7 from alfalfa seeds prior to sprouting.

2000 · International journal of food microbiology · Food & agriculture · Journal article / other
Authors: Lang, M M; Ingham, B H; Ingham, S C

Plating on non-selective brain heart infusion agar (BHI) showed that treatments 1-4 reduced counts by 2.3-4.1 log₁₀ CFU/g, thus indicating a large proportion of injured cells. Results of this study show that: (a) non-lethal cell injury must be considered when evaluating intervention treatments against *E. coli* O157:H7 on alfalfa seeds; (b) reductions of 2-4 log₁₀ CFU/g can be attained without using 20000 ppm active chlorine; (c) successive lactic acid and...

PMID 10898464 · DOI 10.1016/s0168-1605(00)00297-x · [PubMed record](#)

743. Nitrite-induced deamination and hypochlorite-induced oxidation of DNA in intact human respiratory tract epithelial cells.

2000 · Free radical biology & medicine · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Spencer, J P; Whiteman, M; Jenner, A; Halliwell, B

Significant increases in the levels of xanthine and hypoxanthine, putative deamination products of guanine and adenine, respectively, were observed in DNA from nitrite-treated cells but no rise in any base oxidation products such as 8-hydroxyguanine. The relevance of our observations to events in the stomach and respiratory tract, at sites of inflammation, and in ischemic tissues is discussed.

PMID 10832065 · DOI 10.1016/s0891-5849(00)00190-8 · [PubMed record](#)

744. Comparison of mono- and dichlorinated tyrosines with carbonyls for detection of hypochlorous acid modified proteins.

2000 · Archives of biochemistry and biophysics · Veterinary & livestock · Animal study
Authors: Chapman, A L; Senthilmohan, R; Winterbourn, C C; Kettle, A J

We have also tested the specificity of the HOP-1 antibody by measuring how effectively it recognizes proteins oxidized by hypobromous acid. Our study demonstrates that it is advantageous to measure protein carbonyls and HOP-1 epitopes in conjunction with chlorinated tyrosines when attempting to identify the oxidants responsible for inflammatory tissue damage.

PMID 10775446 · DOI 10.1006/abbi.2000.1744 · [PubMed record](#)

745. Nitrite as a substrate and inhibitor of myeloperoxidase. Implications for nitration and hypochlorous acid production at sites of inflammation.

2000 · The Journal of biological chemistry · Water, sanitation & biosecurity · Human observational / experimental
Authors: van Dalen, C J; Winterbourn, C C; Senthilmohan, R; Kettle, A J

With neutrophils, myeloperoxidase-dependent nitration required a high concentration of nitrite (1 mM), was doubled by tyrosine, and increased 4-fold by superoxide dismutase. Superoxide is likely to inhibit nitration by reacting with nitrogen dioxide and/or tyrosyl radicals.

PMID 10766781 · DOI 10.1074/jbc.275.16.11638 · [PubMed record](#)

746. Hypochlorous acid-induced responses in sheep isolated pulmonary artery rings.

2000 · Pharmacological research · Veterinary & livestock · In vitro / laboratory
Authors: Turan, N N; Demiryürek, A T; Kanzik, I

These effects of HOCl were significantly reduced by pretreatment of L-arginine (10(-3)m), sodium nitroprusside (SNP, 10(-5) m) and N-acetyl-L-cysteine (NAC, 10(-4) m). These results suggest that HOCl produce vasoconstriction under resting force and cause vasodilation when the pulmonary arteries precontracted.

PMID 10753560 · DOI 10.1006/phrs.1999.0628 · [PubMed record](#)

747. Vitamin C protects against and reverses specific hypochlorous acid- and chloramine-dependent modifications of low-density lipoprotein.

2000 · The Biochemical journal · Food & agriculture · Human observational / experimental
Authors: Carr, A C; Tijerina, T; Frei, B

Co-incubation of vitamin C (25-200 microM) with LDL resulted in concentration-dependent protection against HOCl (25-200 microM)-mediated oxidation of tryptophan and lysine residues, formation of chloramines and increases in the relative electrophoretic mobility of LDL. As HOCl-mediated LDL modifications have been strongly implicated in the pathogenesis of atherosclerosis, our data indicate that vitamin C could contribute to the anti-atherogenic defence...

PMID 10677371 · [PubMed record](#)

748. The effectiveness of hygiene procedures for prevention of cross-contamination from chicken carcasses in the domestic kitchen.

1999 · Letters in applied microbiology · Veterinary & livestock · Animal study
Authors: Cogan, T A; Bloomfield, S F; Humphrey, T J

Where hypochlorite was used in addition, a significant reduction in the number of contaminated sites was observed. The study suggests that there is a need to better understand and promote effective hygiene procedures for the domestic kitchen.

PMID 10664978 · DOI 10.1046/j.1472-765x.1999.00656.x · [PubMed record](#)

749. The reported clinical utility of taurine in ischemic disorders may reflect a down-regulation of neutrophil activation and adhesion.

1999 · Medical hypotheses · Veterinary & livestock · Human observational / experimental
Authors: McCarty, M F

Agents which inhibit the action of PAF on neutrophils, such as ginkgolides and pentoxifylline, have documented utility in ischemic disorders and presumably would complement the efficacy of taurine in this regard. Fish oil, which inhibits endothelial expression of various adhesion factors and probably PAF as well, and which suppresses neutrophil leukotriene production, may likewise be useful in ischemia.

PMID 10608263 · DOI 10.1054/mehy.1998.0760 · [PubMed record](#)

750. Antioxidant properties of albumin: effect on oxidative metabolism of human neutrophil granulocytes.

1999 · Farmaco (Societa chimica italiana : 1989) · Veterinary & livestock · Human observational / experimental
Authors: Kouoh, F; Gressier, B; Luyckx, M; Brunet, C; Dine, T; Cazin, M; Cazin, J C

When neutrophils were washed after pre-incubation with BSA, there was no significant decrease of ROS after stimulation of PMA (maximal: 15 +/- 1.2%). The mechanism at which BSA acts may result from a simple chemical interaction with ROS rather than an intracellular mechanism by intervention in PMA oxidative metabolism.

PMID 10575739 · DOI 10.1016/s0014-827x(99)00082-8 · [PubMed record](#)

751. NADPH as a co-substrate for studies of the chlorinating activity of myeloperoxidase.

1999 · The Biochemical journal · Water, sanitation & biosecurity · Human observational / experimental
Authors: Auchère, F; Capellière-Blandin, C

When the values of kinetic parameters were compared with previously published ones, the main discrepancy was found with data obtained with the chlorination of monochlorodimedon and a better agreement with diethanolchloramine formation or H(2)O(2) consumption. A quantitative comparison of difference spectra obtained with NADPH and NMNH indicated that chlorination occurred on the nicotinamide part of the molecule.

PMID 10527939 · [PubMed record](#)

752. Consecutive halogen transfer between various functional groups induced by reaction of hypohalous acids: NADH oxidation by halogenated amide groups.

1999 · Archives of biochemistry and biophysics · Water, sanitation & biosecurity · Journal article / other
Authors: Prütz, W A

The results presented enable prediction of chlorine transfer cascades induced by HOCl/CIO(-), involving nucleotides, peptide amide groups, and final target molecules. Bromination by BrO(-) of cyclopeptides is more than two orders of magnitude faster than chlorination by CIO(-), and the reactivity of bromoamide with NADH exceeds that of chloroamide by more than four orders of magnitude.

PMID 10525295 · DOI 10.1006/abbi.1999.1377 · [PubMed record](#)

753. Oxidative damage to proteins of bronchoalveolar lavage fluid in patients with acute respiratory distress syndrome: evidence for neutrophil-mediated hydroxylation, nitration, and chlorination.

1999 · Critical care medicine · Water, sanitation & biosecurity · Human observational / experimental
Authors: Lamb, N J; Gutteridge, J M; Baker, C; Evans, T W; Quinlan, G J

Nitrotyrosine concentrations were similarly significantly increased in the ARDS groups compared with each control group (2.21 + 0.65 nmol/mg for ARDS, 0.29 + 0.29 for ventilated controls, and 0.06 + 0.03 for healthy controls; p < .05). These findings suggest a possible relationship between inflammatory cell activation, oxidant formation, and damage to proteins in the lungs of these patients
CONCLUSIONS: Overall, our data strongly suggest heightened...

PMID 10507592 · DOI 10.1097/00003246-199909000-00007 · [PubMed record](#)

754. Short exposure of polymorphonuclear leucocytes to sodium fluoride suppresses the response to fMLP.

1999 · Journal of trace elements in medicine and biology : organ of the Society for Minerals and Trace Elements (GMS) · Water, sanitation & biosecurity · Human observational / experimental
Authors: Knoll-Köhler, E; Büsselmann, G

The results show that F-, at concentrations as retained in saliva, did not activate the oxidative burst in unstimulated PMNs. In fMLP-activated PMNs, F-suppressed the receptor-mediated increase in the oxidative burst and the liberation of fl-glucuronidase by reduction of the availability of extracellular Ca2+ and, thus, the influx of Ca2+ necessary to couple completely the fMLP signal to effector pathways.

PMID 10445221 · DOI 10.1016/S0946-672X(99)80026-1 · [PubMed record](#)

755. Chlorination and nitration of soy isoflavones.

1999 · Archives of biochemistry and biophysics · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Boersma, B J; Patel, R P; Kirk, M; Jackson, P L; Muccio, D; Darley-Usmar, V M; Barnes, S

Using an in vitro approach, we demonstrate in the present study that the isoflavones genistein, daidzein, and biochanin-A can be chlorinated and nitrated by these oxidants. These results indicate that the ability of the isoflavones to react with these oxidant species depends on their structure and suggest that they could be formed under conditions where these reactive species are generated under pathological conditions.

PMID 10441377 · DOI 10.1006/abbi.1999.1330 · [PubMed record](#)

756. Reactive oxygen species are partially involved in the bacteriocidal action of hypochlorous acid.

1999 · Archives of biochemistry and biophysics · Water, sanitation & biosecurity · Human observational / experimental
Authors: Dukan, S; Belkin, S; Touati, D

Even a short transient exposure to air after anaerobic HOCl challenge reduced anaerobic survival, indicative of immediate deleterious effects of oxygen. This indicates that part of HOCl toxicity on *Escherichia coli* is mediated by reactive oxygen species during recovery.

PMID 10395749 · DOI 10.1006/abbi.1999.1265 · [PubMed record](#)

757. Effectiveness of various disinfectants in the elimination of *Yersinia enterocolitica* on fresh lettuce.

1999 · Journal of food protection · Food & agriculture · Journal article / other
Authors: Escudero, M E; Velázquez, L; Di Genaro, M S; de Guzmán, A M

Treatment with 0.2% Orenco Peel 40 plus 100 ppm of chlorine resulted in reductions of 2.69 log₁₀ CFU/g for strain A and 3.18 log₁₀ CFU/g for strain B at 10 min. Dip solutions containing 0.1% Tergitol plus 100 ppm of chlorine produced a significant reduction of 2.73 log₁₀ CFU/g in strain A (P < 0.05).

PMID 10382658 · DOI 10.4315/0362-028x-62.6.665 · [PubMed record](#)

758. Analysis of 3-nitrotyrosine in biological fluids and protein hydrolyzates by high-performance liquid chromatography using a postseparation, on-line reduction column and electrochemical detection: results with various nitrating agents.

1999 · Nitric oxide : biology and chemistry · Veterinary & livestock · In vitro / laboratory
Authors: Ohshima, H; Celan, I; Chazotte, L; Pignatelli, B; Mower, H F

However, various agents can nitrate tyrosine, and their relative significance in vivo has not been determined due to lack of a sensitive method to analyze NTYR in tissue proteins and biological fluids. The sample is injected directly into a reversed-phase HPLC column and NTYR is subsequently reduced by a platinum column to 3-aminotyrosine, which is quantified with an electrochemical detector.

PMID 10369183 · DOI 10.1006/niox.1999.0216 · [PubMed record](#)

759. Disinfection of hospital waste sludge using hypochlorite and chlorine dioxide.

1999 · Journal of applied microbiology · Water, sanitation & biosecurity · Journal article / other
Authors: Tsai, C T; Lin, S T

Reductions in indigenous coliform organisms and *Pseudomonas aeruginosa* were estimated. The results indicate that hypochlorite is a better disinfectant than chlorine dioxide for coliforms.

PMID 10347878 · DOI 10.1046/j.1365-2672.1999.00732.x · [PubMed record](#)

760. Hypochlorous acid-induced DNA base modification: potentiation by nitrite: biomarkers of DNA damage by reactive oxygen species.

1999 · Biochemical and biophysical research communications · Veterinary & livestock · Animal study
Authors: Whiteman, M; Spencer, J P; Jenner, A; Halliwell, B

Chronic inflammation results in increased nitric oxide formation and nitrite (NO₂) accumulation. No significant increases in 8-hydroxyguanine, xanthine, hypoxanthine, 2-hydroxyadenine, FAPy guanine, FAPy adenine and 8-chloroadenine were observed.

PMID 10198253 · DOI 10.1006/bbrc.1999.0448 · [PubMed record](#)

761. Identification of the factors affecting the rate of deactivation of hypochlorous acid by melatonin.

1999 · Biochemical and biophysical research communications · Food & agriculture · Journal article / other
Authors: Dellegar, S M; Murphy, S A; Bourne, A E; DiCesare, J C; Purser, G H

At 37 degrees C and at a water concentration of 23.5 M, kOCl⁻ = 6.0 x 10⁽²⁾ L. mol⁻¹. s⁻¹, and kHOCl was found to be a function of the water concentration, kHOCl = 11 +/- 3 L³. mol⁻³. s⁻¹. [H₂O]², indicating that the availability of water at the site of the reaction plays a significant role. Melatonin and 3-methylindole yielded hydroxylated products, whereas indole and 5-methoxyindole produce chlorinated products.

PMID 10198231 · DOI 10.1006/bbrc.1999.0438 · [PubMed record](#)

762. Inactivation of myocardial dihydrolipoamide dehydrogenase by myeloperoxidase systems: effect of halides, nitrite and thiol compounds.

1999 · Free radical research · Veterinary & livestock · Human observational / experimental
Authors: Gutierrez-Correa, J; Stoppani, A O

The effect of the MPO/H₂O₂/NaNO₂ system was prevented by MPO inhibitors (sodium azide, isoniazid, salicylhydroxamic acid) and also by L-cysteine, L-methionine, L-tryptophan, L-tyrosine, L-histidine and reduced glutathione. The summarized observations support the hypothesis that peroxidase-generated "reactive species" oxidize essential thiol groups at LADH catalytic site.

PMID 10193578 · DOI 10.1080/10715769900300111 · [PubMed record](#)

763. Modification of beta-adrenoceptors and adenylyl cyclase in hearts perfused with hypochlorous acid.

1998 · Canadian journal of physiology and pharmacology · Food & agriculture · In vitro / laboratory
Authors: Persad, S; Dhalla, N S

Marked depressions in both the density and affinity of beta1-adrenoceptors were observed, whereas no significant change in the affinity or density of beta2-adrenoceptors was seen in hearts perfused with HOCl. These results suggest that HOCl may produce a defect in the beta-adrenoceptor linked signal transduction mechanism by affecting both beta1-adrenoceptors and adenylyl cyclase enzyme in the myocardium.

PMID 10100877 · DOI 10.1139/cjpp-76-10-11-961 · [PubMed record](#)

764. Severe impairment in early host defense against Candida albicans in mice deficient in myeloperoxidase.

1999 · Infection and immunity · Food & agriculture · Human observational / experimental
Authors: Aratani, Y; Koyama, H; Nyui, S; Suzuki, K; Kura, F; Maeda, N

However, they showed increased susceptibility to pneumonia and death following intratracheal infection with Candida albicans. Furthermore, the lack of MPO significantly enhanced the dissemination of intraperitoneally injected C. albicans into various organs during the first 7 days.

PMID 10085024 · DOI 10.1128/IAI.67.4.1828-1836.1999 · [PubMed record](#)

765. Oxidative resistance of Na/K-ATPase.

1999 · Cellular and molecular neurobiology · Veterinary & livestock · Animal study
Authors: Kurella, E G; Tyulina, O V; Boldyrev, A A

The inhibition of Na/K-ATPase correlates well with the decrease in a number of SH groups, suggesting that the latter belong mainly to ATPase protein and are essential for the enzyme activity. The data suggest that these antioxidants are effective due to their ability to neutralize or to prevent formation of hydroxyl radicals.

PMID 10079972 · DOI 10.1023/a:1006976810642 · [PubMed record](#)

766. Alterations in cardiac membrane beta-adrenoceptors and adenylyl cyclase due to hypochlorous acid.

1999 · Journal of molecular and cellular cardiology · Food & agriculture · Animal study
Authors: Persad, S; Elimban, V; Siddiqui, F; Dhalla, N S

Although cholera toxin-stimulated adenylyl cyclase activity, cholera toxin-catalyzed ADP-ribosylation and stimulatory guanine nucleotide binding protein immunoreactivity were depressed by HOCl, the pertussis toxin-stimulated adenylyl cyclase activity, pertussis toxin-catalyzed ADP ribosylation and inhibitory guanine nucleotide binding protein immunoreactivity were unaltered by HOCl. These results suggest that HOCl may be one of the factors attenuating the...

PMID 10072719 · DOI 10.1006/jmcc.1998.0847 · [PubMed record](#)

767. Comparative oxidation of loxapine and clozapine by human neutrophils.

1999 · Fundamental & clinical pharmacology · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Jegouzo, A; Gressier, B; Frimat, B; Brunet, C; Dine, T; Luyckx, M; Kouach, M; Cazin, M; Cazin, J C

On the one hand, the assay of the oxidative species demonstrated a different impact for the two neuroleptics. The 50% inhibitory concentration was 92 microM for hydrogen peroxide and 40 microM for hypochlorous acid for loxapine.

PMID 10027097 · DOI 10.1111/j.1472-8206.1999.tb00329.x · [PubMed record](#)

768. Bactericidal effect of electrolyzed neutral water on bacteria isolated from infected root canals.

1999 · Oral surgery, oral medicine, oral pathology, oral radiology, and endodontics · Water, sanitation & biosecurity · Journal article / other
Authors: Horiba, N; Hiratsuka, K; Onoe, T; Yoshida, T; Suzuki, K; Matsumoto, T; Nakamura, H

Electrolyzed neutral water showed a bactericidal or growth-inhibitory effect against the bacteria. CONCLUSIONS: The results indicate that electrolyzed neutral water maintains a constant pH and oxidation-reduction potential when kept in a closed container without light and that it exhibits a bacteriostatic/bactericidal action against isolates obtained from infected root canals.

