

Maternal Infant-Child Health and Environment Research Symposium:
“How Local Research can Influence Policy and Practice”

Thursday, February 26th, 2009, 08:00-17:00 hrs
Maple Leaf Room, Lister Hall, University of Alberta

Speaker Bio-sketch:



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Jonathan is an *Alberta Ingenuity New Faculty* and Assistant Professor at the University of Alberta. He is cross-appointed between the Department of Public Health Sciences, School of Public Health, and the Division of Analytical and Environmental Toxicology, Department of Lab Medicine and Pathology. He teaches Principles of Toxicology and has developed a research program on the sources, fate, and effects of emerging persistent organic pollutants. Current projects involve perfluorinated substances, brominated flame retardants, and oil sands process water remediation.

Dr. Martin became interested in environmental analytical chemistry and toxicology as an undergraduate student at the University of Guelph (BSc. Environmental Toxicology, 1994-1998) and immediately pursued a doctorate in this field while working jointly between Environment Canada and the University of Guelph (PhD Toxicology, 1998-2002). Using new analytical methods, Dr. Martin and his colleagues discovered many new perfluorinated acid contaminants in Arctic and Great Lakes foodwebs and were the first group to identify pathways for human exposure and long-range atmospheric transport by the ‘precursor hypothesis’.

His postdoctoral studies at the University of Toronto (Dept Chemistry, 2003, and Dept Pharmaceutical Sciences, 2004) involved atmospheric chemistry and metabolism studies to elucidate new pathways of exposure, and toxicity studies in isolated rat hepatocytes to examine possible health implications.

Today, Dr. Martin is an Assistant Professor in the Division of Analytical and Environmental Toxicology (LabMedicine and Pathology) and is developing a multidisciplinary environmental chemistry and environmental health research program to tackle a wide variety of emerging contaminant issues. He currently supervises or co-supervises 3 post-doctoral fellows, 4 PhD students, and 2 MSc students with a range expertise in biology, chemistry, and chemical engineering.

Publications (past 5 years):

50. Aquatic plant derived changes in oil sands naphthenic acid signatures determined by low, high and ultra-high resolution mass spectrometry. *Rapid Communications in Mass Spectrometry*. 2009. 23: 515-522.

49. Martin JW, Chan K, Mabury SA, O’Brien PJ. Bioactivation of Fluorotelomer Alcohols in Isolated Rat Hepatocytes. *Chemico-Biological Interactions*. 2009. 177: 196-203.

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48. Warner N, Martin JW, Wong C. Chiral polychlorinated biphenyls are biotransformed enantioselectively by mammalian cytochrome P-450 isozymes to form hydroxylated metabolites. *Environmental Science and Technology*. 2009. 43: 114–121
47. De Silva AO, Benskin JP, Martin JW, Martin LJ, Arsenault G, McCrindle R, Ridell N, Mabury SA. Disposition of Perfluorinated Acid Isomers in Sprague Dawley Rats; Part II: Sub-Chronic Exposure. *Environmental Toxicology and Chemistry*. 2009. 28: 555–567.
46. Benskin JP, De Silva AO, Martin LJ, Arsenault G, McCrindle R, Ridell N, Mabury SA, Martin JW. Disposition of Perfluorinated Acid Isomers in Sprague Dawley Rats; Part I: Single Dose. *Environmental Toxicology and Chemistry*. 2009. 28: 542–554.
45. McDonald GR, Hudson AL, Dunn SM, Haitao Y, Baker GB, Whittall RM, Martin JW, Jha A, Edmondson DE, Holt A. 2008. Bioactive contaminants leach from disposable laboratory plasticware. *Science*. 2008. 322: 917
44. Schenker U, Scheringer M, MacLeod M, Martin JW, Cousins IT, Hungerbühler K. Contribution of volatile precursor substances to the flux of perfluorooctanoate to the Arctic. *Environmental Science and Technology*. 2008. 42(10), 37:10-16.
43. Martin JW, Han X, Peru KM, Headley JV. Comparison of high- and low- resolution electrospray ionization mass spectrometry for the analysis of naphthenic acid mixtures in oil sands process water. *Rapid Communications in Mass Spectrometry*. 2008. 22: 1919-24.
42. Zhang S, Bursian S, Martin PA, Chan HM, Martin JW. 2008. Dietary accumulation, disposition, and metabolism of technical pentabrominated diphenyl ether (DE-71) in pregnant mink (*Mustela vison*) and their offspring. *Environmental Toxicology and Chemistry*. 2008; 27(5):1184-93.
41. Han X, Scott AC, Fedorak PM, Bataineh M, Martin JW. Influence of molecular structure on the biodegradability of naphthenic acids. *Environmental Science and Technology*. 2008;42(4):1290-5.
40. Wallington TJ, Mabury SA, Hurley MD, Sulbaek Andersen MP, Nielsen OJ, Ellis DA, Martin JW. Comment on "Atmospheric chemistry of linear perfluorinated aldehydes: Dissociation kinetics of $C_nF_{2n+1}CO$ radicals". *Journal of Physical Chemistry A*. 2008;112(3):576-7.
39. Benskin JP, Bataineh M, Martin JW. Simultaneous characterization of perfluoroalkyl carboxylate, sulfonate, and sulfonamide isomers by liquid chromatography-tandem mass spectrometry. *Analytical Chemistry*. 2007;79(17):6455-64.
38. Bull K, Basu N, Zhang S, Martin JW, Bursian S, Martin P, Chan LHM. Dietary and in utero exposure to a pentabrominated diphenyl ether mixture did not affect cholinergic parameters in the cerebral cortex of ranch mink (*mustela vison*). *Toxicological Sciences*. 2007;96(1):115-22.
37. Stock NL, Martin JW, Ye Y, Mabury SA. An undergraduate experiment for the measurement of perfluorinated surfactants in fish liver by liquid chromatography-tandem mass spectrometry. *Journal of Chemical Education*. 2007;84(2):310-1.
36. Bataineh M, Scott AC, Fedorak PM, Martin JW. Capillary HPLC/QTOF-MS for characterizing complex naphthenic acid mixtures and their microbial transformation. *Analytical Chemistry*. 2006;78(24):8354-61.

