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FIELDS OF EXPERTISE:

Pharmacokinetic (PK) and Physiologically Based Pharmacokinetic (PBPK) and Pharmacodynamic (PD) Modeling; Setting Acceptable Exposure Limits; Exposure Assessment and Exposure Reconstruction; Risk Assessment; Risk Communication; Biomonitoring; Biomonitoring Equivalents; Chemical and Biomedical Engineering.

EDUCATION

PhD., Toxicology, University of Utrecht, 2009
M.S., Chemical Engineering, Colorado State University, 1997.
M.S., Physiology and Biophysics, University of Vermont, 1992.
B.S., Biomedical Engineering, Texas A&M University, 1989.

CURRENT AND PREVIOUS POSITIONS

President, Summit Toxicology, L.L.P., Allenspark, CO (2004 - present)
Principal Scientist, Intertox, Inc., Seattle, WA (2004).
Senior Scientist, Exponent, Inc., Boulder, CO (1999 - 2003).
Scientist, ChemRisk, division of McLaren/Hart, Cleveland, OH (1995 - 1999).

ACADEMIC ACTIVITIES

Chair, Industry Advisory Board, School of Biomedical Engineering, Colorado State University (2008 – present)
Guest lecturer, University of Denver, risk assessment approaches (2007 – present)

EDITORIAL REVIEWER/BOARDS

- Associate Editor
 - *Journal of Exposure Science and Environmental Epidemiology*
- Ad Hoc Reviewer
 - *Toxicological Sciences*
 - *Journal of Toxicology and Environmental Health*
 - *Regulatory Toxicology and Pharmacology*
 - *Science of the Total Environment*

PROFESSIONAL MEMBERSHIPS:

- International Society of Exposure Analysis
- Society of Toxicology
- American Conference of Governmental Industrial Hygienists
- International Society of Regulatory Toxicology and Pharmacology

PROFESSIONAL SOCIETY LEADERSHIP POSITIONS:

- Society of Toxicology, Biological Modeling Specialty Section (Vice President, 2006; President, 2007)

PROFESSIONAL MEETING AND SYMPOSIUM ORGANIZING ACTIVITIES:

- Organizing Committee. 2006. United States Environmental Protection Agency (US EPA). International Workshop on Uncertainty and Variability in Physiologically Based Pharmacokinetic [PBPK] Models. October 31 – November 2, 2006. Research Triangle Park, NC.
- Organizing Committee. 2007. Society of Toxicology, Biological Modeling Specialty Section. Roundtable on Biological/Pharmacokinetic Modeling Applications in Interpreting Biomonitoring Data. Charlotte, NC (March 2007)

EPA SCIENTIFIC ADVISORY BOARD (SAB) REVIEW PANELS

- All Ages Lead Model Review Panel (November, 2005 – 2006)
- Clean Air Scientific Advisory Committee (CASAC) review of the EPA National Ambient Air Quality Standard (NAAQS) for Lead (February 2006 – 2008)
- Acrylamide IRIS Assessment Review Panel (2008)

REGULATORY AND SCIENTIFIC PEER-REVIEW TESTIMONY

- Committee on Natural Resources science hearing testimony on Bill LD 1790 “An Act To Reduce Contamination of Breast Milk and the Environment from the Release of Brominated Chemicals in Consumer Products” February 12, 2004: State of Maine Legislature, Augusta, Maine. Presented findings from decabromodiphenyl ether VCCEP risk assessment.
- California Assembly Environmental Safety and Toxic Materials Committee hearing testimony on Assembly Bill 302 (Ban of polybrominated diphenyl ethers). April 22, 2003: Sacramento, CA. Presented findings from decabromodiphenyl ether VCCEP risk assessment.
- Voluntary Children’s Chemical Evaluation Program (VCCEP) Peer Consultation Meeting, April 2-3, 2003: Cincinnati, OH. Defense of VCCEP Exposure and Risk Assessments for Decabromodiphenyl Ether (a brominated flame retardant).
- National Academy of Sciences (NAS) Committee “Implications of Dioxin in the Food Supply” February 2002: Washington, DC. Testified on “Dioxin body burden trends and the resulting implications for understanding current and future dietary exposures”.
- Voluntary Children’s Chemical Evaluation Program (VCCEP) Peer Consultation Meeting, June, 2006: Cincinnati, OH. Defense of VCCEP Benzene Risk Assessment.
- Voluntary Children’s Chemical Evaluation Program (VCCEP) Peer Consultation Meeting, October, 2006: Cincinnati, OH. Defense of VCCEP Risk Assessment for Toluene.