PMID 9927086 · DOI 10.1016/s1079-2104(99)70300-8 · [PubMed record](#)

769. Which conditions promote a remanent (persistent) bactericidal activity of chlorine covers?

1998 · Zentralblatt für Hygiene und Umweltmedizin = International journal of hygiene and environmental medicine · Water, sanitation & biosecurity · Human observational / experimental
Authors: Gottardi, W; Nagl, M

To clarify these not consistent results, the bactericidal activity of chlorine covers on transient (dry contamination of the finger tips with *Micrococcus luteus*) as well as on resident colonization (after wearing gloves for 3 h) has been re-investigated using contact plates for recovering the bacteria. The results are showing that the remanent bactericidal action of chlorine covers strongly depends on the skin milieu, with moist conditions caused by sweat...

PMID 9916287 · [PubMed record](#)

770. Effect of cephapirin and mecillinam on the phagocytic and respiratory burst activity of neutrophil leukocytes isolated from bovine blood.

1998 · Journal of veterinary pharmacology and therapeutics · Veterinary & livestock · In vitro / laboratory
Authors: Dosogne, H; Hoeben, D; Burvenich, C; Lohuis, J A

At high concentrations (100 and 1000 microg/mL), cephapirin and mecillinam reduced the respiratory burst activity of PMN. Inhibitory effects of cephapirin were stronger than mecillinam.

PMID 9885963 · DOI 10.1046/j.1365-2885.1998.00159.x · [PubMed record](#)

771. Isolation of Salmonella resistant to hypochlorous acid from a poultry abattoir.

1998 · Letters in applied microbiology · Veterinary & livestock · Animal study
Authors: Mokgatla, R M; Brözel, V S; Gouws, P A

It is evident that some *Salmonella* will grow in the presence of concentrations of HOCl deemed to be inhibitory. Hence, an effective concentration of HOCl must be applied in poultry abattoirs to ensure that all the *Salmonella* are eradicated.

PMID 9871358 · DOI 10.1046/j.1472-765x.1998.00432.x · [PubMed record](#)

772. Hypochlorous acid activates the tumor suppressor protein p53 in cultured human skin fibroblasts.

1998 · Archives of biochemistry and biophysics · Food & agriculture · Human observational / experimental
Authors: Vile, G F; Rothwell, L A; Kettle, A J

This result indicates that the p53 in the cells treated with hypochlorous acid was transcriptionally active. Our results implicate hypochlorous acid in the neutrophil-dependent initiation of a signal transduction pathway which could minimize the carcinogenicity of chronic inflammation.

PMID 9799559 · DOI 10.1006/abbi.1998.0881 · [PubMed record](#)

773. Reactions of hypochlorous acid with biological substrates are activated catalytically by tertiary amines.

1998 · Archives of biochemistry and biophysics · Water, sanitation & biosecurity · Journal article / other
Authors: Prütz, W A

Using poly(dA-dT).poly(dA-dT) as DNA model, it is shown that HOCl primarily induces an absorbance increase at 263 nm, which indicates unfolding of the double strand due to fast chlorination of thymidine; a subsequent secondary absorbance decrease can be explained by slow chlorination of adenosine. The present results suggest that low concentrations of certain tertiary amines have the potential of modifying the spectrum of target molecules which can be...

PMID 9735167 · DOI 10.1006/abbi.1998.0822 · [PubMed record](#)

774. Mechanism of depression in cardiac sarcolemmal Na⁺-K⁺-ATPase by hypochlorous acid.

1998 · The American journal of physiology · Veterinary & livestock · Animal study
Authors: Kato, K; Shao, Q; Elimban, V; Lukas, A; Dhalla, N S

Scatchard plot analysis of [³H]ouabain binding data indicated no significant change in the affinity or maximum binding capacity value for ouabain binding following treatment of SL membranes with HOCl. These data suggest that the HOCl-induced decrease in SL Na⁺-K⁺-ATPase activity may be due to a depression in the beta1-subunit of the enzyme.

PMID 9730967 · DOI 10.1152/ajpcell.1998.275.3.C826 · [PubMed record](#)

775. Rapid monitoring method to assess efficacy of sanitizers against *Pseudomonas putida* biofilms.

1998 · Journal of food protection · Veterinary & livestock · Journal article / other
Authors: Chumkhunthod, P; Schraft, H; Griffiths, M W

Immediately after the sanitizer treatments an apparent 5-log reduction of biofilm-associated cells was determined. The results demonstrated that neither sanitizer could completely eliminate biofilm-associated *P. putida*.

PMID 9713769 · DOI 10.4315/0362-028x-61.8.1043 · [PubMed record](#)

776. A possible involvement of oxidative lung injury in endotoxin-induced bronchial hyperresponsiveness to substance P in guinea pigs.

1998 · Toxicology and applied pharmacology · Veterinary & livestock · Animal study
Authors: Iwamae, S; Tsukagoshi, H; Hisada, T; Uno, D; Mori, M

Aminophylline, SDZ-MKS-492, and a superoxide anion-generating NADPH-oxidase inhibitor apocynin inhibited bronchial hyperresponsiveness to substance P with attenuation of neutral endopeptidase inactivation induced by endotoxin. These results suggest that reactive oxygen-derived free radical species-mediated oxidative lung injury may play an important role in endotoxin-induced bronchial hyperresponsiveness to substance P, and that phosphodiesterase...

PMID 9707501 · DOI 10.1006/taap.1998.8476 · [PubMed record](#)

777. Myeloperoxidase and horseradish peroxidase catalyze tyrosine nitration in proteins from nitrite and hydrogen peroxide.

1998 · Archives of biochemistry and biophysics · Veterinary & livestock · Animal study
Authors: Sampson, J B; Ye, Y; Rosen, H; Beckman, J S

Physiologic levels of chloride did not significantly inhibit nitration by MPO. In contrast, MPO catalyzed nitration of many proteins in rat heart homogenates using NO₂⁻ plus H₂O₂, suggesting that peroxidase-catalyzed nitration of tyrosine could occur in the presence of competing substrates in vivo.

PMID 9705211 · DOI 10.1006/abbi.1998.0772 · [PubMed record](#)

778. [The effect of pH on hypochlorite-induced peroxidation of phospholipid liposomes].

1998 · Biofizika · Food & agriculture · Animal study
Authors: Panasencko, O M; Arnhold, J; Sergienko, V I

The present data and our previous results allow to suppose that besides the electrophilic addition of HOCl to double bonds another reaction of HOCl/OCl⁻ with some lipid intermediate occurs that leads to initiation of free radical processes of lipid peroxidation. This reaction increases in velocity as pH rises at least in the range from 6.50 to 8.15.

PMID 9702338 · [PubMed record](#)

779. Salicylate hydroxylation as an indicator of hydroxyl radical generation in dextran sulfate-induced colitis.

1998 · Free radical biology & medicine · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Blackburn, A C; Doe, W F; Buffinton, G D

Methionine prevented decomposition of DHBs in vitro; however, in mice with 5% DSS-induced colitis, where mucosal myeloperoxidase activity was ten-fold control levels (*p* < .001), administration of methionine (up to 200 mg/kg i.p.) with SAL was ineffective at increasing the ratio 2,3-DHB:SAL. SAL was also degraded in vitro by HOCl (4.7 nmol/min) resulting in the formation of new fluorescent species which may be useful as indicators of HOCl-mediated injury.

PMID 9680176 · DOI 10.1016/s0891-5849(98)00068-9 · [PubMed record](#)

780. Evidence for roles of radicals in protein oxidation in advanced human atherosclerotic plaque.

1998 · The Biochemical journal · Veterinary & livestock · In vitro / laboratory
Authors: Fu, S; Davies, M J; Stocker, R; Dean, R T

We compared the relative abundance of these oxidation products in normal intima, and in human carotid plaque samples with that observed after radiolytically generated hydroxyl radical attack on BSA in vitro. The relatively higher level of dityrosine in plaque than that observed after radiolysis suggests the additional involvement of HOCl-mediated reactions in advanced plaque.

PMID 9677308 · DOI 10.1042/bj3330519 · [PubMed record](#)

781. Association of myeloperoxidase with heparin: oxidative inactivation of proteins on the surface of endothelial cells by the bound enzyme.

1998 · Molecular and cellular biochemistry · Veterinary & livestock · Human observational / experimental
Authors: Daphna, E M; Michaela, S; Eynat, P; Irit, A; Rimon, S

Chromatography of human myeloperoxidase (MPO) on a heparin-agarose column demonstrated a tight association of the protein with the resin. The oxidative modification of FIXBP was only partially dependent on the addition of hydrogen peroxide and was abolished by exogenous heparin which displaced MPO from the cell surface, emphasizing the functional differences between cell-bound and free enzyme.

PMID 9655178 · DOI 10.1023/a:1006848730927 · [PubMed record](#)

782. Reactivity of cartilage and selected carbohydrates with hydroxyl radicals: an NMR study to detect degradation products.

1998 · Free radical research · Veterinary & livestock · Animal study
Authors: Schiller, J; Arnhold, J; Schwinn, J; Sprinz, H; Brede, O; Arnold, K

This indicates a breakdown of glycosidic bonds in polysaccharides. The same sequence of events was observed upon treatment of bovine nasal cartilage with the Fenton reagent.

PMID 9645397 · DOI 10.3109/10715769809065806 · [PubMed record](#)

783. Degradation of hyaluronic acid, poly- and monosaccharides, and model compounds by hypochlorite: evidence for radical intermediates and fragmentation.

1998 · Free radical biology & medicine · Food & agriculture · Journal article / other
Authors: Hawkins, C L; Davies, M J

These carbon-centered radicals are suggested to arise from rapid rearrangement of initial nitrogen-centered radicals, formed from the N-acetyl chloramide, by reactions analogous to those observed with alkoxyl radicals. The detection of increasing yields of low-molecular-weight radical adducts from hyaluronic acid and chondroitin sulphate A with increasing HOCl/CIO-concentrations suggests that formation of the initial nitrogen-centered species on the...

PMID 9641257 · DOI 10.1016/s0891-5849(98)00009-4 · [PubMed record](#)

784. Free radical-scavenging properties of olive oil polyphenols.

1998 · Biochemical and biophysical research communications · Food & agriculture · Human observational / experimental
Authors: Visioli, F; Bellomo, G; Galli, C

We have investigated the scavenging actions of some olive oil phenolics, namely hydroxytyrosol and oleuropein, with respect to superoxide anion generation, neutrophils respiratory burst, and hypochlorous acid. The low EC50S indicate that both compounds are potent scavengers of superoxide radicals and inhibitors of neutrophils respiratory burst: whenever demonstrated in vivo, these properties may partially explain the observed lower incidence of CHD and...

PMID 9636654 · DOI 10.1006/bbrc.1998.8735 · [PubMed record](#)

785. A comparison of the oxidation of clozapine and olanzapine to reactive metabolites and the toxicity of these metabolites to human leukocytes.

1998 · Molecular pharmacology · Food & agriculture · Human observational / experimental
Authors: Gardner, I; Zahid, N; MacCrimmon, D; Uetrecht, J P

No toxicity was observed with clozapine alone (at concentrations of > 50 microM). Similar results were observed in monocytes and HL-60 cells.

PMID 9614200 · [PubMed record](#)

786. Hypochlorite-induced damage to proteins: formation of nitrogen-centred radicals from lysine residues and their role in protein fragmentation.

1998 · The Biochemical journal · Veterinary & livestock · Human observational / experimental
Authors: Hawkins, C L; Davies, M J

Reaction with HOCl gives both high- and low-molecular-mass nitrogen-centred, protein-derived radicals; the yield of the latter increases with both higher HOCl:protein ratios and enzymic digestion. Chloramine formation and nitrogen-centred radicals are therefore key species in HOCl-induced protein fragmentation.

PMID 9620862 · DOI 10.1042/bj3320617 · [PubMed record](#)

787. Functional sites of chemically modified tetracyclines: inhibition of the oxidative activation of human neutrophil and chicken osteoclast pro-matrix metalloproteinases.

1998 · The Journal of rheumatology · Veterinary & livestock · In vitro / laboratory
Authors: Sorsa, T; Ramamurthy, N S; Vernillo, A T; Zhang, X; Kontinen, Y T; Rifkin, B R; Golub, L M

RESULTS: All CMT tested, except CMT-5, inhibited APMA or NaOCl activated pro-MMP. Our results indicate that the Ca⁺⁺/Zn⁺⁺ binding site of CMT is not essential for inhibition of the oxidative activation of pro-MMP.

PMID 9598901 · [PubMed record](#)

788. Formation of carbonyls during attack on insulin by submolar amounts of hypochlorite.

1998 · Analytical biochemistry · Veterinary & livestock · Animal study
Authors: Handelsman, G J; Nightingale, Z D; Dolnikowski, G G; Blumberg, J B

Amino acid analysis indicated that tyrosine was also degraded by hypochlorite, but we could not detect a carbonyl group formed at tyrosine. These findings suggest that the terminal amino groups of proteins are highly vulnerable to carbonyl formation during hypochlorite attack.

PMID 9570850 · DOI 10.1006/abio.1998.2592 · [PubMed record](#)

789. Protective effects of carnosine against protein modification mediated by malondialdehyde and hypochlorite.

1998 · Biochimica et biophysica acta · Veterinary & livestock · In vitro / laboratory
Authors: Hipkiss, A R; Worthington, V C; Himsworth, D T; Herwig, W

The presence of carnosine effectively inhibited these modifications in a concentration-dependent manner. It is proposed that relatively non-toxic carnosine and related peptides might be explored as potential therapeutic agents for pathologies that involve protein modification mediated by MDA or hypochlorite.

PMID 9545530 · DOI 10.1016/s0304-4165(97)00123-2 · [PubMed record](#)

790. Antibiotics commonly used to treat mastitis and respiratory burst of bovine polymorphonuclear leukocytes.

1998 · Journal of dairy science · Veterinary & livestock · In vitro / laboratory
Authors: Hoeben, D; Burvenich, C; Heyneman, R

The inhibition observed with oleandomycin, neomycin, lincomycin, and dihydrostreptomycin was not due to direct effects on the production of oxidative metabolites but rather to interference with other components involved in the production of light, such as interference with the interaction between luminol and the myeloperoxidase-H₂O₂-halide system. In conclusion, the results of this study show that antibiotics may affect neutrophil function at...

PMID 9532493 · DOI 10.3168/jds.S0022-0302(98)75590-0 · [PubMed record](#)

791. Oxidant-scavenging activities of beta-lactam agents.

1998 · European journal of clinical microbiology & infectious diseases : official publication of the European Society of Clinical Microbiology · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Carreer, R; Deby-Dupont, G; Deby, C; Jadoul, L; Mathy, M

Furthermore, all antibiotics provided dose-dependent protection against HOCl cytotoxicity to 16HBE140 bronchial epithelial cells. Taken together, these data indicate a possible therapeutic role for beta-lactam agents in protecting host tissues from HOCl-induced oxidative damage.

PMID 9512182 · DOI 10.1007/BF01584363 · [PubMed record](#)

792. The action of VIRKON No Foam on the hepatitis B virus.

1997 · European journal of epidemiology · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Scioli, D; Pizzella, T; Vollaro, L; Nardiello, S; De Feo, L

VIRKON NF showed an inhibition of autoradiographic signal equal respectively to 0%, 25-50%, 50-70%, 100%. Using 3% concentrations for a contact time of 10 min, VIRKON NF showed an autoradiographic inhibition signal of 90%.

PMID 9476816 · DOI 10.1023/a:1007399926095 · [PubMed record](#)

793. Intraphagosomal chlorination dynamics and yields determined using unique fluorescent bacterial mimics.

1997 · Chemical research in toxicology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Jiang, Q; Griffin, D A; Barofsky, D F; Hurst, J K

By using methyl viologen to quench external fluorescence, it was demonstrated that 70-90% of the neutrophil-associated fluorescein on opsonized beads was inaccessible to the medium. Demonstration that HOCl is produced within phagosomes in sufficient concentrations to kill bacteria on a time scale associated with death constitutes strong evidence in support of a primary role for HOCl in the microbicidal action of neutrophils.

PMID 9348429 · DOI 10.1021/tx9700984 · [PubMed record](#)

794. Formation of nitric oxide-derived inflammatory oxidants by myeloperoxidase in neutrophils.

1998 · Nature · Veterinary & livestock · In vitro / laboratory
Authors: Eiserich, J P; Hristova, M; Cross, C E; Jones, A D; Freeman, B A; Halliwell, B; van der Vliet, A

Polymorphonuclear neutrophil-mediated inactivation of endothelial cell angiotensin-converting enzyme was exacerbated by NO₂⁻, illustrating the physiological significance of these reaction pathways to cellular dysfunction. Our data reveal that NO₂⁻ may regulate inflammatory processes through oxidative mechanisms, perhaps by contributing to the tyrosine nitration and chlorination observed in vivo.

PMID 9450756 · DOI 10.1038/34923 · [PubMed record](#)

795. Effects of hypochlorous acid and ascorbic acid on conductance, permeability, and structure of equine colonic mucosa in vitro.

1998 · American journal of veterinary research · Veterinary & livestock · In vitro / laboratory
Authors: Inoue, O J; Freeman, D E; Wallig, M

RESULTS: Short-circuit current and conductance increased transiently in response to 1 mM HOCl. At 3 and 7 mM concentrations, HOCl caused marked increase in tissue conductance, short-circuit current, and permeability to mannitol; these changes were associated with histologic damage.

PMID 9442250 · [PubMed record](#)

796. Interactions of hypochlorous acid with pyrimidine nucleotides, and secondary reactions of chlorinated pyrimidines with GSH, NADH, and other substrates.

1998 · Archives of biochemistry and biophysics · Water, sanitation & biosecurity · Animal study
Authors: Prütz, W A

Reactions of ClO⁻ with TMP, UMP, and poly(U) are shown to be reversible, PyNH + ClO⁻ = PyNCl + OH⁻; an increase in pH due to this reaction was confirmed, and equilibrium constants have been estimated. Such chlorine transfer between nucleic acid bases is likely to occur also in DNA; it is shown that HOCl in fact induces a complex series of reactions on interaction with native DNA.

PMID 9439597 · DOI 10.1006/abbi.1997.0440 · [PubMed record](#)

797. Hypochlorous acid-induced base modifications in isolated calf thymus DNA.

1997 · Chemical research in toxicology · Veterinary & livestock · Animal study
Authors: Whiteman, M; Jenner, A; Halliwell, B

Large concentration-dependent increases in pyrimidine oxidation products [thymine glycol (cis/trans), 5-hydroxycytosine, 5-hydroxyuracil, 5-hydroxyhydantoin] but not purine oxidation products (8-hydroxyguanine, 2- and 8-hydroxyadenine, FAPy guanine, FAPy adenine) were observed at pH 7.4. In addition, large increases in 5-chlorouracil (probably formed from 5-chlorocytosine during sample preparation), a novel chlorinated base, were observed.

