Exponent®
Engineering & Scientific Consulting

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Professional Profile

Dr. Amy Williams is a board-certified toxicologist. She has over 20 years of experience in the evaluation of crop protection compounds, pharmaceuticals (including both small molecules and biologics), industrial chemicals, chemicals in consumer products and foods, and power frequency and radiofrequency exposures for potential adverse effects on human health.

Dr. Williams specializes in developmental and reproductive toxicology, endocrine disruption, carcinogenicity mode-of-action assessments, and general toxicology related to exposure to chemical substances and physical agents.

Dr. Williams has worked on projects related to understanding the human relevance of developmental toxicity study findings for pesticides and biocides; assessed the potential for endocrine-disrupting effects; evaluated mechanistic data to address developmental and carcinogenicity modes-of-action; assisted in the design and monitoring of studies to assess the developmental, reproductive and endocrine effects of test agents; conducted consumer product chemical exposure assessments; and assisted in the interpretation of experimental study results for assessing the health effects of electromagnetic and radiofrequency exposures. Dr. Williams also has considerable experience in communicating health risks to the public.

Prior to joining Exponent, Dr. Williams was a Principal Scientist at Noblis/Mitretek Systems, where she provided toxicological analysis and support to both government and commercial clients related to chemicals of concern for environmental clean-up, drug substances and excipients, veterinary pharmaceuticals, and crop-protection compounds. Additionally, Dr. Williams has lectured on principles of basic toxicology and worked on programs related to chemical and biological warfare agents for the Department of Defense and the development of predictive toxicity measures for chemicals of concern for the Department of Homeland Security.

Dr. Williams also held the position of Scientific Program Manager at the Health and Environmental Sciences Institute (HESI), where she directed a diverse set of projects related to the development and application of toxicology data in health safety risk assessments. She managed expert committees examining alternatives to carcinogenicity testing, immunotoxicology, the evaluation of epidemiology studies, and the development of biomarkers for safety assessment. In this position, her responsibilities included research project development and coordination, technical writing, and the organization of conferences and meetings.

Academic Credentials & Professional Honors

Ph.D., Toxicology, University of Rochester, 1998

M.S., Toxicology, University of Rochester, 1997

B.Sc., Toxicology and Human Biology, University of Toronto, Canada, 1992

Mitretek Board of Trustees Award for Excellence, in recognition of achievements by the Toxicology Research Program, 2000

Noblis/Mitretek Technology Leadership Awards (4), 2005-2008

Licenses and Certifications

Diplomate of the American Board of Toxicology (DABT)

Professional Affiliations

- American Board of Toxicology, Diplomate
- American College of Toxicology, Regular Member
- Society of Toxicology, Full Member
    - DART Specialty Section of SOT, Member
- Society for Birth Defects Research and Prevention (BDRP), Full Member
    - Council (2021-present)
    - Education Committee (2015-2021)
        - Chair (2018-2019)
        - Vice-chair (2017-2018)
    - Strategic Planning Committee (2017, 2022)
    - Communications Coordination Committee (2017-2018)
    - Program Committee (2018-2019)
- Endocrine Policy Forum

Planning Committee for the Practical Reproductive and Developmental Toxicology Course (2022)

Publications

DeSesso JM, Harris SB, Scialli AR, Williams AL. Systematic assessment of quaternary ammonium compounds for the potential to elicit developmental and reproductive effects. Birth Defects Research 2021. Oct 23. Doi: 10.1002/bdr2.1963. Online ahead of print.

Gollapudi BB, Williams AL, Bus JS. A review of the genotoxicity of the industrial chemical cumene. Mutation Research. Reviews in Mutation Research 2021. 787:108364.

Williams AL, Pace ND, DeSesso JM. Teratogen update: Topical use and third-generation retinoids. Birth Defects Research 2020. 112:1105-1114.

MacGregor JA, White DJ, Williams AL. The limitations of using the NTP chronic bioassay on vanadium pentoxide in risk assessments. Regulatory Toxicology and Pharmacology 2020. 113:104650.

Badding MA, Barraj L, Williams AL, Scrafford C, Reiss R. CLARITY-BPA Core Study: Analysis for nonmonotonic dose-responses and biological relevance. Food and Chemical Toxicology 2019. 131:110554.

Williams, AL, Gollapudi B, Pace ND, DeSesso JM. Comment on ‘Concentrations of vanadium in urine and seminal plasma in relation to semen quality parameters, spermatozoa DNA damage and serum hormone levels,’ by Wang et al. Science of the Total Environment 2019. 685:772-774.

