

Jonathan D. Urban, Ph.D.

HEALTH SCIENTIST

CONTACT INFORMATION

ToxStrategies, Inc.
9390 Research Blvd, Suite 250
Austin, TX 78759
phone (512) 351-7358
fax (512) 382-6945
jurban@toxstrategies.com

PROFESSIONAL PROFILE

Dr. Jonathan Urban is a Health Scientist with ToxStrategies, Inc. in Austin, TX. Dr. Urban has over five years of experience studying and evaluating the potential health effects of a range of chemicals of concern, including halogenated aromatic hydrocarbons (PCDD/Fs, PCBs, and PCNs), metals (Cr, Ni, Pb), hazardous air pollutants (BTEX), industrial compounds (solvents and pesticides), and consumer product contaminants (nonylphenol ethoxylate, 1,3-butadiene). Dr. Urban has provided informed critiques and recommendations regarding risk-based toxicity criteria to regulatory agencies, industry and private sector businesses. In addition to chemical toxicology evaluations, Dr. Urban specializes in human health risk assessment, risk-based site investigations, PRP investigations, and biomonitoring studies. He has experience in developing risk-based site assessments for exposures to diverse media (air, soil, sediments, fish) under various scenarios, performing source identification studies (applying both historical records information and data from chemical fingerprinting analyses), and conducting and/or evaluating health assessments for occupational and environmental biomonitoring studies.

Dr. Urban earned a Ph.D. in toxicology at the University of North Carolina at Chapel Hill, where his studies focused on receptor-based signaling mechanisms of xenobiotics in neurological systems. Dr. Urban has published both academic and professional studies in the peer-reviewed literature, and he is a reviewer for various scientific journals.

EDUCATION AND DEGREES EARNED

Ph.D., Toxicology, University of North Carolina at Chapel Hill, 2006
B.S., Biological Sciences, University of Maryland at College Park, 1999

PROFESSIONAL ASSOCIATIONS AND AWARDS

Society of Toxicology (SOT) - Graduate Student Travel Award (2006)

Risk Assessment Specialty Section of the Society of Toxicology

Society of Environmental Toxicology and Chemistry (SETAC)

Society for Neurosciences (SFN) (former)

PEER REVIEW

Environmental Toxicity and Chemistry

Molecular Pharmacology

Neuropsychopharmacology

Journal of Pharmacological and Experimental Therapeutics

Toxicological Sciences

SELECTED PROFESSIONAL EXPERIENCE

Conducted and published a comprehensive human health hazard and cancer risk assessment on the ingestion of fish sampled from the Lower Passaic River. This evaluation was comprised more than 150 chemicals of potential concern, including PCDD/Fs, PCBs, metals, and several other organic compounds, and utilized peer-reviewed site-specific exposure and consumption data to reduce assessment uncertainty. Defended the site-specific risk assessment approach in response to state and federal critique in the public forum.

Analyzed and interpreted data on the PBDE levels in various fish species taken from an industrial stretch of river along the east coast in order to determine the human health risk and hazard associated with exposure.

Managed and conducted an analytical assessment of PCNs, PCDD/Fs, and dioxin-like PCBs in based on sediment sampling for a prominent water body in the Northeast. Used preliminary TCDD-based toxic equivalency factors (TEFs) for PCN congeners to characterize PCN contribution to overall sample TEQs. Employed PCA fingerprinting analyses to compare PCN congener profiles between sediment and technical mixtures in an effort to identify potential PCN sources.

Served as lead investigator in an evaluation of a sediment contamination site covered by the Great Lakes Legacy Act. The investigation included a robust toxicology evaluation, including a comparative assessment of several chemicals of potential concern (PCBs, PCNs, mercury). Also included was an analysis of the sediment data and recommendations of analytical approaches for future sediment sampling studies.

Developed a state-of-knowledge position paper on the utility of applying toxic equivalency factors to dioxin-like PCB portions of environmental PCB mixtures for assessing human health risk assessment.