PMID 9403176 · DOI 10.1021/tx970086i · [PubMed record](#)

798. Reaction of hypochlorous acid with bovine nasal cartilage comparison to pig articular cartilage.

1997 · Zeitschrift fur Naturforschung. C, Journal of biosciences · Veterinary & livestock · Animal study
Authors: Schiller, J; Arnhold, J; Zachäus, A; Arnold, K

NaOCl caused an increase in signals for acetate and formate. These changes were related to an enhanced release of chondroitinsulfate from nasal cartilage.

PMID 9373999 · DOI 10.1515/znc-1997-9-1019 · [PubMed record](#)

799. Contrasting effects of hypochlorous acid and hydrogen peroxide on endothelial permeability: prevention with cAMP drugs.

1997 · American journal of respiratory and critical care medicine · Veterinary & livestock · In vitro / laboratory
Authors: Ochoa, L; Waypa, G; Mahoney, J R Jr; Rodriguez, L; Minnear, F L

The objectives of the present study were to compare the effects of H₂O₂ and HOCl with respect to relative potencies and the time course and magnitude of changes in cell shape and permeability of endothelial cell monolayers derived from bovine pulmonary artery, to determine if HOCl produced by conversion of H₂O₂ with myeloperoxidase and Cl⁻ produces comparable results as the direct administration of HOCl, and to show that adenosine 3',5'-cyclic...

PMID 9351629 · DOI 10.1164/ajrccm.156.4.96-10115 · [PubMed record](#)

800. Cyanate-mediated inhibition of neutrophil myeloperoxidase activity.

1997 · The Biochemical journal · Water, sanitation & biosecurity · Human observational / experimental
Authors: Qian, M; Eaton, J W; Wolff, S P

In support of this, we find: (i) CNO⁻ inhibits both peroxidative and halogenating activities of MPO and also inhibits the enzyme within intact human neutrophils; (ii) the inhibition is H₂O₂-dependent, irreversible, accompanied by covalent addition of [14C]CNO⁻ (or a carbon-containing fragment thereof) to the enzyme; (iii) CNO⁻ also inhibits Cl⁻/H₂O₂/MPO-mediated bacterial killing. Impairment of this arm of neutrophil bactericidal activity by CNO⁻ formed...

PMID 9337863 · DOI 10.1042/bj3260159 · [PubMed record](#)

801. Nitric oxide and antimicrobial activity of reactive oxygen intermediates.

1997 · Immunopharmacology · Food & agriculture · Journal article / other
Authors: Marcinkiewicz, J

Our results indicate that NO-donating drugs in non toxic concentrations used for experimental purposes may strongly affect the cytotoxic activity of neutrophils and macrophages. We suggest that the similar interactions may exist at sites of inflammation.

PMID 9285242 · DOI 10.1016/s0162-3109(96)00168-3 · [PubMed record](#)

802. Hypochlorite-induced peroxidation of egg yolk phosphatidylcholine is mediated by hydroperoxides.

1997 · Free radical research · Food & agriculture · Animal study
Authors: Panasenkov, O M; Arnhold, J; Vladimirov YuA; Arnhold, K; Sergienko, V I

It is concluded that the consumption of HOCl/OCl⁻ increased in peroxidized liposomes due to additional reactions with lipid peroxidation products. tert-Butyl hydroperoxide and cumene hydroperoxide, or organic peroxides or epoxides (cis-9,10-epoxystearic acid; cholesterol-5 alpha,6 alpha-epoxide; trans-2,3-epoxy-butane; cis-2,3-epoxy-butane) were incorporated into liposomes and investigated in respect to their ability (1) to increase the consumption of...

PMID 9269574 · DOI 10.3109/10715769709097832 · [PubMed record](#)

803. Structural features associated with reactive metabolite formation in clozapine analogues.

1997 · Chemico-biological interactions · Water, sanitation & biosecurity · Human observational / experimental
Authors: Uetrecht, J; Zahid, N; Tehim, A; Fu, J M; Rakhit, S

Clozapine is associated with a high incidence of agranulocytosis. If such reactive metabolites are responsible for drug-induced agranulocytosis, it should be possible to use such a simple screening method to test drugs at an early stage in their development for the potential to induce agranulocytosis.

PMID 9212779 · DOI 10.1016/s0009-2797(97)00017-3 · [PubMed record](#)

804. Identification of intermediates in the catalytic cycle of chloroperoxidase.

1997 · Chemistry & biology · Water, sanitation & biosecurity · Journal article / other
Authors: Wagenknecht, H A; Woggon, W D

RESULTS: The pH profile of chloroperoxidase from *Caldariomyces fumago* revealed a new active-site complex that can be detected only at pH 4.4. The existence of these previously elusive intermediates suggests that the chlorination catalyzed by CPO, and its corresponding active site analogue, proceeds by Cl⁺ transfer from the HOCl adduct to the substrate bound in the distal pocket of the enzyme.

PMID 9195874 · DOI 10.1016/s1074-5521(97)90127-7 · [PubMed record](#)

805. 3-Chlorotyrosine, a specific marker of myeloperoxidase-catalyzed oxidation, is markedly elevated in low density lipoprotein isolated from human atherosclerotic intima.

1997 · The Journal of clinical investigation · Water, sanitation & biosecurity · Human observational / experimental
Authors: Hazen, S L; Heinecke, J W

These results indicate that 3-chlorotyrosine is a specific marker for LDL oxidation by myeloperoxidase. These findings raise the possibility that the myeloperoxidase-H₂O₂-Cl⁻ system plays a critical role in converting LDL into an atherogenic form.

PMID 9151778 · DOI 10.1172/JCI119379 · [PubMed record](#)

806. Secretion and inactivation of myeloperoxidase by isolated neutrophils.

1997 · Journal of leukocyte biology · Food & agriculture · Human observational / experimental
Authors: King, C C; Jefferson, M M; Thomas, E L

The visible absorption spectrum of MPO was lost, indicating destruction of the iron-containing prosthetic group. The results indicate that, in the physiological pH range, inactivation of MPO in the medium suppressed HOCl production.

PMID 9060452 · DOI 10.1002/jlb.61.3.293 · [PubMed record](#)

807. Products of the reaction of cholesterol with hypochlorite anion.

1997 · Biochemistry. Biokhimiia · Food & agriculture · In vitro / laboratory
Authors: Momynaliev, K T; Osipova, S V; Sadovskaya, V L; Govorun, V M; Sergienko, V I

The reactions of hypochlorite with cholesterol result in the same reaction products in all treated systems. Among the oxidation products more polar than cholesterol, nine compounds were identified; they are 5,7-cholestadien-3 beta-ol, 3,5-cholestadien-7-one, 4-cholesten-3 beta, 6 beta-diol, 5-cholesten-3 beta, 7 beta-diol, cholestan-3 beta, 5 alpha, 6 beta-triol, 5 alpha-cholestan-3 beta-ol-6-one, 5-cholesten-3 beta-ol-7-one, 5 alpha, 6...

PMID 9159869 · [PubMed record](#)

808. Acid adaptation sensitizes *Salmonella typhimurium* to hypochlorous acid.

1997 · Applied and environmental microbiology · Food & agriculture · Journal article / other
Authors: Leyer, G J; Johnson, E A

The results of this study establish that acid-adapted *S. typhimurium* cells are highly sensitized to HOCl oxidation and that inactivation by HOCl involves changes in membrane permeability, inability to maintain or restore energy charge, and probably oxidation of essential cellular components. This study provides a basis for improved practical technologies to inactivate *Salmonella* and implies that acid pretreatment of food plant environments may increase...

PMID 9023924 · DOI 10.1128/aem.63.2.461-467.1997 · [PubMed record](#)

809. Human neutrophils employ the myeloperoxidase-hydrogen peroxide-chloride system to convert hydroxy-amino acids into glycolaldehyde, 2-hydroxypropanal, and acrolein. A mechanism for the generation of highly reactive alpha-hydroxy and alpha,beta-unsaturated aldehydes by phagocytes at sites of inflammation.

1997 · The Journal of clinical investigation · Food & agriculture · Human observational / experimental
Authors: Anderson, M M; Hazen, S L; Hsu, F F; Heinecke, J W

Aldehyde production by purified myeloperoxidase required H₂O₂ and chloride, and was mimicked by reagent hypochlorous acid (HOCl) in the absence of enzyme, suggesting that the reaction pathway involves a chlorinated intermediate. Collectively, these results indicate that the myeloperoxidase-H₂O₂-chloride system of phagocytes converts free hydroxy-amino acids into highly reactive alpha-hydroxy and alpha,beta-unsaturated aldehydes.

PMID 9022075 · DOI 10.1172/JCI119176 · [PubMed record](#)

810. Mass spectrometric quantification of 3-chlorotyrosine in human tissues with attomole sensitivity: a sensitive and specific marker for myeloperoxidase-catalyzed chlorination at sites of inflammation.

1997 · Free radical biology & medicine · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Hazen, S L; Crowley, J R; Mueller, D M; Heinecke, J W

Previous in vitro studies demonstrated that 3-chlorotyrosine is a specific product of myeloperoxidase-catalyzed oxidative damage and that the chlorinated amino acid may thus serve as an index of phagocyte-mediated tissue injury in vivo. The specificity, sensitivity, and reproducibility of 3-chlorotyrosine determination should make this method useful for exploring the role of myeloperoxidase in catalyzing oxidative reactions in vivo.

PMID 9378370 · DOI 10.1016/s0891-5849(97)00084-1 · [PubMed record](#)

811. Metabolism of clozapine by human neutrophils: evidence for a specific oxidation of clozapine by the myeloperoxidase system with inhibition of enzymatic chlorination cycle.

1997 · Fundamental & clinical pharmacology · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Frimat, B; Gressier, B; Odou, P; Brunet, C; Dine, T; Luycky, M; Cazin, M; Cazin, J C

First, evidence for inhibition of hypochlorous acid production and scavenging of hydrogen peroxide by clozapine were demonstrated in vitro, in different cell-free and cellular systems. Results are consistent with an inhibition of the myeloperoxidase chlorination cycle when clozapine is oxidised in the peroxidation cycle.

PMID 9243259 · DOI 10.1111/j.1472-8206.1997.tb00195.x · [PubMed record](#)

812. Oxidation of bovine beta-casein by hypochlorite.

1997 · Free radical biology & medicine · Veterinary & livestock · Animal study
Authors: Yang, C Y; Gu, Z W; Yang, H X; Yang, M; Wiseman, W S; Rogers, L K; Welty, S E; Katta, V; Rohde, M F; Smith, C V

Daughter ion spectra of the doubly charged parent ion of the peptide further support the oxidation of the tyrosine to the quinone methide, with subsequent conversion to the corresponding hydrazone with DNPH. Exposure of beta-casein to increasing amounts of HOCl revealed that M and Y residues were the most susceptible, although bovine beta-casein contains no C, and a single W, which would not be detected by our methods.

PMID 9098098 · DOI 10.1016/s0891-5849(96)00551-5 · [PubMed record](#)

813. Aminobenzoic acid compounds as HOCl traps for activated neutrophils.

1997 · Free radical biology & medicine · Food & agriculture · In vitro / laboratory
Authors: She, Z W; Mays, D C; Sagone, A L Jr; Davis, W B

In these in vitro systems, glutathione and serum completely inhibited the formation of the 3-chloro metabolite. These findings demonstrate that PABA and PAS are specific trapping agents for HOCl produced by neutrophils in complex biological conditions.

PMID 9034238 · DOI 10.1016/s0891-5849(96)00486-8 · [PubMed record](#)

814. Efficacy of teat dips containing a hypochlorous acid germicide against experimental challenge with Staphylococcus aureus and Streptococcus agalactiae.

1996 · Journal of dairy science · Veterinary & livestock · Animal study
Authors: Boddie, R L; Nickerson, S C

Product 2 reduced the number of new Staph. aureus IMI by 69.0% and reduced the number of new Strep. agalactiae IMI by 63.5%. No adverse effects on teat skin condition were observed over the course of the studies.

PMID 8899537 · DOI 10.3168/jds.S0022-0302(96)76533-5 · [PubMed record](#)

815. Formation of nitrating and chlorinating species by reaction of nitrite with hypochlorous acid. A novel mechanism for nitric oxide-mediated protein modification.

1996 · The Journal of biological chemistry · Veterinary & livestock · Journal article / other
Authors: Eiserich, J P; Cross, C E; Jones, A D; Halliwell, B; van der Vliet, A

The reaction of N-acetyl-L-tyrosine with NO₂⁻/HOCl or authentic Cl-NO₂ also produces dityrosine, suggesting that free radical intermediates are involved in the reaction mechanism. Our data indicate that while chlorination reactions of Cl-NO₂ are mediated by direct electrophilic addition to the aromatic ring, a free radical mechanism appears to be operative in nitrations mediated by NO₂⁻/HOCl or Cl-NO₂, probably involving the combination of nitrogen...

PMID 8702599 · DOI 10.1074/jbc.271.32.19199 · [PubMed record](#)

816. Effects of extracts from *Populus tremula* L., *solidago virgaurea* L. and *Fraxinus excelsior* L. on various myeloperoxidase systems.

1996 · Arzneimittel-Forschung · Veterinary & livestock · Animal study
Authors: von Krüedener, S; Schneider, W; Elstner, E F

These results were obtained concordantly with four different MPO-assays (H₂O₂/MPO; X/XOD/MPO; activated PMN; and elastase/alpha 1-PI-MPO). Fractionation of *Populus* and *Fraxinus* extracts showed that this inhibition is due to several different compounds.

PMID 9125284 · [PubMed record](#)

817. Hypochlorous acid interactions with thiols, nucleotides, DNA, and other biological substrates.

1996 · Archives of biochemistry and biophysics · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Prütz, W A

This assignment is supported by the finding that reaction of HOCl (in excess) with 2-mercaptanaphthalene generates the absorption spectrum of authentic naphthalene-2-sulfonylchloride. Stopped-flow investigations of reactions of HOCl with nucleotides indicate that HOCl reacts slowly with the amino-groups of AMP, CMP, and GMP but very fast with the heterocyclic NH-groups of GMP, inosine, and TMP.

PMID 8806715 · DOI 10.1006/abbi.1996.0322 · [PubMed record](#)

818. Chlorination of cholesterol in cell membranes by hypochlorous acid.

1996 · Archives of biochemistry and biophysics · Food & agriculture · In vitro / laboratory
Authors: Carr, A C; van den Berg, J J; Winterbourn, C C

The formation of cholesterol chlorohydrins could be potentially disruptive to cell membranes and result in cell lysis and death. They could also be potential biomarkers for oxidative damage associated with neutrophil/monocyte activation.

PMID 8806710 · DOI 10.1006/abbi.1996.0317 · [PubMed record](#)

819. Virulence properties of *Pseudomonas aeruginosa* lacking the extreme-stress sigma factor AlgU (sigmaE).

1996 · Infection and immunity · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Yu, H; Boucher, J C; Hibler, N S; Deretic, V

The increased lethality of the algU-deficient strain was also observed in the endotoxin-resistant C3H/HeJ mice. While the observation that algU inactivation increases systemic virulence in *P. aeruginosa* requires further explanation, this phenomenon contrasts with the apparent selection for strains with upregulated AlgU during colonization of the cystic fibrosis lung and suggests opposing roles for this system in chronic and acute infections.

PMID 8698507 · DOI 10.1128/iai.64.7.2774-2781.1996 · [PubMed record](#)

820. NMR studies on human, pathologically changed synovial fluids: role of hypochlorous acid.

1996 · Magnetic resonance in medicine · Veterinary & livestock · Human observational / experimental
Authors: Schiller, J; Arnhold, J; Sonntag, K; Arnold, K

These results have been confirmed by treatment of native sheep synovial fluid with sodium hypochlorite, resulting in the formation of the same resonances as observed in pathologically changed synovial fluids from humans. Thus, it is concluded that HOCl plays an important role for the cartilage degradation during rheumatoid arthritis.

PMID 8744012 · DOI 10.1002/mrm.1910350610 · [PubMed record](#)

821. *Escherichia coli* exhibits negative chemotaxis in gradients of hydrogen peroxide, hypochlorite, and N-chlorotaurine: products of the respiratory burst of phagocytic cells.

1996 · Proceedings of the National Academy of Sciences of the United States of America · Food & agriculture · In vitro / laboratory
Authors: Benov, L; Fridovich, I

Repulsion by H₂O₂ could be demonstrated with 1 microM H₂O₂, which is far below the level that caused overt toxicity. Chemotaxis down gradients of H₂O₂, OCl⁻, and N-chlorotaurine may contribute to the survival of commensal or pathogenic microorganisms.

PMID 8643518 · DOI 10.1073/pnas.93.10.4999 · [PubMed record](#)

822. Efficacy of hypochlorous acid scavengers in the prevention of protein carbonyl formation.

1996 · Archives of biochemistry and biophysics · Veterinary & livestock · Animal study
Authors: Yan, L J; Traber, M G; Kobuchi, H; Matsugo, S; Tritschler, H J; Packer, L

We observed that protein (bovine serum albumin) carbonyl content increases upon hypochlorite oxidation, and this increase is inhibited in a concentration-dependent manner in the presence of hypochlorite scavengers. The hypochlorite scavenging capacity of different compounds, compared by determining the IC50 (concentration which produces 50% inhibition), showed that the compounds tested have the following potency: dihydrolipoic acid > GSH, N-acetylcysteine...

PMID 8619623 · DOI 10.1006/abbi.1996.0130 · [PubMed record](#)

823. Peroxynitrite formed by simultaneous generation of nitric oxide and superoxide selectively inhibits bovine aortic prostacyclin synthase.

1996 · FEBS letters · Veterinary & livestock · Animal study
Authors: Zou, M H; Ullrich, V

No sensitivity against hydrogen peroxide, superoxide or hydroxyl radicals was observed but hypochlorite inhibited with an IC50 value of 7 microM. Simultaneous generation of nitric oxide and superoxide also caused inhibition which suggested that under pathological conditions like ischemia-reperfusion not only the vasodilatory effects of nitric oxide but also those of prostacyclin could be eliminated.