Williams A, Bates C, Pace ND, Leonhard M, Chang ET, DeSesso J. Impact of chloroform exposures on reproductive and developmental outcomes: A systematic review of the scientific literature. Birth Defects Research 2018; 110:1267-1313.

DeSesso JM, Williams AL. Periods of Susceptibility: Interspecies Comparison of Developmental Milestones during Ontogenesis of the Central Nervous System,” Chapter 10, In: Handbook of Developmental Neurotoxicology, W. Slikker, C. Wang, M. Paule, eds, Elsevier, Ltd, Oxford, UK, pp. 113-125, 2018.

Bailey WH, Williams AL, Leonhard MJ. Exposure of laboratory animals to small air ions: a systematic review of biological and behavioral studies. Biomedical Engineering OnLine. 17:72; doi.org/10/1186/s12938-018-0499-z.

DeSesso JM, Williams AL, Reiss R. Conflicting views on the potential carcinogenicity of glyphosate: how did we get here and what should we do? Journal of Public Health and Emergency October 2017; doi: 10.21037/jphe.2017.09.03.

Neal BH, Bus J, Marty MS, Coady K, Williams A, Staveley J, Lamb JC. Weight-of-the-Evidence Evaluation of 2,4-D Potential for Interactions with the Estrogen, Androgen, and Thyroid Pathways and Steroidogenesis. Critical Reviews in Toxicology 2017; 47:345-401.

DeSesso JM, Williams AL. Embryotoxicity: Anatomical, Physiological, and Functional. Chapter 5.03 in Comprehensive Toxicology, 3rd Ed (CA McQueen, Editor), Volume 5 Developmental Toxicology (D Dolinov, Ed). Elsevier, Ltd., Oxford, UK, pp. 21-33, 2018.

DeSesso JM, Williams AL, White TEC. Comment on Sweeting and Wells (2016). Reproductive Toxicology 2016; 66:124-125.

Williams AL, DeSesso JM. Comment on “Effect of in utero exposure to arsenic during the second half of gestation on reproductive endpoints and metabolic parameters in female CD-1 mice”. Environmental Health Perspectives 2016; 124:A46.

Garry MR, Santamaria AB, Williams AL, DeSesso JM. In utero arsenic exposure in mice and early life susceptibility to cancer. Regulatory Toxicology and Pharmacology 2015; 73:378-390.

Williams AL, DeSesso JM. Gestational/perinatal chlorpyrifos exposure is not associated with autistic-like behaviors in animals. Critical Reviews in Toxicology 2014; 44:523-534.

Koch MS, DeSesso JM, Williams AL, Michalek S, Hammond B. Adaption of the ToxRTool to assess the reliability of toxicology studies conducted with genetically modified crops and implications for future safety testing. Critical Review in Food Sciences and Nutrition. 2014; Sept 10 (epub ahead of print).

Coady KK, Kan HL, Schisler MR, Gollapudi BB, Neal B, Williams A, LeBaron MJ. Evaluation of potential endocrine activity of 2,4-dichlorophenoxyacetic acid using in vitro assays. Toxicology in Vitro 2014; 28:1018-1025.

Lamb, JC IV, Boffetta P, Foster WE, Goodman JE, Hentz KL, Rhomberg LR, Staveley J, Swaen G, Van Der Kraak G, Williams AL. Critical comments on the WHO-UNEP State of the Science of Endocrine Disrupting Chemicals - 2012. Regulatory Toxicology and Pharmacology 2014; 69:22-40.Kimmel GL, Kimmel CA, Williams AL, DeSesso JM. Evaluation of the potential developmental toxicity of glyphosate with attention to cardiovascular malformations. Critical Reviews in Toxicology 2013; 43:79-95.

DeSesso JM, Watson RE, Williams AL. Response to the comments of Defarge and colleagues. Journal of Toxicology and Environmental Health, Part B 2012; 15:438-440.

DeSesso JM, Jacobson CF, Williams AL. Anatomical and physiological parameters that influence gastrointestinal absorption. Chapter 2. In: Encyclopedia of Drug Metabolism and Interactions, Volume 2, Lyubimov AV (ed), John Wiley and Sons, pp. 43-78, New York, NY, 2012.

DeSesso JM, Williams AL. Comment on "Glyphosate impairs male offspring reproductive development by disrupting gonadotropin expression," by Romano et al, 2012. Archives of Toxicology 2012; 86:1791-1793.

DeSesso JM, Watson RE, Williams AL. Response to the comments of Belle and colleagues. Journal of Toxicology and Environmental Health, Part B 2012; 15:236-237.