SCIENTIFIC RESEARCH GRANT REVIEW PANELS

- USEPA STAR grant proposal review committee: Reproductive and developmental toxicology studies (2003).
- USEPA STAR grant proposal review committee: Interpretation of biomonitoring studies using biological modeling (2007).

PHARMACOKINETIC MODELING SUPPORT FOR GOVERNMENT AGENCIES

- Pharmacokinetic/physiologically based pharmacokinetic (PBPK) modeling support for ethanol risk assessment. United States Environmental Protection Agency. 2006 – 2007.
- Physiologically based pharmacokinetic (PBPK) modeling of blood lead in astronauts exposed to extended periods of micro-gravity. United States National Aeronautics and Space Administration. 2004 – 2006.

PEER-REVIEWED PUBLICATIONS:

Boogaard, P.J., S.M. Hays, L.L. Aylward. 2011. Human biomonitoring as a pragmatic tool to support health risk management of chemicals – Examples under the EU REACH programme. *Reg. Toxicol. Pharmacol.* 59(1):125-32.

Hays, S.M., L.L. Aylward, M. Gagné, A. Nong, K. Krishnan. 2010. Biomonitoring Equivalents for inorganic arsenic. *Reg. Toxicol. Pharmacol.* 58(1):1-9.

Krishnan, K., M. Gagné, A. Nong, L.L. Aylward, S.M. Hays. 2010. Biomonitoring Equivalents for triclosan. *Reg. Toxicol. Pharmacol.* 58(1):10-17.

Krishnan, K., M. Gagné, A. Nong, L.L. Aylward, S.M. Hays. 2010. Biomonitoring Equivalents for bisphenol A (BPA). *Reg. Toxicol. Pharmacol.* 58(1):18-24.

Aylward, L.L., S.M. Hays, M. Gagné, A. Nong, K. Krishnan. 2010. Biomonitoring Equivalents for hexachlorobenzene. *Reg. Toxicol. Pharmacol.* 58(1):25-32.

Aylward, L.L., C.R. Kirman, B.C. Blount, S.M. Hays. 2010. Chemical-specific screening criteria for interpretation of biomonitoring data for volatile organic compounds (VOCs) - Application of steady-state PBPK model solutions. *Reg. Toxicol. Pharmacol.* 58(1):33-44.

Hays, S.M., L.L. Aylward, M. Gagné, K. Krishnan. 2009. Derivation of Biomonitoring Equivalents for cyfluthrin. *Regul. Toxicol. Pharmacol.* 55(3):268-75

Aylward, L.L., S.M. Hays, M. Gagné, K. Krishnan. 2009. Derivation of Biomonitoring Equivalents for di(2-ethylhexyl)phthalate (CAS No. 117-81-7). *Regul. Toxicol. Pharmacol.* 55(3):249-58

Aylward, L.L., S.M. Hays, M. Gagné, K. Krishnan. 2009. Derivation of Biomonitoring Equivalents for di-n-butyl phthalate (DBP), benzylbutyl phthalate (BzBP), and diethyl phthalate (DEP). *Regul. Toxicol. Pharmacol.* 55(.3):259-267

Aylward, L.L., M.K. Morgan, T.E. Arbuckle, D.B. Barr, C.J. Burns, B.H. Alexander, S.M. Hays. In press. Biomonitoring data for 2,4-dichlorophenoxyacetic acid in the US and Canada: Interpretation in a public health risk assessment context using Biomonitoring Equivalents. *Environ. Health Perspect.*

LaKind, J.S., D.Q. Naiman, S.M. Hays, L.L. Aylward, B.C. Blount. In press. Public health interpretation of trihalomethane blood levels in the United States: NHANES 1999-2004. *J. Exp. Sci. Environ. Epidem.*

Aylward, L.L., K.M. Bodner, J.J. Collins, M. Wilken, D. McBride, C.J. Burns, S.M. Hays, N. Humphry. In press. TCDD exposure estimation for workers at a New Zealand 2,4,5-T manufacturing facility based on serum sampling data. *J. Exp. Sci. Environ. Epidem.*

Garabrant, D.H., L.L. Aylward, S. Berent, Q. Chen, C. Timchalk, C.J. Burns, S.M. Hays, and J.W. Albers. 2009. Cholinesterase inhibition in chlorpyrifos workers: Characterization of biomarkers of exposure and response in relation to urinary TCPy. *J. Exp. Sci. Environ. Epidemiol.* 19(7):634-642.