PMID 8612727 · DOI 10.1016/0014-5793(96)00160-3 · [PubMed record](#)

824. Neutrophils convert tyrosyl residues in albumin to chlorotyrosine.

1996 · FEBS letters · Food & agriculture · In vitro / laboratory
Authors: Kettle, A J

About 2% of the hypochlorous acid generated by neutrophils was accounted for by the formation of chlorotyrosine. These results demonstrate that chlorotyrosine will be a useful marker for establishing a role for hypochlorous acid in host defence and inflammation.

PMID 8566218 · DOI 10.1016/0014-5793(95)01494-2 · [PubMed record](#)

825. Changes in receptor function by oxidative stress in guinea pig tracheal smooth muscle.

1996 · Central European journal of public health · Veterinary & livestock · Animal study
Authors: van Hoof, I H; van Bree, L; Bast, A

In vivo exposure of the guinea pigs to 3 ppm ozone for two hours resulted in a hyperreactivity (increase in maximal contraction) after stimulation of the muscarinic receptor with methacholine. Our data suggest that oxidative stress modulates receptor responses.

PMID 9167047 · [PubMed record](#)

826. Oxidative modification of ovalbumin.

1996 · Acta biochimica Polonica · Water, sanitation & biosecurity · Journal article / other
Authors: Olszowski, S; Olszowska, E; Stelmaszyńska, T; Krawczyk, A; Marcinkiewicz, J; Baczek, N

SDS/PAGE and HPLC profiles revealed that HOCl/OCl⁻ chlorination promotes formation of aggregates stabilised by non covalent bonds. In conclusion, we suggest that a dramatic change in the OVA molecule structure begins when the molar excess of HOCl/OCl⁻ is about 2 per one reactive group in OVA.

PMID 9104502 · [PubMed record](#)

827. Evaluation of the antioxidant activity of melatonin in vitro.

1996 · Free radical biology & medicine · Veterinary & livestock · In vitro / laboratory
Authors: Marshall, K A; Reiter, R J; Poeggeler, B; Aruoma, O I; Halliwell, B

Melatonin is being increasingly promoted as a treatment for "jet lag" and insomnia and has been suggested to act as an antioxidant in vivo. Our data show that melatonin exerts only limited direct antioxidant activities.

PMID 8855441 · DOI 10.1016/0891-5849(96)00046-9 · [PubMed record](#)

828. Hypochlorous acid/N-chloramines are naturally produced DNA repair inhibitors.

1996 · Carcinogenesis · Food & agriculture · Human observational / experimental
Authors: Pero, R W; Sheng, Y; Olsson, A; Bryngelsson, C; Lund-Pero, M

The ability of neutrophils to inhibit HML ADP ribosylation was shown to be dependent on H₂O₂, chloride ions and myeloperoxidase, which in turn are factors known to govern HOCl and N-chloramine production by phagocytic cells. HOCl and a model N-chloramine, chloramine T, were shown to give a dose-dependent inhibition of DNA repair using four independent estimates, namely ADP ribosylation, UDS and the repair of DNA strand breaks estimated by nucleoid...

PMID 8565122 · DOI 10.1093/carcin/17.1.13 · [PubMed record](#)

829. Chlorogenic acid as a natural scavenger for hypochlorous acid.

1995 · Biochemical and biophysical research communications · Water, sanitation & biosecurity · Journal article / other
Authors: Kono, Y; Shibata, H; Kodama, Y; Ueda, A; Sawa, Y

HOCl reacted rapidly with CGA. By comparison with the one- and two-electron oxidation products produced by peroxidase and phenolase reactions, respectively, the main product was identified as o-quinone of CGA via the formation of o-semiquinone of CGA as an intermediate. The quinone form of CGA reacted further with HOCl to yield unstable product(s).

PMID 8554623 · DOI 10.1006/bbrc.1995.2865 · [PubMed record](#)

830. The action of hypochlorous acid on phosphatidylcholine liposomes in dependence on the content of double bonds. Stoichiometry and NMR analysis.

1995 · Chemistry and physics of lipids · Food & agriculture · Journal article / other
Authors: Arnhold, J; Panasenko, O M; Schiller, J; Vladimirov YuA; Arnold, K

With increasing content of double bonds or higher numbers of double bonds in a fatty acid acyl chain due to incorporated unsaturated fatty acids or phospholipids in DMPC liposomes the stoichiometry ratio falls continuously to 1:1. A ratio of about 1:1 was observed in multilamellar and unilamellar liposomes composed of egg yolk phosphatidylcholine.

PMID 8521532 · DOI 10.1016/0009-3084(95)02484-z · [PubMed record](#)

831. NMR studies of the action of hypochlorous acid on native pig articular cartilage.

1995 · European journal of biochemistry · Veterinary & livestock · Animal study
Authors: Schiller, J; Arnhold, J; Arnold, K

In addition to polysaccharides, effects of NaOCl were only observed in cartilage samples on amino acids like alanine. The alanine resonance disappeared already at NaOCl concentrations where only small effects on cartilage polysaccharides have been observed.

PMID 7588815 · DOI 10.1111/j.1432-1033.1995.672_2.x · [PubMed record](#)

832. [The effect of hydrogen peroxide and hypochlorite on brain Na,K-ATPase activity].

1995 · Biokhimiia (Moscow, Russia) · Veterinary & livestock · Animal study
Authors: Boldyrev, A A; Bulygina, E R; Volynskaia, E A; Kurella, E G; Tiulina, O V

The inhibiting effect of hydrogen peroxide is suppressed by desferrioxamine (by 20-30%) which indicates that the H₂O₂-induced inhibition is partly due to the generation of the hydroxyl radical. The data obtained suggest that inhibition of Na,K-ATPase by the antioxidants is caused by their direct action on the protein molecule, while the protective effect of natural hydrophilic antioxidants are due to the quenching of the hydroxyl radical.

PMID 8555364 · [PubMed record](#)

833. Action of hypochlorous acid on polymeric components of cartilage. Use of ¹³C NMR spectroscopy.

1995 · Zeitschrift fur Naturforschung. C, Journal of biosciences · Veterinary & livestock · Human observational / experimental
Authors: Schiller, J; Arnhold, J; Arnold, K

It has been shown by ¹H NMR spectroscopy in a previous paper (Schiller et al. (1994), Biol. Although it was not possible to prove the involvement of an intermediate, because of its fast hydrolysis, we were able to show that the reaction between sodium hypochlorite and N-acetylglucosamine affects mainly the side chain, accompanied by the formation of acetate.

PMID 8579689 · DOI 10.1515/znc-1995-9-1020 · [PubMed record](#)

834. [Interaction of hypochlorite with hydroperoxides and other oxidation products of phosphatidylcholine liposomes].

1995 · Biokhimiia (Moscow, Russia) · Food & agriculture · Journal article / other
Authors: Panasenکو, O M; Arnhold, J; Vladimirov, Iu A; Sergienko, V I

Since hypochlorite did not react with the saturated phospholipid, dimyristoylphosphatidylcholine (DMPC), and the reduction of double bonds in egg yolk phosphatidylcholine liposomes occurred at the same rate in both oxidized and non-oxidized liposomes, it may be suggested that hypochlorite interacted precisely with LPO products. The data obtained suggest that epoxides, dialkyl-, diacyl-, and alkyl-acyl-peroxides are not involved in hypochlorite-induced LPO.

PMID 8562650 · [PubMed record](#)

835. Activation of human neutrophils by surface-associated IgA is associated with the release of activated collagenase.

1995 · Clinical immunology and immunopathology · Food & agriculture · Human observational / experimental
Authors: Blackburn, W D Jr; Minghetti, P P; Schrohenloher, R E; Chatham, W W

Neutrophils incubated with surface-associated IgA (SAIgA) release significant amounts of activated collagenase in addition to the granule proteins myeloperoxidase and lactoferrin. In summary, neutrophils activated by surface associated IgA respond differently than when cells are activated by soluble aggregates of IgA.

PMID 7554445 · DOI 10.1006/clin.1995.1122 · [PubMed record](#)

836. Hypochlorite induces lipid peroxidation in blood lipoproteins and phospholipid liposomes.

1995 · Free radical biology & medicine · Food & agriculture · Human observational / experimental
Authors: Panasenکو, O M; Evgina, S A; Driomina, E S; Sharov, V S; Sergienko, V I; Vladimirov, Y A

The formation of lipid peroxidation products in course of the incubation of egg yolk phospholipid liposomes with hypochlorite has been revealed using three methods: (1) measurement of TBARS, (2) measurement of additional amounts of TBARS resulting from the introduction of excess Fe²⁺ to peroxidized liposomes (delta TBARS), and (3) measurement of the chemiluminescence flash amplitude appeared upon the addition of Fe²⁺ to the suspension. These data suggest...

PMID 7649485 · DOI 10.1016/0891-5849(94)00211-2 · [PubMed record](#)

837. Cytoplasts generate oxidants but require added neutrophil granule constituents for fungicidal activity against *Candida albicans* hyphae.

1995 · The Journal of infectious diseases · Water, sanitation & biosecurity · Human observational / experimental
Authors: Stein, D K; Malawista, S E; Van Blaricom, G; Wysong, D; Diamond, R D

Contributions of granule constituents were not entirely attributable to purified granule constituents with known antimicrobial activity (lactoferrin, cathepsin G, myeloperoxidase, and human neutrophil peptide defensins 1-3) individually or combined. Thus, oxidant generation by intact PMNL may be necessary but not always sufficient to mediate hyphal killing without complementary nonoxidative mechanisms.

PMID 7622895 · DOI 10.1093/infdis/172.2.511 · [PubMed record](#)

838. Chlorination of tyrosyl residues in peptides by myeloperoxidase and human neutrophils.

1995 · The Journal of biological chemistry · Water, sanitation & biosecurity · Human observational / experimental
Authors: Domigan, N M; Charlton, T S; Duncan, M W; Winterbourn, C C; Kettle, A J

This indicates that tyrosyl residues in proteins that are close to amine groups will be susceptible to chlorination. Therefore, chlorotyrosine will be a specific marker for the production of hypochlorous acid in vivo and for the involvement of myeloperoxidase in inflammatory tissue damage.

PMID 7622459 · DOI 10.1074/jbc.270.28.16542 · [PubMed record](#)

839. Immunologic detection and measurement of hypochlorite-modified LDL with specific monoclonal antibodies.

1995 · Arteriosclerosis, thrombosis, and vascular biology · Veterinary & livestock · In vitro / laboratory
Authors: Malle, E; Hazell, L; Stocker, R; Sattler, W; Esterbauer, H; Waeg, G

MoAb-A (clone 1B10A11, subtype IgG1 kappa) recognized an epitope that appeared to be specific for HOCl-LDL and depended on the tertiary structure of the (lipo)protein, as judged by a lack of cross-reactivity with HOCl-modified human and bovine serum albumin and a loss of reactivity associated with lipoprotein denaturation. MoAb-B (clone 2D10G9, subtype IgG2b kappa), on the other hand, gave identical titration curves with HOCl-LDL and HOCl-modified...

PMID 7541296 · DOI 10.1161/01.atv.15.7.982 · [PubMed record](#)

840. [Oxidative stability of Na,K-ATPase].

1995 · Doklady Akademii nauk · Veterinary & livestock · Animal study
Authors: Boldyrev, A A; Kurella, E G; Tiulina, O V

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 7580960 · [PubMed record](#)

841. [The technology of sewage purification and water treatment in self-contained oxidation-biosorption units].

1995 · Antibiotiki i khimioterapiia = Antibiotics and chemotherapy [sic] · Water, sanitation & biosecurity · Journal article / other
Authors: Faingol'd, Z L; Terent'eva, N A; Nikolaev, V B; Beletskii, A G; Sivacheva, O V; Vinogradova, T V

A technological process for oxybiosorption of sewage was developed. The process and a self-contained unit using it are described.

PMID 8534178 · [PubMed record](#)

842. Hydrogen peroxide inhibits lung neutral endopeptidase.

1995 · Experimental lung research · Veterinary & livestock · Animal study
Authors: Roisman, G L; Dusser, D J

It can be concluded that neutral endopeptidase is inactivated by hydrogen peroxide, an effect that is prevented by catalase. Our results suggest that neutral endopeptidase inactivation may occur in airway diseases associated with exposure to or production of oxidants.

PMID 7774526 · DOI 10.3109/01902149509068828 · [PubMed record](#)

843. Oxidation of aminopyrine by hypochlorite to a reactive dication: possible implications for aminopyrine-induced agranulocytosis.

1995 · Chemical research in toxicology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Uetrecht, J P; Ma, H M; MacKnight, E; McClelland, R

Using a stopped-flow diode array spectrophotometer to study the reaction between aminopyrine and hypochlorous acid, an intermediate with a lambda max at approximately 420 nm was observed in the formation of the cation radical. This intermediate is very reactive, with a half-life of approximately 15 ms, and in addition to being the precursor of the cation radical, it also appears to react with two molecules of water to form several other products that were...

PMID 7766805 · DOI 10.1021/tx00044a007 · [PubMed record](#)

844. Singlet molecular oxygen evolution upon simple acidification of aqueous hypochlorite: application to studies on the deleterious health effects of chlorinated drinking water.

1994 · Proceedings of the National Academy of Sciences of the United States of America · Water, sanitation & biosecurity · Human observational / experimental
Authors: Khan, A U; Kasha, M

A study of the pH profile of the decomposition of aqueous hypochlorite has revealed the evolution (onset at pH 8) of single (1 delta g) molecular oxygen (singlet spin state dioxygen) detected spectroscopically (1268 nm), prior to the appearance of chlorine (onset at pH 5.5). Recent epidemiological analyses of the correlation of human cancer with chlorinated water supplies focus attention on the singlet oxygen mechanisms of DNA lesion formation.

PMID 7809041 · DOI 10.1073/pnas.91.26.12362 · [PubMed record](#)

845. Multi-agent therapy in the treatment of sepsis-induced microvascular injury.

1994 · The British journal of surgery · Veterinary & livestock · Animal study
Authors: Carey, P D; Windsor, A C; Walsh, C J; Fowler, A A; Sugerman, H J

Addition of the antihistamines cimetidine and diphenhydramine produced a significant increase in oxygen radical production ($P < 0.05$), by 122 per cent (O_2^-) and 47 per cent ($HOCl$), equivalent to that in untreated septic animals. This coincided with a significant deterioration in pulmonary compliance ($P < 0.05$) compared with that found in control animals and those treated with ibuprofen alone, and a significant accumulation of extravascular lung water ($P < ...$

PMID 7827930 · DOI 10.1002/bjs.1800811214 · [PubMed record](#)

846. Chloride channel blockers inhibit the Na⁺/I⁻ symporter in thyroid follicles in culture.

1994 · Biochemical and biophysical research communications · Veterinary & livestock · Animal study
Authors: Gerard, C; Rigot, V; Penel, C

5 nitro-2(3-phenylpropylamino)benzoic acid and 3',5-Dichlorodiphenylamine-2-carboxylic acid are the most effective inhibitors, with a K_{0.5} value of 60 microM. Other chloride transporter blockers have been studied but showed lesser activities.

PMID 7980604 · DOI 10.1006/bbrc.1994.2599 · [PubMed record](#)

847. Determinants of neutrophil HOCl generation: ligand-dependent responses and the role of surface adhesion.

1994 · Journal of leukocyte biology · Veterinary & livestock · Human observational / experimental
Authors: Chatham, W W; Turkiewicz, A; Blackburn, W D Jr

Production of H₂O₂ was observed when fMLP, TNF- α , or HAIG was added to PMNs adherent to bovine serum albumin (BSA)-coated wells, but significant production of HOCl was observed only when HAIG was added to PMNs adherent to BSA-coated wells or when suspended PMNs treated with TNF- α were allowed to settle in BSA-coated wells. These studies indicate that surface adhesion and ligand-induced responses that facilitate release of myeloperoxidase and...

PMID 7964173 · DOI 10.1002/jlb.56.5.654 · [PubMed record](#)

848. Interactions of human blood plasma with hydrogen peroxide and hypochlorous acid.

1994 · The Journal of laboratory and clinical medicine · Food & agriculture · Human observational / experimental
Authors: van der Vliet, A; Hu, M L; O'Neill, C A; Cross, C E; Halliwell, B

Previous work has shown that HOCl depletes antioxidants, modifies proteins, and forms fatty acid chlorohydrins but does not cause significant lipid peroxidation in human plasma. Peroxidation was not inhibited by the metal chelators ethylenediaminetetraacetic acid and deferoxamine or by the singlet O₂/hydroxyl radical scavenger histidine.

PMID 7964128 · [PubMed record](#)

849. Hypochlorite solution as a decontaminant in sulfur mustard contaminated skin defects in the euthymic hairless guinea pig.

1994 · Drug and chemical toxicology · Veterinary & livestock · Animal study
Authors: Gold, M B; Bongiovanni, R; Scharf, B A; Gresham, V C; Woodward, C L

No significant differences were observed among wounds decontaminated with any of the solutions. However, the skin surrounding non-decontaminated (but exposed) control animals showed the least visual pathology.

PMID 7821235 · DOI 10.3109/01480549409014314 · [PubMed record](#)

850. Hypochlorous acid and chloramines increase endothelial permeability: possible involvement of cellular zinc.

1994 · The American journal of physiology · Veterinary & livestock · In vitro / laboratory
Authors: Tatsumi, T; Fliss, H

HOCl or NH₂Cl, but not taurine NCl, also rapidly increased microvascular permeability in isolated perfused rat lungs. The data suggest that HOCl and NH₂Cl can increase endothelial permeability by causing very rapid cytoskeletal shortening and cell retraction, possibly as a result of the oxidation of intracellular sulfhydryls and mobilization of zinc.

PMID 7943407 · DOI 10.1152/ajpheart.1994.267.4.H1597 · [PubMed record](#)

851. Effects of the reactive oxygen species hypochlorous acid and hydrogen peroxide on force production and calcium sensitivity of rat cardiac myofilaments.

1994 · Pflugers Archiv : European journal of physiology · Food & agriculture · Animal study
Authors: MacFarlane, N G; Miller, D J

The nature of the resting tension rise was examined by reducing pH before and during exposure to HOCl; the results are consistent with 'rigor-like' cross-bridges being involved. These results suggest that ROS associated with inflammation could contribute to post-ischaemic myocardial dysfunction.

PMID 7838678 · DOI 10.1007/BF00374578 · [PubMed record](#)

852. Cholesterol chlorohydrin synthesis by the myeloperoxidase-hydrogen peroxide-chloride system: potential markers for lipoproteins oxidatively damaged by phagocytes.

1994 · Biochemistry · Food & agriculture · Human observational / experimental
Authors: Heinecke, J W; Li, W; Mueller, D M; Bohrer, A; Turk, J

Recent studies have shown that myeloperoxidase is a component of human atherosclerotic lesions. These results indicate that myeloperoxidase can convert cholesterol to chlorohydrins and epoxides by a reaction involving HOCl.

