Exponent®
Engineering & Scientific Consulting

Megan Arnold, Ph.D., DABT

Senior Scientist | Health Sciences
Washington DC
+1-202-772-4912 | marnold@exponent.com

Professional Profile

Dr. Arnold is a toxicologist with expertise in the evaluation of chemical exposures and their impacts on human health. This includes toxicological risk assessments of extractable and leachable substances from medical devices, consumer products, as well as pharmaceutical ingredients, excipients, and impurities. She uses her expertise in (Q)SAR in silico modelling to support these evaluations for regulatory submissions, as well as for litigation matters involving nitrosamines, perfluorinated compounds, phthalates, bisphenols, and organic peroxides. Dr. Arnold has over a decade's experience with cognitive and behavioral assays used to evaluate rodent models of neurodevelopmental disorders, such as Autism Spectrum Disorders. Her research background is in developmental neurotoxicity of metals, chemotherapeutics, maternal immune response, and maternal diet.

Prior to joining Exponent, Dr. Arnold held the position of Associate Toxicologist at Gradient, providing human health risk assessment consulting services from 2019 until 2021. Dr. Arnold earned her Ph.D. in Cognitive and Behavioral Sciences from Auburn University in 2020. Her doctoral work focused on developmental exposures and effects on neuromotor, learning, and memory in adult offspring. Her thesis work compared the effects of acute and chronic maternal immune activation during gestation on intradimensional shifts, extradimensional set-shifting, and working memory in adult offspring and attenuation by an immunomodulatory compound. In addition, she has served as instructor and provided teaching support for courses including psychopharmacology, research methods in social sciences, and psychology of learning at Auburn University and Harvard University.

Academic Credentials & Professional Honors

Ph.D., Cognitive and Behavioral Sciences, Auburn University, 2020

M.S., Psychology, Auburn University, 2016

B.S., Psychology, James Madison University, 2012

Licenses and Certifications

Diplomate of the American Board of Toxicology (DABT)

Academic Appointments

Teaching Support, Faculty of Arts and Sciences, Harvard University, 2020–2021

Prior Experience

Associate Toxicologist, Gradient, 2019–2021

Professional Affiliations

Society of Toxicology (SOT), 2015–present

Society for Neuroscience (SFN), 2014

Publications

Kendricks, D.R., Boomhower, S.R., Arnold, M.A., Glenn, D.J., Newland, M.C. (2020). Adolescent methylmercury exposure alters short-term remembering, but not sustained attention, in male Long-Evans rats. Neurotoxicology 78:186–194.

Arnold, M.A., Newland, M.C. (2018). Variable behavior and repeated learning in two mouse strains: Developmental and genetic contributions. Behavioural Processes 157:509–518.

Shen, A.N., Cummings, C., Hoffman, D., Pope, D., Arnold, M.A., Newland M.C. (2016). Aging motor function, and sensitivity to calcium channel blockers: an investigation using chronic methylmercury exposure. Behavioural Brain Research315:103–114.

Presentations

Arnold, M.A., Sauer, R.A., Newland, M.C. (2018, March). Doxorubicin-induced neuromotor impairments in male athymic NCr Mice: Partial protection by phenylaminoethyl selenide. Poster presented at the meeting of Society of Toxicology, San Antonio, TX.

Arnold, M.A., Newland, M.C. (2015, October). Baseline-dependent effects of d-amphetamine on operant variations: A strain comparison. Poster presented at the meeting of the Southeastern Association for Behavior Analysis, Roanoke, VA.

Arnold, M.A., Boomhower, S.R., Newland, M.C. (2015, April). Gestational exposure to high-fat diet and polyinosinic:polycytidylic acid in mice: Effects on spatial and visual discrimination. Seminar presented at Auburn University's Student Symposium, Auburn, AL.

Project Experience

(Q)SAR Modelling

Uses in silico modelling to predict toxicity (e.g., mutagenicity or irritation) of compounds, justify the selection of surrogate compounds, and justify the classification of compounds in accordance with international standards (e.g., ICH M7). This work has been conducted in support of regulatory submissions for medical devices and pharmaceuticals, as well as in litigation matters.

Medical Device Extractables

Performed biocompatibility evaluations, gap analyses, and toxicological evaluations for manufacturing process and packaging changes related to medical devices. Provides regulatory support for clients regarding the biocompatibility of medical devices. Performed toxicological risk assessments for extractable and leachable substances from medical devices.

Dermal Assessments

Performed chemical hazard assessments and quantitative risk assessments for skin sensitization and irritation after potential exposure to constituents of various consumer products designed for limited contact with skin. Identified potential chemicals of concern and established exposure levels intended to protect consumers from adverse skin reactions.

Systematic Literature Reviews

Performed systematic reviews of the epidemiological and experimental animal literature assessing developmental, neurodevelopmental, immune, cognitive, and behavioral effects for a variety of exposures including paraquat, perfluorinated chemicals, polychlorinated biphenyls (PCBs), metals, and industrial solvents.