Hays, S.M. and L.L. Aylward. 2009. Using biomonitoring equivalents to interpret human biomonitoring data in a public health risk context. *J. Appl. Toxicol.* 29(4):275-288.

LaKind, J.S., S.M. Hays, L.L. Aylward, and D.Q. Naiman. 2009. Perspective on serum dioxin levels in the United States: An evaluation of the NHANES data. *J. Exp. Sci. Environ. Epidemiol.* 19:435-441.

Aylward, L.L., J.S. LaKind, and S.M. Hays. 2008. Derivation of Biomonitoring Equivalent (BE) values for 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) and related compounds: A screening tool for interpretation of biomonitoring data in a risk assessment context. *J. Toxicol. Environ. Health Pt. A.* 71(22):1499-1508.

Hays, S.M., L.L. Aylward, and J.S. LaKind. 2008. Introduction to the Biomonitoring Equivalents Pilot Project: Development of guidelines for the derivation and communication of Biomonitoring Equivalents. *Reg. Toxicol. Pharmacol.* 51:S1-S2.

Hays, S.M., L.L. Aylward, J.S. LaKind, M.J. Bartels, H.A. Barton, P.J. Boogaard, J. Lipscomb, K. Krishnan, M. Nordberg, M. Okino, Y.-M. Tan, C. Viau, J.W. Yager, C. Brunk, S. DiZio, M. Dourson, D.A. Goldstein, M.E. Kilpatrick, and D. Krewski. 2008. Guidelines for the derivation of Biomonitoring Equivalents: Report from the Biomonitoring Equivalents Expert Workshop. *Reg. Toxicol. Pharmacol.* 51:S4-S15.

LaKind, J.S., L.L. Aylward, C. Brunk, S. DiZio, M. Dourson, D.A. Goldstein, M.E. Kilpatrick, D. Krewski, M.J. Bartels, H.A. Barton, P.J. Boogaard, J. Lipscomb, K. Krishnan, M. Nordberg, M. Okino, Y.-M. Tan, C. Viau, J.W. Yager, and S.M. Hays. 2008. Guidelines for the communication of Biomonitoring Equivalents: Report from the Biomonitoring Equivalents Expert Workshop. *Reg. Toxicol. Pharmacol.* 51:S16-S26.

Hays, S.M., and L.L. Aylward. 2008. Biomonitoring equivalents (BE) dossier for

acrylamide (AA) (CAS No. 79-06-1). *Reg. Toxicol. Pharmacol.* 51:S57-S67.

Hays, S.M., M. Nordberg, J.W. Yager, and L.L. Aylward. 2008. Biomonitoring equivalents (BE) dossier for cadmium (Cd) (CAS No. 7440-43-9). *Reg. Toxicol. Pharmacol.* 51:S49-S56.

Aylward, L.L., J.S. LaKind, and S.M. Hays. 2008. Biomonitoring equivalents (BE) dossier for trihalomethanes. *Reg. Toxicol. Pharmacol.* 51:S68-S77.

Aylward, L.L., and S.M. Hays. 2008. Biomonitoring equivalents (BE) dossier for 2,4-dichlorophenoxyacetic acid (2,4-D) (CAS No. 94-75-7). *Reg. Toxicol. Pharmacol.* 51:S37-S48.

Aylward, L.L., H.A. Barton, and S.M. Hays. 2008. Biomonitoring equivalents (BE) dossier for toluene (CAS No. 108-88-3). *Reg. Toxicol. Pharmacol.* 51:S27-S36.

Goodman, M. and S.M. Hays (2008). Asthma and swimming: A meta-analysis. *Journal of Asthma.* 45(8):639-47.

Barton, H.A., W.A. Chiu, R.W. Setzer, M.E. Andersen, A.J. Bailer, F.Y. Bois, R.S. DeWoskin, S. Hays, G. Johanson, N. Jones, G. Loizou, R.C. MacPhail, C.J. Portier, M. Spendiff, and Y.-M. Tan. 2007. Characterizing uncertainty and variability in physiologically based pharmacokinetic models: State of the science and needs for research and implementation. *Toxicol. Sci.* 99: 395-402.