DeSesso JM, Williams AL, Ahuja A, Bowman CJ, Hurtt ME. The placenta, transfer of immunoglobins, and safety assessment of biopharmaceuticals in pregnancy. Critical Reviews in Toxicology 2012; 42:185-210.

Williams AL, Watson RE, DeSesso JM. Developmental and reproductive outcomes in humans and animals after glyphosate exposure: A critical analysis. Journal of Toxicology and Environmental Health, Part B 2012; 15:39-96.

Williams AL, DeSesso JM. The potential of selected brominated flame retardants to affect neurological development. Journal of Toxicology and Environmental Health, Part B 2010; 13:411-448.

DeSesso JM, Lavin Williams A. Contrasting the gastrointestinal tracts of mammals: Factors that influence absorption. Chapter 21. Annual Reports in Medicinal Chemistry 2008; 43:353-371.

Lavin Williams A, DeSesso JM. Trichloroethylene and ocular malformations: Analysis of extant literature. International Journal of Toxicology 2008; 27(1):81-95.

Collins JJ, Bukowski JA, Weed DL, Brent RL, Klein P, Boerstoel-Steefland M, Sprafka M, Lavin AL, Murphy PA. Evaluating emerging issues in epidemiology. Regulatory Toxicology and Pharmacology 2007; 48(3):296-307.

Watson RE, Jacobson CF, Williams AL, Howard WB, DeSesso JM. Trichloroethylene-contaminated drinking water and congenital heart defects: A critical analysis of the literature. Reproductive Toxicol 2006; 21(2):117-147.

Holsapple MP, Burns-Naas LA, Hastings KL, Ladics GS, Lavin AL, Makris SL, Yang Y, Luster MI. A proposed testing framework for developmental immunotoxicology (DIT). The Journal of Toxicological Sciences 2005; 83(1):18-24.

Kawabata TT, Haggerty HG, Lavin AL, Adkinson NF. Meeting report. Immune-mediated hypersensitivity reactions (IDHR) workshop. Journal of Immunotoxicology 2004; 1(3-4):201-205.

MacDonald J, French JE, Gerson RJ, Goodman J, Inoue T, Jacobs A, Kasper P, Keller D, Lavin A, Long G, McCullough B, Sistare FD, Storer R, van der Laan JW. The utility of genetically modified mouse assays for identifying human carcinogens: A basic understanding and path forward. The Journal of Toxicological Sciences 2004; 77(2):188-194.

Wyman A, Lavin AL, Wilding GE, Gasiewicz TA. 2,3,7,8-Tetrachlorodibenzo-p-dioxin does not directly alter the phenotype of maturing B cells in a murine co-culture system. Toxicology and Applied Pharmacology 2002; 180(3):164-177.

DeSesso JM, Lavin AL. Should trichloroethylene be classified as a human carcinogen? Human and Ecological Risk Assessment 2001; 7(4):651-655.

DeSesso JM, Lavin AL, Hsia SM, Mavis RD. Assessment of the carcinogenicity associated with oral exposures to hydrogen peroxide. Food and Chemical Toxicology 2000; 38(11):1021-1041.

Lavin AL, Jacobson CF, DeSesso JM. An assessment of the carcinogenic potential of environmental exposures of trichloroethylene (TCE) to humans. Human and Ecological Risk Assessment 2000; 6(4):575-641.

Lavin AL. The role of bone marrow stroma in mediating TCDD-dependent alterations in lymphopoiesis. Dissertation, University of Rochester, NY, 1998.

Lavin AL, Hahn DJ, Gasiewicz TA. Expression of functional aromatic hydrocarbon receptor and aromatic hydrocarbon nuclear translocator proteins in murine bone marrow stromal cells. Archives of Biochemistry and Biophysics 1998; 352(1):9-18.

Published Abstracts/Presentations

DeSesso JM, Harris SB, Scialli AR, Williams AM. Systematic Assessment of QUATs for the Potential to Elicit Developmental and Reproductive Effects. Presented at the 61st Annual Meeting of the Society for Birth Defects Research and Prevention, Virtual, June 2021.

Williams AL, DeSesso JM. Revisiting the Testicular Toxicity of Cyanide: New Data and Weight-of-Evidence Review. Presented at the 60th Annual Meeting of the Society of Toxicology, Virtual, March 2021.

Lavin Williams A, DeSesso JM. Evaluation of the available male reproductive data for nickel and nickel compounds. Presented at the 2019 Annual Meeting of the Teratology Society, San Diego, CA, June 2019.