PMID 8060981 · DOI 10.1021/bi00199a041 · [PubMed record](#)

853. Water chlorination, mutagenicity, and cancer epidemiology.

1994 · American journal of public health · Water, sanitation & biosecurity · Human observational / experimental
Authors: Cantor, K P

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 8059872 · DOI 10.2105/ajph.84.8.1211 · [PubMed record](#)

854. Superoxide-dependent hydroxylation by myeloperoxidase.

1994 · The Journal of biological chemistry · Food & agriculture · In vitro / laboratory
Authors: Kettle, A J; Winterbourn, C C

Production of 2,5-dihydroxybenzoate was enhanced by methionine, which scavenges hypochlorous acid. This newly recognized reaction may be relevant to the in vivo functions of superoxide and myeloperoxidase.

PMID 8006021 · [PubMed record](#)

855. Structural characteristics of histamine H2 receptor antagonists that scavenge hypochlorous acid.

1994 · European journal of pharmacology · Food & agriculture · Journal article / other
Authors: Ching, T L; de Jong, J; Bast, A

It has been shown that histamine H2 receptor antagonists such as cimetidine, ranitidine and famotidine are good hydroxyl radical scavengers. This finding should be taken into consideration in the development of new anti ulcer drugs, as HOCl is a detrimental factor in the pathophysiology of gastroduodenal ulcers.

PMID 7925615 · DOI 10.1016/0922-4106(94)90123-6 · [PubMed record](#)

856. HOCl production by human neutrophils activated by surface-associated IgG: requirement for influx of extracellular calcium.

1994 · Journal of leukocyte biology · Food & agriculture · In vitro / laboratory
Authors: Blackburn, W D Jr; Chatham, W W

Compared with unactivated cells or cells stimulated with soluble aggregates of IgG, a significant influx of extracellular $^{45}\text{Ca}^{2+}$ was observed in cells activated by surface-associated IgG. These observations indicate that the differences in the biological responses of human neutrophils to surface-associated IgG compared with soluble aggregates of IgG are associated with differing signaling events, including influx of extracellular calcium.

PMID 8195705 · DOI 10.1002/jlb.55.6.793 · [PubMed record](#)

857. A method for screening hypochlorous acid scavengers by inhibition of the oxidation of 5-thio-2-nitrobenzoic acid: application to anti-asthmatic drugs.

1994 · Analytical biochemistry · Water, sanitation & biosecurity · Journal article / other
Authors: Ching, T L; de Jong, J; Bast, A

HOCl can inactivate alpha 1-antiproteinase (alpha 1-AP) which causes increased proteolytic activity at sites of pulmonary inflammation. The inhibition of this oxidation by a test compound is a measurement of its HOCl scavenging activity.

PMID 8074296 · DOI 10.1006/abio.1994.1195 · [PubMed record](#)

858. Antioxidant properties of Ambroxol.

1994 · Free radical biology & medicine · Veterinary & livestock · Animal study
Authors: Nowak, D; Antczak, A; Król, M; Białasiewicz, P; Pietras, T

At concentrations of 25 and 70 microM, it inhibited HClO-induced chlorination of monochlorodimedon by 22 +/- 13 and 59 +/- 14%, respectively. Our results indicate that Ambroxol has antioxidant activity, which may have clinical significance in protecting lung tissue from oxidant-induced injury.

PMID 8005537 · DOI 10.1016/0891-5849(94)90130-9 · [PubMed record](#)

859. Inhibition of collagenase activity by N-chlorotaurine, a product of activated neutrophils.

1994 · Arthritis and rheumatism · Veterinary & livestock · Animal study
Authors: Davies, J M; Horwitz, D A; Davies, K J

This result is explained by a direct inhibition/inactivation of collagenase, since N-chlorotaurine had no effect on the proteolytic susceptibility of collagen itself. The effect appears to be specific to N-chlorotaurine since N-chloroalanine, N-chloroleucine, and HOCl/OCl⁻ failed to inhibit collagenase; in fact, N-chloroalanine and N-chloroleucine actually increased the proteolytic susceptibility of collagen.

PMID 8129798 · DOI 10.1002/art.1780370317 · [PubMed record](#)

860. The action of hypochlorous acid on polymeric components of cartilage.

1994 · Biological chemistry Hoppe-Seyler · Veterinary & livestock · Human observational / experimental
Authors: Schiller, J; Arnhold, J; Gründer, W; Arnold, K

This resonance is observed in hyaluronic acid solutions only after a prolonged incubation to yield shorter polymeric chains. An intermediate product, assumed as a chlorinated product of N-acetyl side chains, shows a chemical shift of about 2.35 ppm.

PMID 8011173 · DOI 10.1515/bchm3.1994.375.3.167 · [PubMed record](#)

861. Peroxidation of human blood lipoproteins induced by exogenous hypochlorite or hypochlorite generated in the system of "myeloperoxidase + H₂O₂ + Cl⁻".

1994 · Free radical biology & medicine · Food & agriculture · Human observational / experimental
Authors: Panasenko, O M; Evgina, S A; Aidyraliev, R K; Sergienko, V I; Vladimirov, Y A

OCl⁻ effectively initiates peroxidation of lipids extracted from LP and those within LP particles, as can be judged from accumulation of secondary (thiobarbituric acid [TBA] reactive) and final (Schiff bases) products of lipid peroxidation (LPO) in LP after incubation with myeloperoxidase or exogenous OCl⁻. The latter is known as a risk factor in the development of atherosclerosis.

PMID 8005509 · DOI 10.1016/0891-5849(94)90137-6 · [PubMed record](#)

862. Lipoic and dihydrolipoic acids as antioxidants. A critical evaluation.

1994 · Free radical research · Veterinary & livestock · Animal study
Authors: Scott, B C; Aruoma, O I; Evans, P J; O'Neill, C; Van der Vliet, A; Cross, C E; Tritschler, H; Halliwell, B

We conclude that LA and DHLA have powerful antioxidant properties. However, DHLA can also exert pro-oxidant properties, both by its iron ion-reducing ability and probably by its ability to generate reactive sulphur-containing radicals that can damage certain proteins, such as alpha 1-antiproteinase and creatine kinase.

PMID 7516789 · DOI 10.3109/10715769409147509 · [PubMed record](#)

863. Proteolytic inactivation of alpha-1-antitrypsin by human neutrophils: involvement of multiple and interlinked cell responses to phagocytosable targets.

1994 · European journal of clinical investigation · Food & agriculture · In vitro / laboratory
Authors: Ottonello, L; Dapino, P; Scirocco, M; Dallegri, F; Sacchetti, C

Supernatants from opsonized zymosan (OPZ)-triggered human PMN cleaved and inactivated human A1AT through a process inhibitable by metal-chelators, suggesting that the interaction of PMN with OPZ leads to the extracellular availability of active metalloenzymes. On concluding, PMN undergoing phagocytosis release MPO in amount sufficient to handle the extracellular pool of the generated H₂O₂ entirely, leading to the generation of equimolar amounts of HOCl.

PMID 8187807 · DOI 10.1111/j.1365-2362.1994.tb02058.x · [PubMed record](#)

864. Assays for the chlorination activity of myeloperoxidase.

1994 · Methods in enzymology · Veterinary & livestock · Human observational / experimental
Authors: Kettle, A J; Winterbourn, C C

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 8015486 · DOI 10.1016/s0076-6879(94)33056-5 · [PubMed record](#)

865. Inhibition of nucleoside transport by reactive oxygen species in bovine heart microvascular endothelial cells.

1994 · Advances in experimental medicine and biology · Veterinary & livestock · In vitro / laboratory
Authors: Barankiewicz, J; Uyesaka, J; Kossenjans, W; Rymaszewski, Z

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 7661020 · DOI 10.1007/978-1-4615-2584-4_162 · [PubMed record](#)

866. Potential roles of hypochlorous acid and N-chloroamines in collagen breakdown by phagocytic cells in synovitis.

1993 · Free radical biology & medicine · Veterinary & livestock · In vitro / laboratory
Authors: Davies, J M; Horwitz, D A; Davies, K J

Collagen fragmentation by HOCl, inhibition of gelation by HOCl, and N-chloroalanine-induced proteolytic susceptibility, all increased with linear kinetics at oxidant concentrations of 5 microM to 1.0 mM. Based on our new findings, we propose a model of inflammatory joint destruction that also includes collagen fragmentation, and increased susceptibility of collagen to degradation by collagenase.(ABSTRACT TRUNCATED AT 250 WORDS)

PMID 8138190 · DOI 10.1016/0891-5849(93)90167-s · [PubMed record](#)

867. Acadesine prevents oxidant-induced damage in the isolated guinea pig heart.

1993 · The Journal of pharmacology and experimental therapeutics · Veterinary & livestock · In vitro / laboratory
Authors: Bullough, D A; Potter, S; Fox, M H; Zhang, C; Metzner, E K; Mullane, K M

In addition, acadesine protected alpha 1-antiproteinase (alpha 1-AP) against inactivation by 30 microM HOCl with an EC50 of approximately 10 microM, demonstrating that acadesine reacts rapidly enough with HOCl to protect important biological targets. The free base of acadesine 5-amino-4-imidazole carboxamide (AICA) also reduced HOCl and attenuated the electrolysis-induced cardiac injury.

PMID 8394912 · [PubMed record](#)

868. Chemical disinfection of duck hepatitis B virus: a model for inactivation of infectivity of hepatitis B virus.

1993 · The Journal of antimicrobial chemotherapy · Veterinary & livestock · In vitro / laboratory
Authors: Tsiquaye, K N; Barnard, J

Two minute exposure of minimal effective concentrations of sodium hypochlorite (domestic bleach: 3600 ppm and industrial bleach: 3180 ppm) and sodium dichloroisocyanurate (3000 ppm available chlorine) to DHBV- and HBV-rich plasma totally inhibited DNA polymerase activity. These results show for the first time that total inhibition in vitro of hepadnavirus DNA polymerase activity by chemical disinfectants is predictive of inactivation of infectivity in...

PMID 8226434 · DOI 10.1093/jac/32.2.313 · [PubMed record](#)

869. Postischemic dysfunction of the heart induced by small numbers of neutrophils via formation of hypochlorous acid.

1993 · Basic research in cardiology · Veterinary & livestock · In vitro / laboratory
Authors: Raschke, P; Becker, B F; Leipert, B; Schwartz, L M; Zahler, S; Gerlach, E

However, the response was significantly reduced in PMN-perfused hearts in comparison to control hearts. The results indicate that small numbers of PMN, sufficiently activated, can depress cardiac function after 30 min of ischemia.(ABSTRACT TRUNCATED AT 400 WORDS)

PMID 8240225 · DOI 10.1007/BF00800639 · [PubMed record](#)

870. Oxidation of desferrioxamine to nitroxide free radical by activated human neutrophils.

1993 · Free radical biology & medicine · Food & agriculture · In vitro / laboratory
Authors: Soriani, M; Mazzuca, S; Quaresima, V; Minetti, M

The involvement of cell MPO was suggested by the inhibition of the DFO radical observed after treatment with catalase or with antihuman MPO antibodies. Histidine and methionine that inhibited the DFO radical intensity in cell-free reactions, were shown to act directly on HOCl.

PMID 7686874 · DOI 10.1016/0891-5849(93)90140-p · [PubMed record](#)

871. Neopterin modulates toxicity mediated by reactive oxygen and chloride species.

1993 · FEBS letters · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Weiss, G; Fuchs, D; Hausen, A; Reibnegger, G; Werner, E R; Werner-Felmayer, G; Semenitz, E; Dierich, M P; Wachter, H

This is demonstrated by increase of signal intensity in a luminol assay and also by enhancement of toxicity towards bacteria. Thus, the macrophage derived substance neopterin is able both to enhance and to reduce cytotoxicity in dependence of pH value and its oxidation state, and it may have a pivotal role in modulation of macrophage mediated effector mechanism.

PMID 8385632 · DOI 10.1016/0014-5793(93)80627-7 · [PubMed record](#)

872. A direct viable count method for the enumeration of attached bacteria and assessment of biofilm disinfection.

1993 · Journal of microbiological methods · Water, sanitation & biosecurity · Animal study
Authors: Yu, F P; Pyle, B H; McFeters, G A

The in situ DVC method always showed at least one log higher viable cell densities than the PC method, suggesting that the in situ DVC method is more efficient in the enumeration of biofilm bacteria. The results also indicated that the in situ DVC method can provide more accurate information regarding the cell numbers and viability of bacteria within biofilms following disinfection.

PMID 11537721 · DOI 10.1016/0167-7012(93)90044-i · [PubMed record](#)

873. Carbamazepine metabolism to a reactive intermediate by the myeloperoxidase system of activated neutrophils.

1993 · Biochemical pharmacology · Water, sanitation & biosecurity · Human observational / experimental
Authors: Furst, S M; Uetrecht, J P

Carbamazepine is an anticonvulsant which is associated with a significant incidence of hypersensitivity reactions including agranulocytosis. Such metabolites could be responsible for some of the adverse reactions associated with carbamazepine, especially reactions such as agranulocytosis and lupus which involve leukocytes.

PMID 8385460 · DOI 10.1016/0006-2952(93)90279-6 · [PubMed record](#)

874. Antioxidant protection against hypochlorous acid in human plasma.

1993 · The Journal of laboratory and clinical medicine · Veterinary & livestock · In vitro / laboratory
Authors: Hu, M L; Louie, S; Cross, C E; Motchnik, P; Halliwell, B

Ascorbic acid might also play a protective role, especially in individuals supplemented with this vitamin. Ascorbate might also be important in extracellular fluids with low albumin concentrations such as synovial, respiratory tract lining, and cerebrospinal fluids.

PMID 8381845 · [PubMed record](#)

875. [Javelle water and drinking water].

1993 · Bulletin de la Societe de pathologie exotique (1990) · Water, sanitation & biosecurity · Human observational / experimental
Authors: Jacquet, F

It is also sale for the environment in household use. In the Public Health domain, hypochlorite bleach with its 200-year history remains both a modern product and a product of the future.

PMID 7819808 · [PubMed record](#)

876. Evaluation of the antioxidant actions of ferulic acid and catechins.

1993 · Free radical research communications · Food & agriculture · Journal article / other
Authors: Scott, B C; Butler, J; Halliwell, B; Aruoma, O I

A mixture of hypoxanthine and xanthine oxidase generates O₂⁻. which reduces cytochrome c to ferrocytochrome c. (+) Catechin and (-) epicatechin inhibited the reduction of cytochrome c in a concentration dependent manner. Our results show that catechins and ferulic acid possess antioxidant properties.

PMID 7507456 · DOI 10.3109/10715769309056512 · [PubMed record](#)

877. [Characteristics of chloramine complexes of carnosine with hypochlorite anion].

1992 · Biokhimiia (Moscow, Russia) · Veterinary & livestock · Animal study
Authors: Formaziuk, V E; Gorshkova, T Iu; Boldyrev, A A; Sergienko, V I

Carnosine interaction with ClO results in the formation of a stable chloramine complex. The putative role of myeloperoxidase in the development of senile human lens opacities is discussed.

PMID 1334704 · [PubMed record](#)

878. Polymicrobial sepsis disrupts normal neutrophil extracellular matrix protein interactions.

1992 · Circulatory shock · Veterinary & livestock · Animal study
Authors: Simms, H H; D'Amico, R

Fibronectin and laminin increased MTT-Formazan, myeloperoxidase, and HOCl production over buffer by Group I PMN but not POD 8 Group II PMN. These results suggest that untreated intra-abdominal sepsis partially abrogates the effect of extracellular matrix proteins on PMN function; in particular, the activation but not priming of adherent PMN by extracellular matrix proteins is reduced in this clinical situation.

PMID 1327574 · [PubMed record](#)

879. Neutral endopeptidase of a human airway epithelial cell line recovers after hypochlorous acid exposure: dexamethasone accelerates this by stimulating neutral endopeptidase mRNA synthesis.

1992 · American journal of respiratory cell and molecular biology · Veterinary & livestock · In vitro / laboratory
Authors: Lang, Z; Murlas, C G

Furthermore, dexamethasone increased NEP activity at 24 and 48 h after HOCl. Northern blot analysis indicated that NEP-specific mRNA did not change during spontaneous recovery, but was increased by dexamethasone 24 h after HOCl.(ABSTRACT TRUNCATED AT 250 WORDS)

PMID 1325811 · DOI 10.1165/ajrcmb/7.3.300 · [PubMed record](#)

880. Chlorohydrin formation from unsaturated fatty acids reacted with hypochlorous acid.

1992 · Archives of biochemistry and biophysics · Food & agriculture · Journal article / other
Authors: Winterbourn, C C; van den Berg, J J; Roitman, E; Kuypers, F A

Bischlorohydrins were also formed, in increasing amounts at higher HOCl concentrations. Since cellular targets for HOCl appear to be membrane constituents, chlorohydrin formation from unsaturated lipids could be significant in neutrophil-mediated cytotoxicity.

PMID 1321589 · DOI 10.1016/0003-9861(92)90609-z · [PubMed record](#)

881. [Oxidative modification and inactivation of superoxide dismutase by hypochlorite].

1992 · Biokhimiia (Moscow, Russia) · Veterinary & livestock · Animal study
Authors: Sharonov, B P; Churilova, I V

According to SDS gel electrophoresis and isoelectric focusing data, oxidation is associated with the degradation of the polypeptide chain, formation of aggregates, and appearance of new isoforms. Modified SOD isoforms occur as a result of intramolecular crosslinking of amino groups and aldehydes which is confirmed by the appearance of fluorescence maxima in the longwave region characteristic of such links.

PMID 1322195 · [PubMed record](#)

882. Different effects of hypochlorous acid on human neutrophil metalloproteinases: activation of collagenase and inactivation of collagenase and gelatinase.

1992 · Archives of biochemistry and biophysics · Food & agriculture · In vitro / laboratory
Authors: Michaelis, J; Vissers, M C; Winterbourn, C C

These results indicate that the HOCl/enzyme ratio must fall within a narrow range for activation to occur. Since a precise HOCl/enzyme ratio is required for collagenase activation it is doubtful whether effective enzyme regulation by HOCl could occur in vivo where various HOCl scavengers are present.