Provided toxicological expertise in a comprehensive analysis of impacts to an urban area in North Texas from shale gas drilling and production.

In support of a comprehensive assessment of extensive air monitoring data collected in a South Texas community, performed a critical review of the USA Today study ("The Smokestack Effect") and USEPA's underlying RSEI model concerning air quality around schools across the nation.

In support of Europe's Registration, Evaluation & Authorisation of Chemicals (REACH) initiative, conducted comprehensive literature reviews on the human health effects of multiple nickel compounds, and populated

the International Uniform Chemical Information Database (IUCLID) substance with relevant substance-specific data. Evaluated key studies for reliability and relevance, synthesized large volumes of data, and generated integrative reports.

Managed the development of blood VOC reference values for the general U.S. population based on an extensive analysis of the available biomonitoring data in CDC's NHANES continuous database (1999-2004).

Conducted an extensive review of the reproductive and developmental toxicology and epidemiology literature of more than 20 glycol ethers and glycol ether acetates identified in over 100 products to which semiconductor facility employees had been potentially exposed. These compounds were identified using a historical product purchasing list and conducting a search of thousands of material data and safety sheets. Toxicity criteria and regulatory exposure guidelines were compared to historical industrial hygiene data to assess occupational exposures. Created a database for potential reproductive toxicants identified among the products purchased at the facility.

Conducted a comprehensive toxicological review of more than 15 various chemicals identified in various industrial products and processes to which employees of a laminated plastics plant had been potentially exposed. In addition, employee symptoms and health complaints were compared with the toxicological profiles of each chemical of potential concern to focus the subsequent exposure assessment.

Assisted in conducting two biomonitoring studies that focused on dioxins and metals exposures of former and current employees at copper smelter and magnesium production facilities, respectively. These studies involved data analyses and interpretation regarding the levels of dioxin-like compounds in blood samples, the results of which were compared with the levels reported in other regional and national biomonitoring efforts to assess relative body burden.

Managed the development of an indoor air quality model toolkit for quantifying exposure and human health risk associated with trace volatile organic compounds present in the propellants used in consumer aerosols.

Provided toxicology analysis for a human health risk assessment related to a detergent contaminant (nonylphenol ethoxylate) found at low levels in a product marketed for consumption. Integral to this assessment was the identification of a toxicological effects level used to develop a health benchmark and the calculation of exposure estimates, key determinants in decisions related to product shelf retention.

Reviewed inhalation toxicology of fluorocarbon polymers in order to evaluate the human health risk and hazard associated with exposure to such compounds in aerosolized consumer products.

Developed a toxicology evaluation for a safety assessment for a viral inactivator commonly found as a trace contaminant in certain vaccines. A paucity of toxicology studies for the relevant dosing route meant that consideration of the toxicokinetic properties of the contaminant was necessary to apply toxicity criteria based on studies using alternative routes of exposure.

Assessed of the relationship between blood lead levels and housing characteristics and remediation, specifically evaluating the relative academic performance of a U.S. population residing within older homes containing lead-based paint.

Developed a state-of-knowledge report regarding the history and regulation of the release of dioxin-like compounds from the combustion of pentachlorophenol (PCP) and chromated copper arsenate (CCA)-treated wood.

Designed and performed in vitro assays to evaluate the diverse G-protein coupled receptor-based binding and signaling profiles of several dopaminergic ligands, with a focus on atypical antipsychotic drugs and novel Parkinson's Disease pharmacotherapies.

MANUSCRIPTS

Thompson C.M., J.G. Hixon, D.M. Proctor, L.C. Haws, M. Suh, **J.D. Urban**, M.A. Harris. 2012. Comparison of the Expression Profile Induced by Cr(VI) in the Small Intestine with Mutagenic and Nonmutagenic Hepatocarcinogens. (Regulatory Toxicology and Pharmacology – submitted.)