Hays, S.M., Becker, R., Leung, H.W., Aylward, L.L., and Pyatt, D.W. (2007). Biomonitoring equivalents: A screening approach for interpreting biomonitoring results from a public health risk perspective. *Regulatory Toxicology and Pharmacology.* 47:96-109.

Pyatt, D.W., L.L. Aylward, and S.M. Hays. 2007. Is age an independent risk factor for chemically induced acute myelogenous leukemia in children? *J. Toxicol. Environ. Health B Crit. Rev.* 10(5):379-400.

Butterworth, B.E., L.L. Aylward, S.M. Hays. 2007. A mechanism-based cancer risk assessment for 1,4-dichlorobenzene. *Regul. Toxicol. Pharmacol.* 49:138-48.

Nichols, B.R., K.L. Hentz, L. Aylward, S.M. Hays, J.C. Lamb. 2007. Age-specific reference ranges for polychlorinated biphenyls (PCB) based on the NHANES 2001-2002 survey. *J. Toxicol Environ Health A.* 70:1873-7.

LaKind, J.S., S.T. Holgate, D.R. Ownby, A.H. Mansur, P.J. Helms, D. Pyatt, and S.M. Hays. 2007. A critical review of the use of Clara cell secretory protein (CC16) as a biomarker of acute or chronic pulmonary effects. *Biomarkers.* 12(5):445-67.

Hays S.M. and Pyatt D.W. 2006. Risk assessment for children exposed to decabromodiphenyl (oxide) ether (Deca) in the United States. *Integrated Environmental Assessment and Management* 2:2-12.

- Pyatt D.W., Hays S.M., Cushing C.A. 2005. Do children have increased susceptibility for developing secondary acute myelogenous leukemia? *Chem Biol Interaction* 153-154:223-9.
- Aylward L.L., Brunet R.C., Carrier G., Hays S.M., Needham L.L., Patterson D.G., Gerthoux P.M, Brambilla P. and Mocarelli P. 2004. Concentration-dependent TCDD elimination kinetics in humans: Toxicokinetic modeling for moderately to highly exposed adults from Seveso, Italy and Vienna, Austria and impact on dose estimates for the NIOSH cohort. *J. of Exp. Anal. and Environ. Epidemiol.* 15(1):51-65.
- Hays S.M., Cushing C.A., Leung H.W., Pyatt D.W., Hollicky K.C. and Paustenbach D. 2003. Exposure of infants and young children in the U.S. to the flame retardant deca-bromodiphenyl oxide (DBDPO). *J. of Child. Health* 1: 449-475.
- Aylward L., Kirman C., Cher D. and Hays S. 2003. Re: Analysis of dioxin cancer threshold. *Environ. Health Perspectives*, 111: A510.
- Greene J., Hays S. and Paustenbach D. 2003. Basis for a proposed reference dose (RfD) for dioxin of 1–10 pg/kg-day: A weight-of-evidence evaluation of the human and animal studies. *Journal of Toxicol. and Environ. Health, Part B* 6: 115-159
- Hays S.M. and Aylward L.L. 2003. Dioxin risks in perspective: Past, present, and future. *Regul. Toxicol. and Pharmacol.*, 37: 202-217.
- Aylward L.L., Hays S.M., LaKind J.S. and Ryan J.J. 2003. Rapid communication: Partitioning of persistent lipophilic compounds, including dioxins, between human milk lipid and blood lipid: An initial assessment. *J. of Toxicol. and Environ. Health, Part A* 66(1): 1–5.
- Finley B.F., Ownby D.R., and Hays S.M. 2003. Airborne Tire Particles in the Environment: A Possible Asthma Risk from Latex Proteins? *Human and Ecological Risk Assessment* 9:1505-1518.
- Aylward L.L. and Hays S.M. 2002. Temporal trends in human TCDD body burden: Decreases over three decades and implications for exposure levels. *J. of Exp. Anal. and Environ. Epidemiol.* 12: 319-328.
- O'Flaherty E.J., Kerger B.D., Hays S.M. and Paustenbach D.J. 2001. A physiologically based model for the ingestion of chromium(III) and chromium(VI) by humans. *Toxicol. Sci.* 60: 196–213.
- Kirman C.R., Hays S.M., Kedderis G.L., Gargas M.L. and Strother D.E. 2000. Improving cancer dose-response characterization by using physiologically based pharmacokinetic modeling: An analysis of pooled data for acrylonitrile-induced brain tumors to assess cancer potency in the rat. *Risk Analysis* 20: 135–151.
- Hays S.M., Elswick B.A., Blumenthal G.M., Welsch F., Conolly R.B. and Gargas M.L. 2000. Development of a physiologically based pharmacokinetic model of 2-

methoxyethanol and 2-methoxyacetic acid disposition in pregnant rats. *Toxicol. and Applied Pharmacol.* 163: 67–74.