Lavin Williams A, Campetella S, DeSesso JM. Retinoid teratogenicity: a critical evaluation of contributing properties for adapalene. Presented at the 2019 Annual Meeting of the Teratology Society, San Diego, CA, June 2019.

Williams A, Bates C, DeSesso J. Evaluation of DART data pertaining to reclassification of chloroform as a Proposition 65 reproductive toxicant. Presented at the 2018 Annual Meeting of the Teratology Society, Clearwater, FL, June 2018.

Williams A, Bates C, DeSesso J. Evaluation of DART data pertaining to reclassification of chloroform as a Proposition 65 reproductive toxicant. Presented at the 2018 Annual Meeting of the Society of Toxicology, San Antonio, TX, March 2018.

DeSesso, JM, Williams AL. Ontogeny of the Central Nervous System across Species. Presented at the 2017 Annual Meeting of the Teratology Society, Denver, CO, June 2017, Birth Defects Research 2017; 109: 688.

Garry MR, Santamaria AB, Williams AL, DeSesso JM. Arsenic and transplacental carcinogenesis. Presented at the 2015 Annual Meeting of the Society of Toxicology, San Diego, CA, March 2015.

Williams AL, DeSesso JM. Animal behavior after perinatal chlorpyrifos exposure is not autistic-like. Presented at the 2014 Annual Meeting of the Teratology Society, Bellevue, WA, June 2014.

Williams AL, DeSesso JM. Animal behaviors associated with developmental chlorpyrifos exposure are inconsistent with autism. Presented at the 2014 Annual Meeting of the Society of Toxicology, Phoenix, AZ, March 2014.

Bailey WH, Lavin Williams A. Toxicologic assessment of air ion exposures in laboratory animals. Presented at the 2014 Annual Meeting of the Society of Toxicology, Phoenix, AZ, March 2014.

Henz KL, Boffetta P, Goodman JE, Foster W, Lamb JC, Rhomberg LR, Staveley J, Swaen G, Van Der Kraak G, Williams AL. Critical comments: WHO-UNEP State of the Science of Endocrine Disrupting Chemicals 2012. Presented at the 2014 SETAC North America focused topic meeting on Endocrine Disruption: Chemical Testing, Risk Assessment Approaches and Implications, Research Triangle Park, NC, February 2014.

Williams AL, Kimmel, GL, Kimmel CA, DeSesso JM. Evaluation of the glyphosate developmental toxicity database: Absence of potential for cardiovascular malformations. Presented at the 2013 Annual Meeting of the Society of Toxicology, San Antonio, TX, March 2013.

Hentz KL, Williams AL, Lamb JC. Endocrine disruption: Weight of the evidence for low-dose effects of TCDD on sperm counts. Presented at the 2013 Annual Meeting of the Society of Toxicology, San Antonio, TX, March 2013.

Neal B, Staveley J, Freeman E, Williams A, Lamb J, DeSesso J. Weight of the evidence (WoE) evaluation of Endocrine Disruptor Screening Program Tier 1 assays: Lessons learned. Presented at the 2013 Annual Meeting of SETAC Europe, Glasgow, UK, May 2013.

DeSesso JM, Lavin Williams A, Koren G. Topiramate and birth defects: An update. Presented at the 2011 Annual Meeting of the Society of Toxicology, Washington, DC, March 2011.

Lavin Williams A, DeSesso JM. Genetically-modified soybeans—Critical evaluation of studies addressing potential ultrastructural changes associated with ingestion. Presented at the 2010 Annual Meeting of the Society of Toxicology, Salt Lake City, UT, March 2010.

Boyer IJ, Kutzman RS, Williams AL, DeSesso JM, Buthod JL, Cox J, Whitmire MT, Roszell LE. Development of predictive toxicity measures for assessing risks from catastrophic chemical releases. Presented at the 2010 Annual Meeting of the Society of Toxicology, Salt Lake City, UT, March 2010.

Lavin Williams A, DeSesso JM. Comparative mammalian gastrointestinal absorption: The influence of various gastrointestinal factors. Presented at the 2009 Annual Meeting of the Society of Toxicology, Baltimore, MD, March 2009.

Watson RE, Lavin Williams A, Farmer DR, DeSesso JM. Is glyphosate a developmental and/or reproductive toxicant? A critical analysis of the literature. Presented at the 2006 Annual Meeting of the Teratology Society, Tucson, AZ, June 2006.