PMID 1309976 · DOI 10.1016/0003-9861(92)90030-z · [PubMed record](#)

883. Defining the involvement of HOCl or Cl₂ as enzyme-generated intermediates in chloroperoxidase-catalyzed reactions.

1992 · The Journal of biological chemistry · Food & agriculture · Journal article / other
Authors: Libby, R D; Shedd, A L; Phipps, A K; Beachy, T M; Gerstberger, S M

Comparison of enzymatic ratios with those of the HOCl reactions indicate that the proportion of the enzymatic reaction involving a freely dissociable, enzyme-generated, oxidized halogen species varies from 10% at low chloride concentrations to essentially 100% at high chloride concentrations. This is the first direct evidence for kinetically significant involvement of a free oxidized halogen species as an intermediate in any CPO-catalyzed reaction.

PMID 1309797 · [PubMed record](#)

884. Hypochlorous acid mobilizes cellular zinc.

1991 · Canadian journal of physiology and pharmacology · Veterinary & livestock · Animal study
Authors: Fliss, H; Ménard, M; Desai, M

The cellular fluorescence was analyzed histologically and showed a marked increase in intensity after HOCl treatment, which was indicative of an increase in cellular free Zn²⁺ concentration. The ability of dithiothreitol to chelate the mobilized Zn²⁺ suggests that it may be able to reverse Zn(2+)-mediated injury.

PMID 1666536 · DOI 10.1139/y91-250 · [PubMed record](#)

885. N6-adenyl arylation of DNA by aristolochic acid II and a synthetic model for the putative proximate carcinogen.

1991 · Chemical research in toxicology · Veterinary & livestock · In vitro / laboratory
Authors: Pfau, W; Schmeiser, H H; Wiessler, M

As a model proximate carcinogen, N-chloroaristolactam II was prepared chemically from aristolactam II, the reduction product of AAlI. These results confirm the anticipated metabolic activation mechanism of AAlI as occurring via a cyclic nitrenium ion.

PMID 1665354 · DOI 10.1021/tx00023a015 · [PubMed record](#)

886. Potential of animal myeloperoxidase to protect plants from pathogens.

1991 · Biochemical and biophysical research communications · Food & agriculture · Human observational / experimental
Authors: Jacks, T J; Cotty, P J; Hinojosa, O

Singlet oxygen was present but hypochlorite accounted for two-thirds of the increase. The results indicate myeloperoxidase could improve microbial resistance in plants, perhaps transgenically.

PMID 1651715 · DOI 10.1016/0006-291x(91)91020-d · [PubMed record](#)

887. Effect of tumor necrosis factor on the generation of chlorinated oxidants by adherent human neutrophils.

1991 · Journal of leukocyte biology · Veterinary & livestock · Human observational / experimental
Authors: Test, S T

Comparison of HOCl generation with superoxide anion and myeloperoxidase release showed that the amount of HOCl generated was limited primarily by the amount of myeloperoxidase released rather than by the degree of respiratory burst activation. These results demonstrate that human neutrophils stimulated with FMLP after a brief incubation with rTNF alpha or rTNF beta can generate cytotoxic and microbicidal concentrations of chlorinated oxidants.

PMID 1649239 · DOI 10.1002/jlb.50.2.131 · [PubMed record](#)

888. Monochloramine induces contraction of guinea pig gallbladder via two different pathways.

1991 · The American journal of physiology · Veterinary & livestock · In vitro / laboratory
Authors: Moummi, C; Gullikson, G W; Gaginella, T S

The maximal response induced by NH₂Cl, HOCl, or H₂O₂ was significantly (P less than 0.05) inhibited by 5 microM indomethacin and 5 microM piroxicam. We conclude that reactive oxygen metabolites induce contraction of gallbladder smooth muscle by a direct action.

PMID 1647675 · DOI 10.1152/ajpgi.1991.260.6.G881 · [PubMed record](#)

889. An assessment of cleaning and sampling methods for food-contact surfaces in premises preparing and selling high-risk foods.

1991 · Epidemiology and infection · Food & agriculture · Journal article / other
Authors: Tebbutt, G M

The performance of agar-contact plates and an alginate-swab method for sampling food surfaces before and after cleaning was compared. Paper proved to be unpopular, and cleaning solutions applied with it did no better than those cleaned with a multiuse cloth kept soaking in a detergent and hypochlorite solution.

PMID 1850362 · DOI 10.1017/s0950268800048470 · [PubMed record](#)

890. Neutrophil-derived oxidants modify CCK-OP-stimulated guinea pig gallbladder contraction in vitro.

1991 · The American journal of physiology · Veterinary & livestock · In vitro / laboratory
Authors: Moummi, C; Gullikson, G W; Grisham, M B; Gaginella, T S

NH₂Cl also significantly reduced the contractile response to neurokinin A, bradykinin, leukotriene D₄, and phorbol 12,13-dibutyrate and the relaxant response to isoproterenol. The results indicate that NH₂Cl generated during inflammation may decrease the biological activities of different agonists and antagonists of smooth muscle function.

PMID 1850205 · DOI 10.1152/ajpgi.1991.260.4.G571 · [PubMed record](#)

891. Scavenging effect of 5-aminosalicylic acid on neutrophil-derived oxidants. Possible contribution to the mechanism of action in inflammatory bowel disease.

1991 · Biochemical pharmacology · Food & agriculture · In vitro / laboratory
Authors: Tamai, H; Kachur, J F; Grisham, M B; Gaginella, T S

5-ASA prevented L-cysteine oxidation by NH₂Cl and HOCl; an interaction associated with the formation of characteristic absorption spectra due to the oxidation of 5-ASA was observed. NH₂Cl and HOCl evoked characteristic increases in short-circuit current (I_{sc}), indicative of net electrolyte transport, when added to the serosal side of stripped rat colon mounted in Ussing chambers.

PMID 1848973 · DOI 10.1016/0006-2952(91)90207-I · [PubMed record](#)

892. Tumor cell lysis by activated human neutrophils: analysis of neutrophil-delivered oxidative attack and role of leukocyte function-associated antigen 1.

1991 · Inflammation · Food & agriculture · Human observational / experimental
Authors: Dallegri, F; Ottonello, L; Ballestrero, A; Dapino, P; Ferrando, F; Patrone, F; Sacchetti, C

The results suggest that the lysis is promoted by hypochlorous acid (HOCl) or a compound with characteristics very similar to HOCl itself. The inhibition of the PMN-target aggregation by the MoAb J-90 resulted in the impairment of the lysis, despite a normal generation of HOCl.

PMID 1647368 · DOI 10.1007/BF00917906 · [PubMed record](#)

893. The oxidant hypochlorite (OCI-), a product of the myeloperoxidase system, degrades articular cartilage proteoglycan aggregate.

1991 · Free radical biology & medicine · Veterinary & livestock · Animal study
Authors: Katrantzis, M; Baker, M S; Handley, C J; Lowther, D A

Exposure of proteoglycan aggregate to OCI⁻ concentrations less than 10⁻⁴ M resulted in a decrease in the size of the constituent proteoglycan monomers, which were unable to reaggregate with hyaluronate due to the loss of the hyaluronic acid binding region as indicated by immunoblotting using the monoclonal 1-C-6 antibody. These data suggest that concentrations of OCI⁻ below 10⁻³ M results in the cleavage of the proteoglycan core protein in or near the...

PMID 1849864 · DOI 10.1016/0891-5849(91)90003-I · [PubMed record](#)

894. Induction of arthritis in rats by aqueous suspensions of mycobacteria without the use of oil.

1991 · Arthritis and rheumatism · Veterinary & livestock · Animal study
Authors: Levine, S; Saltzman, A

The same procedure (injection after the induction of peritonitis) augmented the incidence of arthritis produced by bovine type II collagen and Freund's complete adjuvant. Enhanced delivery of antigen from the peritoneal cavity to regional lymph nodes in the postinflammatory state was responsible for this increase in the induction of arthritis.

PMID 1845840 · DOI 10.1002/art.1780340110 · [PubMed record](#)

895. HOCl exposure of a human airway epithelial cell line decreases its plasma membrane neutral endopeptidase.

1991 · Lung · Veterinary & livestock · In vitro / laboratory
Authors: Lang, Z H; Murlas, C G

It has recently been demonstrated that luminal exposure of airway segments in vitro to HOCl produces airway muscle hyperresponsiveness to substance P and a decrease in neutral endopeptidase (NEP) activity of tissue segment homogenates, suggesting that HOCl may decrease airway epithelial cell NEP activity. Subsequent experiments with reducing agents demonstrated that NEP activity of cell cultures pretreated with 100 mM of either beta-mercaptoethanol or...

PMID 1661804 · DOI 10.1007/BF02714168 · [PubMed record](#)

896. Depolymerization of synovial fluid hyaluronic acid (HA) by the complete myeloperoxidase (MPO) system may involve the formation of a HA-MPO ionic complex.

1990 · The Journal of rheumatology · Veterinary & livestock · Human observational / experimental
Authors: Green, S P; Baker, M S; Lowther, D A

Purified human neutrophil myeloperoxidase (MPO) bound tightly to HA-Sepharose and we suggest that this is due to a strong ionic interaction between HA and MPO. The significance of these results in relation to our previous studies concerning the reduction in viscosity and potential cleavage of HA by the product of the MPO/H₂O₂/Cl⁻ system is discussed.

PMID 1964699 · [PubMed record](#)

897. Tumor necrosis factor infusions in humans prime neutrophils for hypochlorous acid production.

1990 · The American journal of physiology · Food & agriculture · In vitro / laboratory
Authors: Wewers, M D; Rinehart, J J; She, Z W; Herzyk, D J; Hummel, M M; Kinney, P A; Davis, W B

Similar increases were also seen at 4 h with phorbol myristic acetate and opsonized zymosan as the stimuli. The TNF infusions did not produce detectable circulating IL-1 beta nor did they induce significant production of TNF or IL-1 beta by circulating blood monocytes.

PMID 2171355 · DOI 10.1152/ajplung.1990.259.4.L276 · [PubMed record](#)

898. The mechanism of myeloperoxidase-catalysed oxidation of aminopyrine.

1990 · Xenobiotica; the fate of foreign compounds in biological systems · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Sayo, H; Saito, M

When Cl⁻ was replaced by Br⁻, the rate of AP⁺ formation increased significantly, and inhibition by H₂O₂ became less evident and was observed only at pH 5.5. Compared with the chlorination of monochlorodimedone (MCD), the reaction between aminopyrine and HOCl, produced by the enzymic peroxidation of Cl⁻, is rate-limiting in the myeloperoxidase-catalysed oxidation of aminopyrine.

PMID 2173287 · DOI 10.3109/00498259009046911 · [PubMed record](#)

899. Ibuprofen attenuates hypochlorous acid production from neutrophils in porcine acute lung injury.

1990 · The Journal of surgical research · Veterinary & livestock · Animal study
Authors: Carey, P D; Byrne, K; Jenkins, J K; Sielaff, T D; Walsh, C J; Fowler, A A 3rd; Sugerman, H J

RESULTS: Septic (Ps) PMNs produce 32% more HOCl, P less than 0.01, at 300 min than at baseline which was associated with a marked increase in both extravascular lung water (6.44 +/- 0.8 ml/kg, t = 0 vs 16.03 +/- 2.6 ml/kg, t = 300, P less than 0.01) and bronchoalveolar protein content (115 +/- 13 micrograms/ml, t = 0 vs 633 +/- 104 micrograms/ml, t = 300, P less than 0.01). Ibuprofen significantly attenuated (P less than 0.05) HOCl production when...

PMID 2168503 · DOI 10.1016/0022-4804(90)90131-k · [PubMed record](#)

900. Oxidant-induced increases in mucosal permeability in developing piglets.

1990 · Pediatric research · Veterinary & livestock · Animal study
Authors: Clark, E S; Crissinger, K D; Granger, D N

Luminal perfusion with either H₂O₂ (0.05 mmol/L and 0.1 mmol/L) or hypochlorous acid (0.1 mmol/L and 0.5 mmol/L) significantly increased mucosal permeability in newborn piglets but did not affect mucosal permeability in 1-mo-old animals. Perfusion with 0.5 mmol/L H₂O₂ significantly increased mucosal permeability over control values in both age groups, but injury in the newborn intestine was significantly greater than that observed in 1-mo-old animals.

PMID 2165584 · DOI 10.1203/00006450-199007000-00007 · [PubMed record](#)

901. HOCl causes airway substance P hyperresponsiveness and neutral endopeptidase hypoactivity.

1990 · The American journal of physiology · Veterinary & livestock · In vitro / laboratory
Authors: Murlas, C G; Murphy, T P; Lang, Z

There was no increase in substance P responsiveness of HOCl-exposed airways in which the mucosa had been removed before testing in vitro. The substance P hyperresponsiveness of HOCl-exposed, mucosa-intact airways was associated with decreased NEP activity.(ABSTRACT TRUNCATED AT 250 WORDS)

PMID 1694406 · DOI 10.1152/ajplung.1990.258.6.L361 · [PubMed record](#)

902. Effects of neutrophils and in vitro oxidants on survival and phenotypic switching of *Candida albicans* WO-1.

1990 · Infection and immunity · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Kolotila, M P; Diamond, R D

Paralleling these findings, opaque blastoconidia were 2.8- to 3.6-fold more potent stimuli of neutrophil superoxide generation than were the white cells. In addition, both neutrophils and oxidants (reagent H₂O₂ or hypochlorous acid as well as the myeloperoxidase-H₂O₂-Cl⁻ system) induced unidirectional increases in spontaneous rates of switching from white to opaque phenotypes.

PMID 2157666 · DOI 10.1128/iai.58.5.1174-1179.1990 · [PubMed record](#)

903. Kinetic studies on the reaction of compound II of myeloperoxidase with ascorbic acid. Role of ascorbic acid in myeloperoxidase function.

1990 · The Journal of biological chemistry · Veterinary & livestock · Human observational / experimental
Authors: Marquez, L A; Dunford, H B; Van Wart, H

We also show that the reactions of all three compounds II involve a simple binding interaction before enzyme reduction with an apparent dissociation constant of $6.3 \pm 0.9 \times 10^{-4}$ to $2.0 \pm 0.3 \times 10^{-3}$ M and a first-order rate constant for reduction of 12.6 ± 0.6 to 18.8 ± 1.3 s⁻¹. We demonstrate that chloride cannot reduce compound II whereas iodide reduces compound II to native enzyme at a rate comparable to that of ascorbate.

PMID 2156823 · [PubMed record](#)

904. The chlorinating activity of human myeloperoxidase: high initial activity at neutral pH value and activation by electron donors.

1990 · Biochimica et biophysica acta · Water, sanitation & biosecurity · Human observational / experimental
Authors: Zuurbier, K W; Bakkenist, A R; Wever, R; Muijsers, A O

In the absence of reductants the same value was found during the first 100 ms after addition of H₂O₂ to the enzyme. The physiological consequences of these findings are discussed.

PMID 2155024 · DOI 10.1016/0167-4838(90)90159-d · [PubMed record](#)

905. Ultrastructure, morphology and crystal growth of biogenic and synthetic apatites.

1990 · Connective tissue research · Veterinary & livestock · Animal study
Authors: Heywood, B R; Sparks, N H; Shellis, R P; Weiner, S; Mann, S

Lattice fringes observed in platelike crystallites viewed from the side corresponded to the projection of the apatite structure viewed along the [1120] direction. The results of the present study offer critical information about the crystal growth of individual carbonated apatite crystals in calcified turkey tendon and its relationship to the morphology of the crystallites.

PMID 2175692 · DOI 10.3109/03008209009006985 · [PubMed record](#)

906. Hypochlorite-modified adenine nucleotides: structure, spin-trapping, and formation by activated guinea pig polymorphonuclear leukocytes.

1990 · Free radical research communications · Veterinary & livestock · Animal study
Authors: Bernofsky, C; Bandara, B M; Hinojosa, O; Strauss, S L

These findings suggest that adenine nucleotide chloramines are generated by activated phagocytic cells and form ligands with proteins and nucleic acids as observed in model systems. The results imply that nucleotide chloramines are among the cytotoxic and possibly mutagenic factors that are associated with the inflammatory process.

PMID 2167269 · DOI 10.3109/10715769009145689 · [PubMed record](#)

907. Flow injection fluorometry of protein using hypochlorite-thiamine reagent.

1990 · Analytical biochemistry · Veterinary & livestock · Journal article / other
Authors: Yokoyama, T; Nakamura, N; Kinoshita, T

The assay is sensitive, reproducible, and linear over a range from 20 ng to 2 micrograms of bovine serum albumin. The fluorescence intensity reflects the correct amount of protein because the thiochrome formed is proportional to the number of peptide bonds.

PMID 2157350 · DOI 10.1016/0003-2697(90)90031-4 · [PubMed record](#)

908. Oxidative stress and receptor responses in guinea-pig tracheal tissue.

1990 · Agents and actions. Supplements · Veterinary & livestock · Animal study
Authors: Doelman, C J; de Vlieger, J F; Sprong, R C; Bast, A

The beta-adrenergic receptor response is more susceptible to hypochlorous acid treatment than the muscarinic receptor response. This indicates that hypochlorous acid induces an autonomic imbalance between parasympathetic and sympathetic receptor responses in the guinea pig trachea.

PMID 1964361 · DOI 10.1007/978-3-0348-7379-6_19 · [PubMed record](#)

909. [The oxidation of superoxide dismutase by hypochlorite. The occurrence of isomers having catalytic activity].

1990 · Doklady Akademii nauk SSSR · Veterinary & livestock · In vitro / laboratory
Authors: Sharonov, B P; Churilova, I V

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 1963588 · [PubMed record](#)

910. Formation of chloramine derivatives of histamine: role of histamine chloramines in bronchoconstriction.

1989 · Biochemical and biophysical research communications · Veterinary & livestock · In vitro / laboratory
Authors: Wright, C D; Low, J E

Pretreatment of lung strips with chloramines reduced the subsequent contractile response of the tissues to methacholine. These results suggest that H-1 histamine receptors provide for targeting of histamine chloramines to pulmonary tissue which may facilitate modification of tissue responses.

PMID 2558645 · DOI 10.1016/0006-291x(89)92704-6 · [PubMed record](#)

911. Mechanisms of human neutrophil-mediated cartilage damage in vitro: the role of lysosomal enzymes, hydrogen peroxide and hypochlorous acid.

1989 · Immunology and cell biology · Veterinary & livestock · In vitro / laboratory
Authors: Kowanko, I C; Bates, E J; Ferrante, A

Hypochlorous acid (HOCl), a product of the myeloperoxidase (MPO)/H₂O₂/Cl system at 50 μmol/L degraded proteoglycan and inhibited its synthesis. The results indicate that neutrophil-mediated proteoglycan degradation and inhibition of synthesis is largely attributable to elastase and secondarily to HOCl, whereas H₂O₂ impairs synthesis without affecting degradation of proteoglycan.