Gargas M.L., Tyler T.R., Sweeney L.M., Corley R.A., Weitz K.K., Mast T.J., Paustenbach D.J. and Hays S.M. 2000. A toxicokinetic study of inhaled ethylene glycol ether acetate and validation of a physiologically based pharmacokinetic model for rat and human. *Toxicol. and Applied Pharmacol.* 165: 63–73.

Gargas M.L., Tyler T.R., Sweeney L.M., Corley R.A., Weitz K.K., Mast T.J., Paustenbach D.J. and Hays S.M. 2000. A toxicokinetic study of inhaled ethylene glycol monomethyl ether (2-ME) and validation of a physiologically based pharmacokinetic model for the pregnant rat and human. *Toxicol. and Applied Pharmacol.* 165: 53–62.

Williams P.R.D., Scott P.K., Hays S.M. and Paustenbach D.J. 2000. A screening-level assessment of household exposure to MTBE in California drinking water. *Soil Sediment & Groundwater: MTBE Special Issue*: 63–69.

Williams P.B., Hays S.M. and Finley B.L. 2000. Latex allergy: Epidemic or epiphenomenon. *Source to Surgery* 7: 1–4.

Aylward L.L., Karch N.J., Hays S.M. and Paustenbach D.J. 1998. Response to comment on a relative susceptibility of animals and humans to the cancer hazard posed by 2,3,7,8-tetrachlorodibenzo-p-dioxin using internal measures of dose. *Environ. Sci. and Technol.* 32: 551–552.

Hays S.M., Long T.F., Kirman C.R. and Gargas M.L. 1998. Potential uses of PBPK modeling to improve the regulation of exposure to toxic compounds. *Inside EPA's Risk Policy Report* 5: 37–41.

Hays S.M., Aylward L.L., Karch N.J. and Paustenbach D.J. 1997. The relative susceptibility of animals and humans to the carcinogenic hazard posed by exposure to 2,3,7,8-TCDD: An analysis using standard and internal measures of dose. *Chemosphere* 34: 1507–1522.

Verhar H.J.M., Morroni J.R., Reardon K.F., Hays S.M., Garver D.P., Carpenter R.L. and Yang R.S.H. 1997. A proposed approach to study the toxicology of complex mixtures of petroleum products: The integrated use of QSAR, lumping analysis and PBPK/PD modeling. *Environ. Health Perspectives* 105(Suppl.): 179–195.

Aylward L.L., Hays S.M., Karch N.J. and Paustenbach D.J. 1996. Relative susceptibility of animals and humans to the cancer hazard posed by exposure to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) using internal measures of dose. *Environ. Sci. and Technol.* 30: 3534–3543.

Lipiro D., Hays S.M. and Golpashin E. 1996. Evaluation of source reduction methods through modeling of batch production processes in the coatings and composite plastics industries. *J. of the Air and Waste Management Association*.

Paustenbach D.J., Hays S.M., Brien B.A., Dodge D.G. and Kerger B.D. 1996. Observation of steady-state in blood and urine following human ingestion of hexavalent chromium in drinking water. *J. Toxicol. Environ. Health* 49: 453–461.

Sielken R.L., Reitz R.H. and Hays S.M. 1996. Using PBPK modeling and comprehensive realism methodology for the quantitative cancer risk assessment of butadiene. *Toxicology* 113: 231–237.

BOOK CHAPTERS:

Hays S.M. and Finley B.L. 2002. Qualitative health risk assessment of natural rubber latex in consumer products. In Paustenbach D.J. Ed. *Human and Ecological Risk Assessment: Theory and Practice*. New York: John Wiley and Sons.