Rowlands J.C., **J.D. Urban**, D.S. Wikoff, R.A. Budinsky. 2011. An evaluation of single nucleotide polymorphisms in the human aryl hydrocarbon receptor-interacting protein (AIP) gene. *Drug Metab Pharmacokinet.* 26(4): 431-439.

Tichomirowa, M.A., A. Bariler, A.F. Daly, M.-L. Jaffrain-Rea, C.L. Ronchi, M. Yaneva, **J.D. Urban**, P. Petrossians, A.P. Elenkova, A. Tabarin, R. Desailoud, D. Maiter, T. Schürmeyer, R. Cozzi, M. Theodoropoulou, C. Sievers, I. Bernabeu, L.A. Naves, O. Chabre, C. Fajardo Montañana, V. Hana, G. Halaby, B. Delemer, J.I. Labarta, E. Sonnet, A. Ferrandez, M.T.s. Hagelstein, P. Caron, G.K. Stalla, V. Bours, S. Zacharieva, A. Spada, T. Brue and A. Beckers. 2011. High Prevalence of AIP Gene Mutations Following Focused Screening in Young Patients with Sporadic Pituitary Macroadenomas. *Eur J Endocrinol.* 165(4): 509-515.

Urban, J.D., J.C. Rowlands, R.A. Budinsky. 2011. Single nucleotide polymorphisms in the human aryl hydrocarbon receptor nuclear translocator (ARNT) gene. *Drug Metab Pharmacokinet.* August 9, 2011. doi: 10.2133/dmpk.DMPK-11-SC-031.

Urban, J., Budinsky, R., Rowlands, J. 2011. An evaluation of single nucleotide polymorphisms in the human heat shock protein 90kDa alpha and beta isoforms. *Drug Metab Pharmacokinet.* November 4, 2011. Accepted for publication.

Tachovsky, J.A., **J.D. Urban**, D.S. Wikoff, L.C. Haws and M.A. Harris. 2010. Reduction of a large fish tissue analyte database: identifying and assessing data specific to a remediation site for risk assessment application. *Chemosphere.* 80(5): 481-8.

Urban, J., J.A. Tachovsky, L. Haws, D. Wikoff Staskal, and M. Harris. 2010. Response to Mugdan et al.'s comment on Urban et al. "Assessment of Human Health Risks Posed by Consumption of Fish from the Lower Passaic River, New Jersey." *Science of the Total Environment.* 408(6): 1468-1470.

Urban, J.D., J.A. Tachovsky, L.C. Haws, D.F. Staskal, and M.A. Harris. 2010. Response to Buchanan et al.'s comment on Urban et al. "Assessment of Human Health Risks Posed by Consumption of Fish from the Lower Passaic River, New Jersey." *Science of the Total Environment.* 408(8): 2004-2007.

Urban, J.D., J.A. Tachovsky, D.F. Staskal, L.C. Haws, and M.A. Harris. 2009. Assessment of Human Health Risks Posed by Consumption of Fish from the Lower Passaic River, New Jersey. *Sci Total Environ.* 408(2): 209-24.

Scott L.L.F., D.F. Staskal, L.C. Haws, W.J. Luksemburg, L.S. Birnbaum, **J.D. Urban**, E.S. Williams, L.M. Nguyen, D.J. Paustenbach, and M.A. Harris. 2009. Levels of polychlorinated dibenzo-p-dioxins, dibenzofurans, and biphenyls in southern Mississippi catfish and estimation of potential health risks. *Chemosphere.* 74(7): 1002-10..

Staskal, D.F., L.L.F. Scott, L.S. Birnbaum, E.S. Williams, L.C. Haws, W.J. Luksemburg, **J.D. Urban**, L.M. Nguyen, D.J. Paustenbach, and M.A. Harris. 2008. Polybrominated diphenyl ethers in farm-raised and wild-caught catfish from southern Mississippi. *Environmental Science and Technology.* 42(17): 6755-61.