Watson RE, Jacobson CF, Lavin Williams A, Howard WB, DeSesso JM. Gestational exposure to trichloroethylene and risk of congenital heart defects: An assessment. Presented at the 2005 Annual Teratology Society Meeting, St. Petersburg, FL, June 2005.

HESI Epidemiology Project Committee. Guidelines for evaluating emerging issues in epidemiology. Presented at the 2003 Annual Meeting of the Society for Risk Analysis, Baltimore, MD, December 2003.

Holsapple M, Lavin A, and Immunotoxicology Technical Committee. Developmental immunotoxicology testing (DIT): Development of a testing framework. Presented at the 2003 Annual Eurotox Meeting, Florence, Italy, September 2003.

Lavin AL, DeSesso JM. An assessment of the human risks associated with radiofrequency exposure. Presented at the 41st Annual Meeting of the Society of Toxicology, Nashville, TN, March 2002.

DeSesso JM, Lavin AL, Hsia SM, Mavis RD. Absence of potential carcinogenicity associated with hydrogen peroxide exposures. Presented at the 2000 Annual Meeting of the Society for Risk Analysis,

Arlington, VA, December 2000.

Lavin AL, Jacobson CF, DeSesso JM. An assessment of the carcinogenic potential of trichloroethylene exposure in humans. Presented at the 2000 Annual Meeting of the Society for Risk Analysis, Arlington, VA, December 2000.

Lavin AL, Gasiewicz TA. 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)-dependent alterations in B cell lymphopoiesis are mediated at the lymphocyte level directly. Toxicologist 48:216. Presented at the 1999 Annual Meeting of the Society of Toxicology, New Orleans, LA, March 1999.

Lavin AL, Hahn DJ, Gasiewicz TA. Aromatic hydrocarbon receptor expression in murine primary bone marrow stromal cell cultures. Toxicologist 42:386. Presented at the 1998 Annual Meeting of the Society of Toxicology, Seattle, WA, March 1998.

Lavin AL, Gasiewicz TA. Bone marrow stromal cell expression of the aromatic hydrocarbon receptor. Toxicologist 36:127. Presented at the 1997 Annual Meeting of the Society of Toxicology, Cincinnati, OH, March 1997.

Lavin AL, Kent TA, Gasiewicz TA. Modification of the differential display technique: Use in the identification of TCDD-regulated genes. Toxicologist 30:326. Presented at the 1996 Annual Meeting of the Society of Toxicology, Anaheim, CA, March 1996.

Lavin AL, Hinchman CA, Troung AT, Ballatori N. Is □-glutamyltransferase present within the sinusoidal spaces of rat liver? Toxicologist 13:199. Presented at the 1993 Annual Meeting of the Society of Toxicology, New Orleans, LA, March 1993.

Other Presentations by Invitation

DeSesso JM, Lavin Williams A. TCE assessments: status and prognosis. Presented at the Air Force Center for Environment and Engineering Technology Transfer Workshop, San Antonio, TX, March 25, 2008.

Lavin Williams A, DeSesso JM. Hemopure. A mode of action that does not exist in humans. Presented to the 2007 Noblis Interns, Falls Church, VA, June 2007.

Lavin AL. Biomarkers of cardiac, renal and testicular drug toxicities. Presented at the Association of Government Toxicologists Meeting, Bethesda, MD, March 2004.

Greenlee W, Chui W, Kelsh M, Bull R, Swenberg J, Clewell H, Bois F, Rhomberg L, Lavin A, Bussard D, Zeise L, Cogliano J. Issues in the health risk assessment of trichloroethylene (TCE). Panel discussion participant at The Toxicology Forum, Aspen, CO, July 2003.

Lavin AL. Overview of scientific programs at the ILSI Health and Environmental Sciences Institute. Presented to the Department of Pharmacology and Toxicology at Michigan State University, Lansing, MI, September 2002.

Lavin AL, DeSesso JM. Data for trichloroethylene—Kidney tumors in rodents suggest an epigenetic mechanism of action. Presented at the International Conference on Non-Linear Dose-Response Relationships in Biology, Toxicology and Medicine, Amherst, MA, June 2002.

DeSesso JM, Lavin AL. Background and status of the trichloroethylene (TCE) controversy. Keynote address presented at the Air Force Center for Environmental Excellence Cleanup Technology Workshop, San Antonio, TX, March 2002.

Lavin AL, DeSesso JM. Relevance of changes in the field of toxicology to setting clean-up goals. Presented at the 1999 Conference on Remediation of Subsurface Contaminants: The Meaning and Measures of Success, Amelia Island, FL, November 1999.