PUBLISHED ABSTRACTS:

Aylward, L.L. and Hays, S.M. 2009. Use of biomonitoring and pharmacokinetic data to inform multimedia fate and exposure models – examples and data needs. Presentation at the International Society for Exposure Science 2009 Annual Meeting, Minneapolis, MN.

Aylward, L.L., Toms, L.-M., and Mueller, J.F. 2009. Evaluation of serum dioxin concentrations in Australian Vietnam veterans with diabetes mellitus. Poster presentation at Dioxin 2009, Beijing, China, August 25, 2009.

Aylward, L.L. and S.M. Hays. 2009. Interpreting DBP Human Biomonitoring Data in a Health Risk Context Using Biomonitoring Equivalents. Invited speaker, Gordon Research Conference, Drinking Water Disinfection Byproducts, Mt. Holyoke College, August 9-14, 2009.

Hays, S.M., J.S. LaKind, D.Q. Naiman, L.L. Aylward, B.C. Blount. 2009. Interpreting trihalomethane biomonitoring data using Biomonitoring Equivalents. Poster presented at the Society of Toxicology Annual Meeting, March 2009, Baltimore, MD.

Aylward, L.L., D.H. Garabrant, S. Berent, Q. Chen, C. Timchalk, C.J. Burns, S. M. Hays, J.W. Albers. 2009. Cholinesterase inhibition in chlorpyrifos workers in relation to urinary 3,5,6-trichloro-2-pyridinol (TCPy). Poster presented at the Society of Toxicology Annual Meeting, March 2009, Baltimore, MD.

Aylward, L.L. and S.M. Hays. 2008. Assessment of human biomonitoring data in a public health risk context: Utility of Biomonitoring Equivalents. Poster presentation at the Society for Risk Analysis 2008 Annual Meeting, December 10, 2008, Boston, MA.

Aylward, L.L. 2008. Biomonitoring Equivalents as Screening Tools for Interpretation of Human Biomonitoring Data. Invited speaker at the Society of Toxicology of Canada 40th Annual Meeting, 2 December 2008, Montreal, CA.

Aylward, L.L., and S.M. Hays, 2008. Interpreting human biomonitoring data for acrylamide: Screening level modeling approaches. Oral Presentation at the International Society for Exposure Analysis 2008 Annual Meeting, October 22, 2008, Pasadena, CA.

Aylward, L.L., K.M. Bodner, J.J. Collins, M. Wilken, D. McBride, C.J. Burns, S.M. Hays, and N. Humphrey, 2008. TCDD exposure reconstruction for workers at a New Zealand 245-T manufacturing facility based on serum sampling data. Poster at Dioxin 2008, October 19, 2008, Birmingham, UK.

Hays, S.M., L.L. Aylward. 2008. Derivation of biomonitoring equivalents: Technical issues and guidelines. Poster presented at the 47th Society of Toxicology Annual Meeting, Seattle, WA.

Pyatt, D.W., S.M. Hays, L.L. Aylward. 2008. Biomonitoring equivalents: Case studies. Poster presented at the 47th Society of Toxicology Annual Meeting, Seattle, WA.

Aylward, L.L., S.M. Hays. Biomonitoring Equivalents: Overview and Guidelines for Derivation. Presented at the Society for Risk Analysis Annual Meeting, December 9-12, 2007, San Antonio, TX.

Aylward, L.L., K.M. Bodner, J.J. Collins, S.M. Hays. 2007. Exposure reconstruction for a dioxin-exposed cohort: Integration of serum sampling data and work histories. *Organohalogen Compounds* 69:2063-2066.

Hays, S., L. Aylward, D. Pyatt, H. Leung, and R. Becker. 2007. Interpreting human biomonitoring data in a risk assessment context: Biomonitoring equivalents. Abstract No. 427. *Toxicologist* 96(1):89.

Aylward, L. and S. M. Hays. 2007. Interpretation of biomonitoring data for toluene: Use of PBPK modeling. Abstract No. 781. *Toxicologist* 96(1):161.

Butterworth, B.E., L.L. Aylward, and S.M. Hays. 2007. Mechanism-based cancer risk assessment for 1, 4-dichlorobenzene. Abstract No. 1550, *Toxicologist* 96(1):321.

Javier, A., J.M. Panko, E.C. Shay, K.M. Unice, P.S. Price, S. Hays and L. Aylward. 2007. Assessment of children's exposure to toluene. Abstract No. 1620, *Toxicologist* 96(1):335.