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35. Hurley MD, Ball JC, Wallington TJ, Sulbaek Andersen MP, Nielsen OJ, Ellis DA, Martin JW, Mabury SA. Atmospheric chemistry of n-C_xF_{2x+1}CHO (x = 1, 2, 3, 4): Fate of n-C_x22x+1C(O) radicals. *Journal of Physical Chemistry A*. 2006;110(45):12443-7.

34. Sulbaek Andersen MP, Toft A, Nielsen OJ, Hurley MD, Wallington TJ, Chishima H, Tonokura K, Mabury SA, Martin JW, Ellis DA. Atmospheric chemistry of perfluorinated aldehyde hydrates (n-C_xF_{2r+1}CH(OH)₂, x = 1, 3, 4): Hydration, dehydration, and kinetics and mechanism of Cl atom and OH radical initiated oxidation. *Journal of Physical Chemistry A*. 2006;110(32):9854-60.

33. Houde M, Martin JW, Letcher RJ, Solomon KR, Muir DCG. Biological monitoring of polyfluoroalkyl substances: A review. *Environmental Science and Technology*. 2006;40(11):3463-73.

32. Martin JW, Ellis DA, Mabury SA, Hurley MD, Wallington TJ. Atmospheric chemistry of perfluoroalkanesulfonamides: Kinetic and product studies of the OH radical and Cl atom initiated oxidation of N-ethyl perfluorobutanesulfonamide. *Environmental Science and Technology*. 2006;40(3):864-72.

31. Wallington TJ, Hurley MD, Xia J, Wuebbles DJ, Sillman S, Ito A, Penner JE, Ellis DA, Martin J, Mabury SA, Nielsen OJ, Sulbaek Andersen MP. Formation of C₇F₁₅COOH (PFOA) and other perfluorocarboxylic acids during the atmospheric oxidation of 8:2 fluorotelomer alcohol. *Environmental Science and Technology*. 2006;40(3):924-30.

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28. Martin JW, Mabury SA, O'Brien PJ. Metabolic products and pathways of fluorotelomer alcohols in isolated rat hepatocytes. *Chemico-Biological Interactions*. 2005;155(3):165-80. (3rd most cited paper in CBI, 2005-2008).

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26. Oakes KD, Sibley PK, Martin JW, MacLean DD, Solomon KR, Mabury SA, Van Der Kraak GJ. Short-term exposures of fish to perfluorooctane sulfonate: Acute effects on fatty acyl-CoA oxidase activity, oxidative stress, and circulating sex steroids. *Environmental Toxicology and Chemistry*. 2005;24(5):1172-81.

25. Smithwick M, Muir DCG, Mabury SA, Solomon KR, Martin JW, Sonne C, Born EW, Letcher RJ, Dietz R. Perfluoroalkyl contaminants in liver tissue from east Greenland polar bears (*Ursus maritimus*). *Environmental Toxicology and Chemistry*. 2005;24(4):981-6.

24. Sulbaek Andersen MP, Nielsen OJ, Hurley MD, Ball JC, Wallington TJ, Ellis DA, Martin JW, Mabury SA. Atmospheric chemistry of 4:2 fluorotelomer alcohol (n-C₄F₉CH₂CH₂OH): Products and mechanism of Cl atom initiated oxidation in the presence of NO_x. *Journal of Physical Chemistry A*. 2005;109(9):1849-56.

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23. Martin JW, Whittle DM, Muir DCG, Mabury SA. Perfluoroalkyl contaminants in a food web from lake ontario. *Environmental Science and Technology*. 2004;38(20):5379-85.
22. Andersen MPS, Stenby C, Nielsen OJ, Hurley MD, Ball JC, Wallington TJ, Martin JW, Ellis DA, Mabury SA. Atmospheric chemistry of n-C_xF_{2x+1}CHO (x = 1, 3, 4): Mechanism of the C_xF_{2x+1}C(O)O₂ + HO₂ reaction. *Journal of Physical Chemistry A*. 2004;108(30):6325-30.
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19. Andersen MPS, Nielsen OJ, Hurley MD, Ball JC, Wallington TJ, Stevens JE, Martin JW, Ellis DA, Mabury SA. Atmospheric chemistry of n-C_xF_{2x+1}CHO (x = 1, 3, 4): Reaction with Cl atoms, OH radicals and IR spectra of C_xF_{2x+1}C(O)O₂NO₂. *Journal of Physical Chemistry A*. 2004;108(24):5189-96.
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15. Hurley MD, Andersen MPS, Wallington TJ, Ellis DA, Martin JW, Mabury SA. Atmospheric chemistry of perfluorinated carboxylic acids: Reaction with OH radicals and atmospheric lifetimes. *Journal of Physical Chemistry A*. 2004;108(4):615-20.
14. Martin JW, Smithwick MM, Braune BM, Hoekstra PF, Muir DCG, Mabury SA. Identification of long-chain perfluorinated acids in biota from the canadian arctic. *Environmental Science and Technology*. 2004;38(2):373-80.