PMID 2559027 · DOI 10.1038/icb.1989.47 · [PubMed record](#)

912. A comparison of hypochlorite and phenolic disinfectants for disinfection of clean and soiled surfaces and blood spillages.

1989 · The Journal of hospital infection · Food & agriculture · Human observational / experimental
Authors: Bloomfield, S F; Miller, E A

Although sodium dichloroisocyanurate (NaDCC) at 2500 ppm AvCl₂ was effective in the presence of up to 20% plasma, compared to 10% plasma for sodium hypochlorite 2500 ppm, sensitivity of NaDCC to inactivation was greater than for phenolics. Our results indicate that hypochlorites at 10,000 ppm, Clearsol 1% and Stericol 2% may be ineffective for treatment of blood spills unless applied at v:v ratios of 9 parts disinfectant to 1 part blood.

PMID 2567752 · DOI 10.1016/0195-6701(89)90003-0 · [PubMed record](#)

913. Role of hypochlorous acid in Trypanosoma musculi killing by phagocytes.

1989 · Parasitology · Food & agriculture · In vitro / laboratory
Authors: Vincendeau, P; Daulouède, S; Veyret, B

Taurine, a specific quencher of hypochlorous acid (HOCl) inhibited CL production by peritoneal macrophages, showing that HOCl is produced during phagocytosis of T. musculi. These data demonstrate that HOCl produced by phagocytes can effectively destroy T. musculi.

PMID 2548148 · DOI 10.1017/s0031182000062168 · [PubMed record](#)

914. Free radical scavenging by myocardial fatty acid binding protein.

1989 · Free radical research communications · Veterinary & livestock · In vitro / laboratory
Authors: Samanta, A; Das, D K; Jones, R; George, A; Prasad, M R

Our results suggest that FABP scavenges O₂⁻, OH[·] and OCl[·] as indicated by the FABP inhibition of O₂⁻-dependent reduction of cytochrome c, OH[·]-dependent hydroxybenzoic acid formation and OCl[·]-mediated chemiluminescence response. These results indicate that FABP can scavenge free radicals which may be present in an ischemic/reperfused heart and, thus, may play a significant physiological role in the heart during ischemia and reperfusion.

PMID 2553551 · DOI 10.3109/10715768909087926 · [PubMed record](#)

915. Effects of leukocyte-derived oxidants on sarcolemmal Na,K,ATP-ase and calcium transport.

1989 · Advances in experimental medicine and biology · Veterinary & livestock · Animal study
Authors: Matsuoka, T; Yanagishita, T; Kako, K J

Our study demonstrated that the Na,K,ATPase activity and ouabain binding sites were reduced by oxidants. Sarcolemmal calcium transport was also inhibited by hydrogen peroxide and HOCl.

PMID 2551139 · DOI 10.1007/978-1-4684-5643-1_69 · [PubMed record](#)

916. Leukocytic oxygen activation and microbicidal oxidative toxins.

1989 · Critical reviews in biochemistry and molecular biology · Water, sanitation & biosecurity · Review
Authors: Hurst, J K; Barrette, W C Jr

In section (B), emphasis is placed on recent research on cidal mechanisms of HOCl, including the oxidative biochemistry of active chlorine compounds, identification of sites of lesions in bacteria, and attendant metabolic consequences. In section (C), we review the (bio)chemistry of H₂O₂ and OH[·] microbicidal reactions, with particular attention being given to addressing the controversial issue of probe methods to identify OH[·] radical and critical...

PMID 2548810 · DOI 10.3109/10409238909082555 · [PubMed record](#)

917. The inhibitory effect of acetaminophen on the myeloperoxidase-induced antimicrobial system of the polymorphonuclear leukocyte.

1989 · Biochemical pharmacology · Water, sanitation & biosecurity · Human observational / experimental
Authors: van Zyl, J M; Basson, K; van der Walt, B J

Acetaminophen can compete effectively with Cl⁻ as myeloperoxidase substrate and thus HOCl formation is suppressed while HOCl, nevertheless present, can be scavenged by the drug. Peptide bond splitting was inhibited at acetaminophen concentrations below the accepted toxic range for plasma values.

PMID 2535934 · DOI 10.1016/0006-2952(89)90163-9 · [PubMed record](#)

918. The mechanism of myeloperoxidase-dependent chlorination of monochlorodimedon.

1988 · Biochimica et biophysica acta · Water, sanitation & biosecurity · Human observational / experimental
Authors: Kettle, A J; Winterbourn, C C

In the presence of reducing species that act like monochlorodimedon, the activity of myeloperoxidase would depend on the rate of turnover of compound II. We suggest, therefore, that in vivo the rate of turnover of compound II may determine the rate of myeloperoxidase-dependent production of hypochlorous acid by stimulated neutrophils.

PMID 2847800 · DOI 10.1016/0167-4838(88)90271-3 · [PubMed record](#)

919. Inactivation of biofilm bacteria.

1988 · Applied and environmental microbiology · Water, sanitation & biosecurity · Journal article / other
Authors: LeChevallier, M W; Cawthon, C D; Lee, R G

The results suggested that, relative to inactivation of unattached bacteria, monochloramine was better able to penetrate and kill biofilm bacteria than free chlorine. These studies showed that monochloramine was as effective as free chlorine for inactivation of biofilm bacteria.

PMID 2849380 · DOI 10.1128/aem.54.10.2492-2499.1988 · [PubMed record](#)

920. The inhibition of bacterial growth by hypochlorous acid. Possible role in the bactericidal activity of phagocytes.

1988 · The Biochemical journal · Water, sanitation & biosecurity · In vitro / laboratory
Authors: McKenna, S M; Davies, K J

We have found that H₂O₂ is only 6% as effective as HOCl in inhibiting E. coli growth and cell division (0.34 mM-H₂O₂ required for 50% inhibition of colony formation), and taurine or amino acids do not block this effect. Our results are consistent with a rapid and selective inhibition of bacterial cell division by HOCl in phagocytes.

PMID 2848494 · DOI 10.1042/bj2540685 · [PubMed record](#)

921. Reactions of hypochlorite with catalase.

1988 · Biochimica et biophysica acta · Veterinary & livestock · Animal study
Authors: Mashino, T; Fridovich, I

OCl⁻/HOCl imposed a rapid inactivation of catalase (hydrogen-peroxide: hydrogen-peroxide oxidoreductase, EC 1.11.1.6), some of which was slowly reversible upon subsequent exposure to H₂O₂. A scheme of reactions involving axial ligation of one or two OCl⁻ to heme iron, followed by heterolytic or homolytic cleavages of the O-Cl bond, is proposed to account for the behavior of the system.

PMID 2841981 · DOI 10.1016/0167-4838(88)90298-1 · [PubMed record](#)

922. Preparation of bacteriologically safe bicarbonate concentrate for hemodialysis.

1988 · ASAIO transactions · Veterinary & livestock · Human observational / experimental
Authors: Ruderman, M A; Yungbluth, M M; del Greco, F; Krumlovsky, F A; Beske, R G

To determine whether bacteriologic hazards associated with bicarbonate concentrate may be reduced or prevented, evaluation of a system consisting of a mixing tank supplied with R.O. water and two separate storage tanks was undertaken. Bacteriologically safe bicarbonate concentrate can be reliably produced using R.O. water, controlled storage times, and rigid disinfection schedules.

PMID 2848564 · [PubMed record](#)

923. Superoxide modulates the activity of myeloperoxidase and optimizes the production of hypochlorous acid.

1988 · The Biochemical journal · Water, sanitation & biosecurity · Human observational / experimental
Authors: Kettle, A J; Winterbourn, C C

Myeloperoxidase catalytically inhibited O₂⁻-dependent reduction of Nitro Blue Tetrazolium. By preventing the accumulation of inactive compound II, O₂⁻ enhances the activity of myeloperoxidase.

PMID 2843172 · DOI 10.1042/bj2520529 · [PubMed record](#)

924. Action of hypochlorous acid on the antioxidant protective enzymes superoxide dismutase, catalase and glutathione peroxidase.

1987 · The Biochemical journal · Veterinary & livestock · Journal article / other
Authors: Aruoma, O I; Halliwell, B

Inactivation of bovine CuZn superoxide dismutase is slower. Hence superoxide dismutase should not be easily inactivated by HOCl at sites of inflammation, which may contribute to its effectiveness as an anti-inflammatory agent and in minimizing reperfusion injury.

PMID 2829848 · DOI 10.1042/bj2480973 · [PubMed record](#)

925. Augmentation of neutrophil-mediated erythrocyte lysis by cells derived in vitro from human monocytes.

1987 · Blood · Food & agriculture · In vitro / laboratory
Authors: Dallegri, F; Ballestrero, A; Frumento, G; Patrone, F

The lysis by PMNs and PMNs plus MDCs was inhibited by catalase, azide, taurine, and alanine, consistent with the requirement for hypochlorous acid (HOCl). Although the actual size of the H₂O₂ extracellular pool could not be measured because of the inexistence of a reliable assay to probe our cytolytic model without perturbing the equilibrium of the system, the results presented suggest that MDCs enhance the PMN-mediated lysis by improving the HOCl...

PMID 2823935 · [PubMed record](#)

926. Oxidative killing of *Aspergillus fumigatus* proceeds by parallel myeloperoxidase-dependent and -independent pathways.

1987 · Infection and immunity · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Washburn, R G; Gallin, J I; Bennett, J E

Results from experiments in which catalase, taurine, mannitol, or glucose-glucose oxidase were added to these phagocytes indicated that the MPO-hydrogen peroxide-halide system and an MPO-independent oxidative system exerted comparable conidiacidal activity. Patients with MPO deficiency are not known to be predisposed to invasive aspergillosis, suggesting that an MPO-independent oxidative system may provide an alternative mechanism for the oxidative...

PMID 3040589 · DOI 10.1128/iai.55.9.2088-2092.1987 · [PubMed record](#)

927. Mutagenic activity of chloramines.

1987 · Mutation research · Water, sanitation & biosecurity · Journal article / other
Authors: Thomas, E L; Jefferson, M M; Bennett, J J; Learn, D B

Because chloramines and HOCl are bactericidal, react rapidly with cell components, and can destroy the histidine and biotin required for the mutagenesis assay, activity can't be compared directly with that of less toxic or reactive agents. Production of chloramines and HOCl by leukocytes in vivo could contribute to the association of chronic inflammation and cancer as a result of: (1) the entry of membrane-permeable chloramines into normal cells followed...

PMID 3033493 · DOI 10.1016/0165-1218(87)90112-1 · [PubMed record](#)

928. On the mechanism of chlorination by chloroperoxidase.

1987 · Archives of biochemistry and biophysics · Water, sanitation & biosecurity · Journal article / other
Authors: Dunford, H B; Lambeir, A M; Kashem, M A; Pickard, M

The combined results show that the only detectable enzyme intermediate species is compound I (except in very late stages of the reaction), that the disappearance of compound I is accelerated by the presence of chloride ion, and that it is further accelerated if both chloride and monochlorodimedone are present. A careful analysis of steady-state kinetic results shows that in the chlorination of monochlorodimedone at least, liberation of free hypochlorous...

PMID 3028259 · DOI 10.1016/0003-9861(87)90034-8 · [PubMed record](#)

929. A surface test for virucidal activity of disinfectants: preliminary study with herpes virus.

1987 · The Journal of hospital infection · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Tyler, R; Ayliffe, G A

The results showed that 2% alkaline glutaraldehyde and 70% ethanol or isopropanol were effective in 1 min. Cl2 were effective in 5 min, but povidone-iodine (10%) was slower in action and a clear soluble phenol showed uncertain activity at 5 and 10 min.

PMID 2880894 · DOI 10.1016/0195-6701(87)90090-9 · [PubMed record](#)

930. Hypochlorous acid-activated carbon: an oxidizing agent capable of producing hydroxylated polychlorinated biphenyls.

1986 · Environmental health perspectives · Water, sanitation & biosecurity · Journal article / other
Authors: Voudrias, E A; Larson, R A; Snoeyink, V L; Chen, A S; Stapleton, P L

For example, 2,4-dichlorophenol, a common constituent of wastewaters and also natural waters treated with hypochlorite, was converted to 3,5,5'-trichloro-2,4'-dihydroxybiphenyl and several related compounds in significant amounts. It is possible that these products pose more of a health hazard than either the starting phenols or the unhydroxylated polychlorinated biphenyl derivatives.

PMID 3028770 · DOI 10.1289/ehp.866997 · [PubMed record](#)

931. Epidermal hyperplasia in mouse skin following treatment with alternative drinking water disinfectants.

1986 · Environmental health perspectives · Water, sanitation & biosecurity · Animal study
Authors: Robinson, M; Bull, R J; Schamer, M; Long, R E

The response to HOCl was found to be dose-related; the minimally effective dose was 100 mg/L. The time-course study following a single treatment of 1000 mg/L HOCl, however, showed a progression of IFE thickening of from 18.3 +/- 1.4 at 1 day to 30.8 +/- 8.0 at 8 days, decreasing to 19.1 +/- 6.2 micron at 12 days.(ABSTRACT TRUNCATED AT 250 WORDS)

PMID 3028769 · DOI 10.1289/ehp.8669293 · [PubMed record](#)

932. Role of hypochlorous acid and chloramines in the extracellular cytolysis by neutrophil polymorphonuclear leukocytes.

1986 · Journal of clinical & laboratory immunology · Veterinary & livestock · Human observational / experimental
Authors: Dallegri, F; Ballestrero, A; Frumento, G; Patrone, F

The lysis of human red blood cells (HRBC) by neutrophil polymorphonuclear leukocytes (PMN), triggered with opsonized zymosan (OPZ) particles, was inhibited by azide, catalase, Cl⁻-free medium and amino acids indicating the involvement of myeloperoxidase (MPO), hydrogen peroxide (H₂O₂), Cl⁻ ions and hypochlorous acid (HOCl) respectively. This finding indicates that the cytotoxin must be relatively more efficient against HRBC as compared with PMN.

PMID 3016275 · [PubMed record](#)

933. The kinetics of dissolution of tooth enamel--a constant composition study.

1986 · Journal of dental research · Veterinary & livestock · Human observational / experimental
Authors: Chen, W C; Nancollas, G H

The kinetic equations describing the dissolution reactions suggest a surface dislocation mechanism, and the presence of fluoride ion markedly retarded the reaction. For human enamel, a fluoride level of only 0.5 ppm reduced the rate of dissolution ten-fold.

PMID 3009579 · DOI 10.1177/00220345860650050601 · [PubMed record](#)

934. Inhibition of neutrophil cytolysin production by target cells.

1986 · Blood · Veterinary & livestock · Human observational / experimental
Authors: Dallegri, F; Patrone, F; Ballestrero, A; Frumento, G; Sacchetti, C

Conversely, the inhibition of HRBC catalase activity with aminotriazole (AT) made the cells susceptible to neutrophil-mediated HOCl-dependent lysis: this suggests that HRBC escape lysis by neutrophils through an AT-inhibitable, ie catalase-dependent, process. Parallel experiments, performed with AT-treated CRBC, showed that these cells, endowed with a relatively low catalase content, only partially limit neutrophil cytolytic efficiency by a process...

PMID 3008887 · [PubMed record](#)

935. Copper ions and hydrogen peroxide form hypochlorite from NaCl thereby mimicking myeloperoxidase.

1986 · Journal of cellular biochemistry · Food & agriculture · Journal article / other
Authors: Frenkel, K; Blum, F; Troll, W

HOCl/OCl⁻ generated by Cu²⁺ from H₂O₂ and Cl⁻, a low concentration of exogenously added HOCl/OCl⁻, or increased concentrations of H₂O₂ has similar inhibitory effects on the fertilization process in sea urchins. Therefore, we suggest that polyspermy is prevented by the action of a myeloperoxidase that affects the formation of HOCl/OCl⁻ from the Cl⁻ present in sea water through reaction with H₂O₂ generated by the newly fertilized egg.

PMID 3009503 · DOI 10.1002/jcb.240300302 · [PubMed record](#)

936. Effect of temperature on production of hypochlorous acid by stimulated human neutrophils.

1986 · The Journal of laboratory and clinical medicine · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Severns, C; Collins-Lech, C; Sohnle, P G

This result was not explainable by factors related to the hypochlorous acid assay system or by loss of cell viability or myeloperoxidase activity in the cell supernatants, but rather appeared to be caused by reduced generation of hydrogen peroxide at the higher temperatures. Because the extracellular release of a strong oxidant such as hypochlorous acid might result in significant tissue injury, suppression of the release of this oxidant by elevated...

PMID 3001209 · [PubMed record](#)

937. Use of nitrite and hypochlorite treatments in determination of the contributions of IQ-type and non-IQ-type heterocyclic amines to the mutagenicities in crude pyrolyzed materials.

1985 · Mutation research · Veterinary & livestock · Journal article / other
Authors: Tsuda, M; Negishi, C; Makino, R; Sato, S; Yamaizumi, Z; Hirayama, T; Sugimura, T

The mutagenic heterocyclic amines Glu-P-2, MeA alpha C and Phe-P-1, which possess a 2-aminopyridine structure in their molecule (non-IQ-type mutagens), were found to be inactivated by nitrite treatment under acidic conditions, as observed previously with Trp-P-1, Trp-P-2, Glu-P-1 and A alpha C. The percentage contributions of IQ-type mutagens to the mutagenicities of broiled sardine, fried beef, broiled horse mackerel, cigarette smoke condensate and...

PMID 2997601 · DOI 10.1016/0165-1161(85)90002-0 · [PubMed record](#)

938. A comparative study of neutrophil purification and function.

1985 · Journal of immunological methods · Food & agriculture · Human observational / experimental
Authors: Grisham, M B; Engerson, T D; McCord, J M; Jones, H P

In this study we have compared 4 commonly used methods of isolation with neutrophil function. The results of this study indicate that while neutrophil yield and purity were determined by isolation procedure, all cells were equivalent with regard to chemotactic performance, ability to degranulate, and ability to produce superoxide and hypochlorous acid.

PMID 2995497 · DOI 10.1016/0022-1759(85)90363-1 · [PubMed record](#)

939. Resistance of leishmanial phosphatases to inactivation by oxygen metabolites.

1985 · Journal of clinical microbiology · Food & agriculture · Animal study
Authors: Saha, A K; Das, S; Glew, R H; Gottlieb, M

It was shown previously that preincubation of human neutrophils and macrophages with the tartrate-resistant phosphatase markedly reduced the ability of these host cells to produce superoxide anions in response to stimulation with the activator formyl-methionyl-leucyl-phenylalanine. These results indicate that the catalytic potential of these two leishmanial acid phosphatases probably survives exposure to toxic oxygen metabolites generated by neutrophils...