Urban, J.D., W.P. Clarke, M. von Zastrow, B. Kobilka, D.E. Nichols, H. Weinstein, J.A. Javitch, B.L. Roth, A. Christopoulos, P.M. Sexton, K.J. Miller, M. Spedding, and R.B. Mailman. 2007. Functional selectivity and classical concepts of quantitative pharmacology (Perspective in Pharmacology). *Journal of Pharmacology and Experimental Therapeutics*. 320 (1): 1-13. [Journal Cover.]

Urban, J.D., W.P. Clarke, M. von Zastrow, B. Kobilka, D.E. Nichols, H. Weinstein, J.A. Javitch, B.L. Roth, A. Christopoulos, P.M. Sexton, K.J. Miller, M. Spedding, and R.B. Mailman. 2007. Functional selectivity and classical concepts of quantitative pharmacology. *Journal of Pharmacology and Experimental Therapeutics*. 320 (1): 1-13.

Urban, J.D., G. Vargas, M. von Zastrow, and R.B. Mailman. 2007. Aripiprazole has functionally selective actions at D2 receptor-mediated signaling pathways. *Neuropsychopharmacology*. 32 (1): 67-77.

Gay, E.A., **J.D. Urban**, D.E. Nichols, G.S. Oxford, and R.B. Mailman. 2004. Functional selectivity of D2 receptor ligands in a Chinese hamster ovary hD2L cell line: evidence for induction of ligand-specific receptor states. *Molecular Pharmacology*. 66 (1): 97-105.

ABSTRACTS AND PRESENTATIONS

Urban, J., J.C. Rowlands, R. Budinsky, A. Dombkowski, C.M. Thompson, R. Thomas. A Genomics-Based Benchmark Dose Analyses of Relative Potencies of Dioxin Like Compounds in Primary Rat Hepatocytes. Presented at the 51st Annual Meeting of Society of Toxicology. March 11-15, 2012. San Francisco, CA. Abstract # 1726.

Perry, C., J.A. Tachovsky, M. Ke, **J. Urban**, L. Haws. Natural Gas Exploration and Production in the Barnett Shale: Assessment of Exposures to Volatile Organic Compounds (VOCs). To be presented at the 51st Annual Meeting of Society of Toxicology. March 11-15, 2012. San Francisco, CA. Abstract # 108.

Rowlands, J.C., **Urban, J.**, Wikoff, D.S., Budinsky, R. The presence and estimated functional effect of single nucleotide polymorphisms at the AIP, ARNT, HSP90AA1, AND HSP90AB1 loci in the human population. Presented at Dioxin 2011, August 21-25, 2011. Brussels, Belgium.

Thomas, R.S., Rowlands, J.C., Budinsky, R.A., Thompson, C.M., **Urban, J.D.**, Dombkowski, A. Genomic approaches for relative potency assessment. Presented at Dioxin 2011, August 21-25, 2011. Brussels, Belgium.

Budinsky, R., **J. Urban**, and J.C. Rowlands. An evaluation of single nucleotide polymorphisms in the human aryl hydrocarbon receptor nuclear translocator gene. Presented at the Society of Toxicology's 50th Annual Meeting, March 6-10, 2011. Washington, D.C.

Fitzgerald, L., B. Burkhalter, **J. Urban**, D. Staskal, M. Harris, and L. Haws. VOC serum levels in the general U.S. population: An analysis of the 2003-2004 NHANES dataset. Presented at the Society of Toxicology's 50th Annual Meeting, March 6-10, 2011. Washington, D.C.

Urban, J., L. Fitzgerald, B. Burkhalter, D. Staskal, M. Harris, and L. Haws. BTEX serum levels in the general U.S. population: An analysis of 2003-2004 NHANES dataset. Presented at the Society of Toxicology's 50th Annual Meeting, March 6-10, 2011. Washington, D.C.

Harris, M., J.A. Tachovsky, D. Staskal-Wikoff, T. Simon, B. Burkhalter, **J. Urban**, and L. Haws. Assessment of the Impact of Various Soil Cleanup Levels on Serum Concentrations of Dioxin-Like Compounds in Humans.