Pyatt, D., S. Hays, L. Aylward, P. Kerzic, and C. Borgert. 2007. The role of hematotoxicity in chemically induced acute myeloid leukemia. Abstract No. 1963, *Toxicologist* 96(1):405.

Stickney, J., M. Odin, S. Hays, and R. Dewoskin. 2007. Development of a screening framework for data review and analysis to support the derivation of a

neurodevelopmental toxicity value for ethanol. Abstract No. 1629, *Toxicologist* 96(1)337.

Aylward, L.L., Becker, R.A., Hays, S.M. 2006. Interpreting human biomonitoring data in a risk assessment context: Issues and approaches. Society of Risk Analysis Annual Meeting. Baltimore, MD December, 2006.

Hays, S., DeWoskin, R. 2006. Improved Physiological Realism in PBPK Modeling for Variability Analysis: A Case Study with Ethanol. Abstract # 2378. 45th Annual Meeting of Society of Toxicology. San Diego, CA March 5-9, 2006.

Pyatt, D.W., Hays, S.M. 2006. Age Related Differences in Secondary Malignancies in Children: Lessons Learned From the Pediatric Clinical Experience. Abstract # 114. 45th Annual Meeting of Society of Toxicology. San Diego, CA March 5-9, 2006.

Hays, S.M. 2005. New Applications for the Lead PBPK Model. Abstract #351. 44th Annual Meeting of Society of Toxicology. New Orleans, LA. March 6-10.

Pyatt, D., Hays, S. and Cushing, C. 2005. Are There Age Related Differences in Children's Susceptibility for Developing Secondary Acute Myelogenous Leukemia? Abstract 258. 44th Annual Meeting of Society of Toxicology. New Orleans, LA. March 6-10.

Peterson, M.K., Pleus, R.C. and Hays, S.M. 2005. Assessing the Risks Associated With Children Ingesting Lead in School Drinking Water: PBPK Modeling and Risk Communication. Abstract #871. 44th Annual Meeting of Society of Toxicology. New Orleans, LA. March 6-10.

Garcia, H.D. and Hays, S.M. 2005. PBPK Modeling of the Effect of Microgravity on the Release of Lead from Bone into Blood. Abstract #1149. 44th Annual Meeting of Society of Toxicology. New Orleans, LA. March 6-10.

Proctor D., Cohen E., Leung H., Hays S.M., Barraji L. and Madl A. 2004. Exposure Assessment for Perchlorate in Drinking Water. Abstract #1754. 43rd Annual Meeting of Society of Toxicology, Baltimore, MD. March 24.

Madl A., Proctor D., Leung H., Goswami E., Hays S.M. and Cohen E. 2004. Derivation of a RfD for Perchlorate: Identifying a Critical Health Endpoint and the Most Sensitive Subpopulation. Abstract #1755. 43rd Annual Meeting of Society of Toxicology, Baltimore, MD. March 24.

Leung H., Proctor D., Madl A., Hays S.M. and Cohen E. 2004. Scientific Rationale for the Derivation of a RfD for Perchlorate. Abstract #1756. 43rd Annual Meeting of Society of Toxicology, Baltimore, MD. March 24.

Yost L., Greene J.F., Hays S.M., Kelsh M. and Sheehan P. 2004. Derivation of a Range of Interim Inhalation Cancer Slope Factors for TCE Using Physiologically Based Pharmacokinetic Modeling. Abstract #1762. 43rd Annual Meeting of Society of Toxicology, Baltimore, MD. March 24.

Hays S.M. and Paustenbach D.J. 2002. Temporal trends in human TCDD body burden. Vietnam Scientific Conference on Human Health and Environmental Effects of Agent Orange/Dioxin, March 3–6, 2002. Ha Noi, Vietnam.

Proctor D.M., Hays S.M., Ruby M.V., Liu S., Sjong A., Goodman M. and Paustenbach D.J. 2002. Rate of hexavalent chromium reduction by human gastric fluid. Abstract #1700. Final Program and Abstracts. 41st Annual Meeting of Society of Toxicology, Nashville, TN, March 17-21.

Aylward, L., Hays S.M. and Finley B. 2002. Temporal trends in intake of dioxins from foods in the U.S. and Western Europe: Issues with intake estimates and parallel trends in human body burden. *Organohalogen Compounds* 55: 235–238.

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