PMID 2995435 · DOI 10.1128/jcm.22.3.329-332.1985 · [PubMed record](#)

940. Mechanisms of resistance of *Aspergillus fumigatus* Conidia to killing by neutrophils in vitro.

1985 · The Journal of infectious diseases · Water, sanitation & biosecurity · In vitro / laboratory
Authors: Levitz, S M; Diamond, R D

Despite comparable susceptibility to phagocytosis, resting conidia of *A. fumigatus* stimulated production of significantly less superoxide anion, hydrogen peroxide, and hypochlorous acid and induced less myeloperoxidase-dependent iodination by neutrophils than did the preincubated conidia of *A. fumigatus*, blastospores of *C. albicans*, or zymosan particles. However, the reversal of this resistance by preincubation of the conidia suggests that neutrophils...

PMID 2989387 · DOI 10.1093/infdis/152.1.33 · [PubMed record](#)

941. Comparative reactivities of various biological compounds with myeloperoxidase-hydrogen peroxide-chloride, and similarity of the oxidant to hypochlorite.

1985 · Biochimica et biophysica acta · Water, sanitation & biosecurity · Human observational / experimental
Authors: Winterbourn, C C

Relative reaction rates varied over a range of 10(5), but the reactivities of the two oxidants with each compound were very similar, from which it is concluded that the reactions of hypochlorite accurately reflect those of the myeloperoxidase system. The significance of these reactions of myeloperoxidase in microbial killing and inflammation is discussed.

PMID 2986713 · DOI 10.1016/0304-4165(85)90120-5 · [PubMed record](#)

942. Feasibility and efficacy of in-home water chlorination in rural North-eastern Brazil.

1985 · The Journal of hygiene · Water, sanitation & biosecurity · Human observational / experimental
Authors: Kirchhoff, L V; McClelland, K E; Do Carmo Pinho, M; Araujo, J G; De Sousa, M A; Guerrant, R L

We conclude that a low-cost programme of this type, which utilizes community resources, is logistically feasible, appears to be culturally acceptable in this setting, and can result in a marked reduction in water contamination. The lack of effect on diarrhoea rates suggests that improvement in water quality may affect morbidity only when other variables relating to faecal-oral agent transmission are ameliorated at the same time.

PMID 2985691 · DOI 10.1017/s0022172400061374 · [PubMed record](#)

943. Factors influencing excystation in *Cryptosporidium* oocysts from cattle.

1985 · The Journal of parasitology · Veterinary & livestock · Animal study
Authors: Reduker, D W; Speer, C A

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 2984400 · [PubMed record](#)

944. Co-oxidation of luminol by hypochlorite and hydrogen peroxide implications for neutrophil chemiluminescence.

1985 · Biochemical and biophysical research communications · Food & agriculture · Human observational / experimental
Authors: Brestel, E P

Previous studies have revealed all of these compounds to be capable of oxidizing luminol, a reagent often used to indicate, by its chemiluminescence, the oxidative burst of neutrophils. These findings have implications for potential anti-inflammatory compounds.

PMID 2982377 · DOI 10.1016/0006-291x(85)90631-x · [PubMed record](#)

945. Hypochlorite-serum reaction products inhibit porcine vascular endothelial cell growth in culture.

1985 · Artery · Veterinary & livestock · In vitro / laboratory
Authors: Papa, L R; McCauley, P T

There was no sign of cell killing, but an apparent inhibition of cell division. However, when the serum component was preincubated with 15.0 mg chlorine/liter as sodium hypochlorite, an inhibition in growth rate similar to the complete media occurred.

PMID 2998305 · [PubMed record](#)

946. Oxidative mechanisms utilized by human neutrophils to destroy Escherichia coli.

1984 · Blood · Water, sanitation & biosecurity · Human observational / experimental
Authors: Passo, S A; Weiss, S J

The neutrophil-mediated bactericidal effect was stimulated by superoxide dismutase, but was inhibited by catalase, azide, or compounds known to scavenge hypochlorous acid. Thus, we have demonstrated that neutrophils have the potential to utilize the myeloperoxidase system to generate bactericidal quantities of a species with characteristics similar to, if not identical with, hypochlorous acid.

PMID 6326895 · [PubMed record](#)

947. Myeloperoxidase-dependent fluorescein chlorination by stimulated neutrophils.

1984 · The Journal of biological chemistry · Water, sanitation & biosecurity · Human observational / experimental
Authors: Hurst, J K; Albrich, J M; Green, T R; Rosen, H; Klebanoff, S

This reaction was associated with a fall in fluorescence intensity, which was not observed when cells from individuals with chronic granulomatous disease or myeloperoxidase deficiency were used or when azide or catalase were added to the reaction medium. Results are discussed in relation to the use of fluoresceinated particles and sulfonphthalein dyes in the measurement of intraphagosomal acidification.

PMID 6325409 · [PubMed record](#)

948. Evaluation of disinfectants in the domestic environment under 'in use' conditions.

1984 · The Journal of hygiene · Food & agriculture · Journal article / other
Authors: Scott, E; Bloomfield, S F; Barlow, C G

Results indicate that maximum protection afforded by disinfection is relatively brief; 3-6 h after disinfection, contamination levels were only marginally less than those observed at pretreatment. Some suggestions are made for improvements in home hygiene.

PMID 6323576 · DOI 10.1017/s0022172400064214 · [PubMed record](#)

949. A comparative kinetics study of monochloramine and hypochlorous acid in rat.

1983 · Journal of applied toxicology : JAT · Water, sanitation & biosecurity · Animal study
Authors: Abdel-Rahman, M S; Waldron, D M; Bull, R J

The distribution of $\text{NH}_2(36)\text{Cl}$ and HO_36Cl was highest in plasma, while the lowest activity was observed in the fat. Urinary excretion accounted for most of the 36Cl eliminated in both treatments.

PMID 6315803 · DOI 10.1002/jat.2550030403 · [PubMed record](#)

950. Disinfection studies with two strains of mouse-passaged scrapie agent. Guidelines for Creutzfeldt-Jakob and related agents.

1983 · Journal of the neurological sciences · Veterinary & livestock · Human observational / experimental
Authors: Kimberlin, R H; Walker, C A; Millson, G C; Taylor, D M; Robertson, P A; Tomlinson, A H; Dickinson, A G

However, data indicate that SDS might be used to reduce the heat stability of scrapie agent. Autoclaving at 126 degrees C for 1-2 h reduced titres by $10(3)$ - $10(7)$ units, depending on the strain of agent.

PMID 6308174 · DOI 10.1016/0022-510x(83)90021-7 · [PubMed record](#)

951. Role of pre-milking teat skin disinfection in preventing *Staphylococcus aureus* mastitis.

1983 · The Journal of dairy research · Veterinary & livestock · Animal study
Authors: Sheldrake, R F; Hoare, R J

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 6302143 · DOI 10.1017/s002202990003257x · [PubMed record](#)

952. Chlorination of taurine by human neutrophils. Evidence for hypochlorous acid generation.

1982 · The Journal of clinical investigation · Water, sanitation & biosecurity · Human observational / experimental
Authors: Weiss, S J; Klein, R; Slivka, A; Wei, M

Based on the demonstrated ability of the myeloperoxidase system to generate free hypochlorous acid we conclude that neutrophils chlorinate taurine by producing this powerful oxidant. The biologic reactivity and cytotoxic potential of hypochlorous acid and its chloramine derivatives suggest that these oxidants play an important role in the inflammatory response and host defense.

PMID 6286728 · DOI 10.1172/jci110652 · [PubMed record](#)

953. The killing of newborn larvae of *Trichinella spiralis* by eosinophil peroxidase in vitro.

1981 · European journal of immunology · Veterinary & livestock · In vitro / laboratory
Authors: Buys, J; Wever, R; van Stigt, R; Ruitenberg, E J

Killing was measured by microscopic observation of the larvae. Killing was totally inhibited by sodium azide and catalase, and substantially by bovine serum albumin, a protein that is an effective scavenger for HOCl.

PMID 6273182 · DOI 10.1002/eji.1830111018 · [PubMed record](#)

954. Biological reactivity of hypochlorous acid: implications for microbicidal mechanisms of leukocyte myeloperoxidase.

1981 · Proceedings of the National Academy of Sciences of the United States of America · Water, sanitation & biosecurity · Journal article / other
Authors: Albrich, J M; McCarthy, C A; Hurst, J K

Enzymes containing essential cysteine molecules are inactivated with an effectiveness that roughly parallels the nucleophilic reactivities of their sulfhydryl groups. The occurrence of these cellular reactions implicates hypochlorous acid as a primary microbicide in myeloperoxidase-containing leukocytes; the reactivity patterns observed are consistent with the view that bactericidal action results primarily from loss of energy-linked respiration due to...

PMID 6264434 · DOI 10.1073/pnas.78.1.210 · [PubMed record](#)

955. Mechanism of the bactericidal action of myeloperoxidase: increased permeability of the *Escherichia coli* cell envelope.

1981 · Infection and immunity · Water, sanitation & biosecurity · Human observational / experimental
Authors: Sips, H J; Hamers, M N

The permeability increase was shown to be limited, because low-molecular-weight substrate became freely permeant, but the bacteria retained their permeability barrier for protein. This is concluded from the fact that the myeloperoxidase system could be mimicked by hypochlorous acid, whereas conditions that favor formation of singlet oxygen did not enhance this effect.

PMID 6260658 · DOI 10.1128/iai.31.1.11-16.1981 · [PubMed record](#)

956. A potential role for hypochlorous acid in granulocyte-mediated tumor cell cytotoxicity.

1980 · Blood · Veterinary & livestock · In vitro / laboratory
Authors: Slivka, A; LoBuglio, A F; Weiss, S J

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 6243502 · [PubMed record](#)

957. Myeloperoxidase, hydrogen peroxide, chloride antimicrobial system: nitrogen-chlorine derivatives of bacterial components in bactericidal action against *Escherichia coli*.

1979 · Infection and immunity · Water, sanitation & biosecurity · Journal article / other
Authors: Thomas, E L

The apparent molecular weight distribution of the peptides decreased with increasing amounts of HOCl, suggesting that peptides were fragmented by oxidative cleavage of chloramide derivatives of peptide bonds. The increase in sulfhydryl oxidation and killing could be prevented by washing the bacteria to remove the N-Cl derivatives.

PMID 217834 · DOI 10.1128/iai.23.2.522-531.1979 · [PubMed record](#)

958. Chemically shifted singlet oxygen spectrum.

1978 · Biochimica et biophysica acta · Veterinary & livestock · Journal article / other
Authors: Andersen, B R; Lint, T F; Brendzel, A M

Tryptophan and bovine serum albumin caused a decrease in the red emission of $1O_2$ and an increase in the amount of shorter wavelength light. Arachidonic acid caused a similar spectral shift, while guanosine demonstrated a late chemiluminescent reaction of predominantly short wavelength light in the presence of $1O_2$.

PMID 210842 · DOI 10.1016/0304-4165(78)90382-3 · [PubMed record](#)

959. The action of disinfectants on lamb rotavirus.

1977 · The Veterinary record · Veterinary & livestock · Animal study
Authors: Snodgrass, D R; Herring, J A

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 197685 · DOI 10.1136/vr.101.4.81-a · [PubMed record](#)

960. [Prevention of bovine mastitis (review of foreign literature)].

1977 · Veterinariia · Veterinary & livestock · Review
Authors: Balkov, I I

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 201078 · [PubMed record](#)

961. [Detoxification of staphylococcal-enterotoxin B in water (author's transl)].

1977 · Zentralblatt für Bakteriologie, Parasitenkunde, Infektionskrankheiten und Hygiene. Erste Abteilung Originale. Reihe B: Hygiene, präventive Medizin · Water, sanitation & biosecurity · Animal study
Authors: Meyer, G; Hinterberger, J; Korte, R

It was pointed out an obvious conformity between precipitation test and monkey-feeding test. The clinical efficiency of SEB on rhesus monkeys has been investigated and discussed subsequently.

PMID 196459 · [PubMed record](#)

962. Methods in coccidiosis research: separation of oocysts from faeces.

1976 · Parasitology · Veterinary & livestock · Animal study
Authors: Ryley, J F; Meade, R; Hazelhurst, J; Robinson, T E

Following washing, oocysts are sporulated by forced aeration at 30 degrees C and may be further purified by hypochlorite treatment, or passage in 5% Tween 80 solution through a glass bead column followed by sucrose density gradient centrifugation. Routine passages along these lines over a 5 year period have given a recovery of 46% of the oocysts excreted by over 7000 birds.

PMID 13340 · DOI 10.1017/s0031182000046990 · [PubMed record](#)

963. Comparison of hypochlorite teat dips containing different levels of sodium carbonate.

1975 · Veterinary medicine, small animal clinician : VM, SAC · Veterinary & livestock · Animal study
Authors: Natzke, R P; Postle, D S; Bray, D R

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 171820 · [PubMed record](#)

964. The effects of various treatments on the microbial flora of whole poultry carcasses with particular reference to Staphylococcus aureus contamination.

1975 · British poultry science · Veterinary & livestock · Animal study
Authors: Patterson, J T

Hot (70 degrees C) water dipping for 2 min appeared to be the treatment most likely to succeed in reducing Staph. aureus, giving reductions of staphylococci of from 63 to greater than 99%, without completely eliminating other organisms. A storage experiment showed this method to be relatively safe, provided the carcasses were refrigerated to less than 3 degrees C as soon as possible after treatment and held at this temperature until adequately cooked.

PMID 166733 · DOI 10.1080/00071667508416191 · [PubMed record](#)

965. Water disinfection in the wilderness--a simple, effective method of iodination.

1975 · The Western journal of medicine · Water, sanitation & biosecurity · Journal article / other
Authors: Kahn, F H; Visscher, B R

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 165639 · [PubMed record](#)

966. [Cyclic AMP in barley seed and seedlings and bacterial and fungal contamination].

1975 · Biochimie · Food & agriculture · Journal article / other
Authors: Bonnafeous, J C; Olivé, J L; Borgna, J L; Mousseron-Canet, M

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 171002 · DOI 10.1016/s0300-9084(75)80148-9 · [PubMed record](#)

967. Flour bleachers and improvers.

1961 · British medical journal · Food & agriculture · Human observational / experimental
Authors:

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 14447832 · [PubMed record](#)

968. The action of hypochlorite and other disinfectants on micrococci with and without milk.

1953 · American journal of veterinary research · Food & agriculture · Animal study
Authors: LASMANIS, J; SPENCER, G R

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 13092383 · [PubMed record](#)

969. Chemical and biologic reactions involved in the chlorination of water.

1950 · Medical technicians bulletin · Water, sanitation & biosecurity · Human observational / experimental
Authors: ECKBERG, O E

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 15438351 · [PubMed record](#)

970. Evaluating the bactericidal efficiencies of free iodine and available chlorine by the semi-micro method.

1949 · American journal of pharmacy and the sciences supporting public health · Water, sanitation & biosecurity · Journal article / other
Authors: GERSHENFELD, L; PALISI, J A

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 15394293 · [PubMed record](#)

971. Sporocidal properties of chlorine dioxide.

1949 · Water & sewage works · Water, sanitation & biosecurity · Journal article / other
Authors: RIDENOUR, G M; INGOLS, R S; ARMBRUSTER, E H

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 18134396 · [PubMed record](#)

972. Chlorination at Chicago's South District Filtration Plant.

1949 · Water & sewage works · Water, sanitation & biosecurity · Journal article / other
Authors: GERSTEIN, H H; BAYLIS, J R

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 18151807 · [PubMed record](#)

973. [The chlorination index].

1949 · La semaine des hopitaux : organe fonde par l'Association d'enseignement medical des hopitaux de Paris · Water, sanitation & biosecurity · Journal article / other
Authors: BARON, A

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 18114216 · [PubMed record](#)

974. [Oxidation-reduction potentials and bactericidal effects of chlorine in chlorine compounds].

1949 · Higiene y salubridad · Water, sanitation & biosecurity · Journal article / other
Authors: TRACHTMAN, N N

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 18129304 · [PubMed record](#)

975. Application of a new residual chlorine method to effluent chlorination.

1949 · Sewage works journal · Water, sanitation & biosecurity · Journal article / other
Authors: STRANDSKOV, F B; MARKS, H C; HORCHLER, D H

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 18123771 · [PubMed record](#)

976. [A year of daily bacteriological analyzes of Leman's water and drinking water supplied to the population of Geneva].

1949 · Schweizerische Zeitschrift fur Pathologie und Bakteriologie. Revue suisse de pathologie et de bacteriologie · Water, sanitation & biosecurity · Human observational / experimental
Authors: NOVEL, E

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 15391015 · [PubMed record](#)

977. The inhibition of sulfhydryl enzymes as the basis of the bactericidal action of chlorine.

1948 · Journal of bacteriology · Water, sanitation & biosecurity · Journal article / other
Authors: KNOX, W E; STUMPF, P K

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 18909070 · DOI 10.1128/JB.55.4.451-458.1948 · [PubMed record](#)

978. [The efficiency of chlorination in large scale provisioning under the responsibility of the American Army].

1948 · Boletim. Sao Paulo, Brazil (State) Reparticao de Aguas e Esgotos · Water, sanitation & biosecurity · Journal article / other
Authors: FERREIRA, A B G

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 18123317 · [PubMed record](#)

979. Hypochlorite sterilization of metal surfaces infected with bacteria suspended in milk.

1946 · Nature · Food & agriculture · Animal study
Authors: WOLF, J; COUSINS, C M

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 20276870 · DOI 10.1038/158755a0 · [PubMed record](#)

980. Bactericidal power of electrolytic hypochlorite.

1946 · Nature · Water, sanitation & biosecurity · Journal article / other
Authors: MILTON, R F; HOSKINS, J L

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 20274357 · DOI 10.1038/158673a0 · [PubMed record](#)

981. Cultivation of *Endamoeba histolytica* in artificial media from cysts in drinking water subjected to chlorination.

1946 · The American journal of tropical medicine and hygiene · Water, sanitation & biosecurity · Human observational / experimental
Authors: BECKER, E R; BURKS, C; KALEITA, E

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 20279492 · DOI 10.4269/ajtmh.1946.s1-26.783 · [PubMed record](#)

982. Acid catalysis in the formation of chloroamides from hypochlorous acid; N-chlorination by hypochlorite ions and by acyl hypochlorites.

1946 · Journal of the Chemical Society · Water, sanitation & biosecurity · Journal article / other
Authors: MAUGER, R P; SOPER, F G

No abstract was available in the source workbook; consult the linked record for bibliographic details.

PMID 21022265 · DOI 10.1039/jr9460000071 · [PubMed record](#)