Presented at the 49th Annual Meeting of Society of Toxicology. March 7-11, 2010. Salt Lake City, Utah.

Haws, L., J.A. Tachovsky, D. Staskal-Wikoff, L. Aylward, B. Burkhalter, **J. Urban**, T. Simon, M. Harris. An evaluation of the influence of different soil cleanup levels on the concentration of dioxin-like compounds in human serum. Presented at Dioxin 2010, September 12-17, 2010, San Antonio, TX.

Tachovsky, A., D. Staskal, **J. Urban**, M.A. Harris, and L. Haws. Assessment of Environmental Data Collected in a Community With Numerous Petroleum Refining and Petrochemical Facilities. Presented at the 49th Annual Meeting of Society of Toxicology. March 7-11, 2010. Salt Lake City, Utah.

Urban, J., B. Burkhalter, J.A. Tachovsky, L. Haws, M. Harris. Evaluation of polychlorinated naphthalenes (PCNs) in newark bay sediment. Presented at Dioxin 2010, September 12-17, 2010, San Antonio, TX.

Urban, J.D., J.A. Tachovsky, D.F. Staskal, L.C. Haws, and M.A. Harris. Human Health Risk Assessment of Consumption of Fish from the Lower Passaic River. Presented at the 48th Annual Meeting of Society for Toxicology. March 15-19, 2009. Baltimore, MD.

Urban, J.D., L.C. Haws, D.F. Staskal, L.F. Scott, P.S. Scott, A.T. Tachovsky, K.M. Unice, and M.A. Harris. A Framework for Evaluating Serum Dioxin Data Derived from Biomonitoring Studies. Dioxin 2008, August 17–22, 2008 Birmingham, England.

Urban, J.D., L.C. Haws, L.F. Scott, P.S. Scott, D.F. Staskal, A.T. Tachovsky, K.M. Unice, and M.A. Harris. 2008. A Framework for Evaluating Serum Dioxin Data Derived from Biomonitoring Studies. Presented at the 47th Annual Meeting of Society for Toxicology. March 16–20, 2008. Seattle, WA. Abstract # 1198–637.

Urban, J.D., K. Thornley, R.W. Wightman, and R.B. Mailman. 2007. Pharmacological characterization of the N27-D2L cell line: assessment as a viable cell model for investigating D2L receptor dopaminergic-coupled functions. Presented at the 46th Annual Meeting of Society for Toxicology. March 25–29, 2007. Charlotte, NC. Abstract # 1058–231.

Urban, J.D., K. Thornley, R.W. Wightman, and R.B. Mailman. Pharmacological characterization of the N27-D2L cell line: assessment as a viable cell model for investigating D2L receptor dopaminergic-coupled functions. Society of Toxicology. March 25-29, 2007. Charlotte, NC.

Urban, J.D. and R.B. Mailman. 2005. Characterization of the N27 dopaminergic cell line as a model for elucidating the actions of functionally selective dopaminergic ligands. Presented at the 35th Annual Neuroscience Meeting. November 12–16, 2005. Washington, DC. Abstract # 32.21.

Urban, J.D. and R.B. Mailman. 2005. Functional selectivity as a mechanism of action for newer atypical antipsychotic drugs. Presented at: Merck, West Point, Pennsylvania, USA.

Urban, J.D., E.A. Gay, and R.B. Mailman. 2004. Functional selectivity as a mechanism of action of newer atypical antipsychotic drugs. Presented at the 34th Annual Neuroscience Meeting. October 23–27, 2004. San Diego, CA. Abstract # 163.4.

Urban, J.D., E.A. Gay, and R.B. Mailman. 2004. Decreased neurological side-effects with aripiprazole: a result of functional selectivity of the D2 receptor? Presented at the 43rd Annual Meeting of Society for Toxicology. March 21–25, 2004. Baltimore, MD. Abstract # 313.