



Jillian A. Parker, PhD

Current Position

Senior Health Scientist

Discipline Areas

- > Toxicology
- > Risk Assessment
- > Occupational Health & Safety

Years' Experience

3

Joined Cardno

2018

Education

- > PhD, Chemistry & Chemical Biology, Northeastern University, 2017
- > BS, Biochemistry, Applied Mathematics Minor, The University of Akron, 2012

Summary of Experience

Dr. Jillian Parker is a Senior Health Scientist with Cardno ChemRisk, located in Aliso Viejo, California, with 3 years of professional experience in the areas of toxicology and human health risk assessment. She received her BS in biochemistry from the University of Akron, where she conducted research focused on the structure and function of bacterial metal-binding proteins the effects of elemental silver on proteins. Dr. Parker then completed her PhD in Chemistry & Chemical Biology at Northeastern University, which was focused on protein chemistry, structural biology, structure-function relationships, intramolecular cellular signaling pathways, and small molecule and biological pharmaceuticals. Dr. Parker primary areas of practice include the safety, toxicology, and potential risks of personal care and consumer products, pharmaceuticals, and electronic nicotine delivery systems (ENDS). She is also the co-lead of the Consumer Products Initiative.

Prior to joining the firm, Dr. Parker was employed as a Patent Agent and specialized in pharmaceutical and biotechnology intellectual property and litigation support. Dr. Parker is registered to practice before the United States Patent and Trademark Office (USPTO).

Significant Projects

Personal Care and Consumer Products

Conducted *in vitro* and *ex vivo* studies to evaluate various endpoints of concern, such as dermal irritation and hair loss, and performed exposure and risk assessments on ingredients and products of concern. Provided support and led research efforts to understand the toxicology, potential risk of exposure, and potential health risk of various ingredients and types of personal care and consumer products.

Pharmaceuticals

Performed and reviewed occupational safety assessments of numerous active pharmaceutical ingredients, which included preparation of occupational exposure limits, permitted daily exposures, and occupational banding assignments in accordance with ICH guidelines and industry standards.

Microplastics

Conducted a literature review of the state of the science for tire wear particles and crumb rubber. Research efforts included development of novel single particle analysis techniques for identification and characterization of microplastics, such as tire wear particles, in complex environmental sources and media to inform on the potential impacts on human health and the environment.

Pesticides

Assisted multiple clients in obtaining registration of antimicrobial products under the U.S. Environmental Protection Agency (EPA) Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and with state-specific agencies.

Nicotine Products and Premarket Tobacco Applications

Led toxicology- and microbiology-related research efforts for multiple electronic nicotine delivery systems (ENDS) products in preparation of premarket tobacco application (PMTA) submissions to the Food and Drug Administration (FDA). Developed testing rationale, performed data analysis, and drafted PMTA submission package sections related to these research efforts. Conducted microbial risk assessment of ENDS products.

Litigation Support

Provided consulting services involving asbestos exposure in various occupational and residential settings, including from personal care and consumer products.

- > Patent Agent, USPTO, 2017

- > Society of Toxicology (SOT) – Full member (since 2018)

- > American Society for Biochemistry and Molecular Biology (ASBMB) – Student member (2013-2017)

Peer-Reviewed Publications

- > Packer, M.R., **J.A. Parker**, J.K. Chung, Z. Li, Y.K. Lee, T. Cookis, H. Guterres, S. Alavarez, M.A. Hossain, D.P. Donnelly, J.N. Agar, L. Makowski, M. Buck, J.T. Groves, and C. Mattos. (2021). Raf promotes dimerization of the Ras G-domain with increased allosteric connections. *Proc Nat Acad Sci*, 118 (10) e2015648118.
- > Kovichich, M., M. Liang, **J.A. Parker**, S.C. Oh, J.P. Lee, L. Xi, M.L. Kreider, and K.M. Unice. (2021). Chemical mapping of tire and road wear particles for single particle analysis. *Science of the Total Environment* 757: 144085.
- > Johnson, C.W., Y.J. Lin, D. Reid, **J. Parker**, S. Pavlopoulos, P. Dischinger, C. Graveel, A.J. Augirre, M. Steensma, K.M. Haigis, and C. Mattos. (2019). Isoform-Specific Destabilization of the Active Site Reveals a Molecular Mechanism of Intrinsic Activation of KRas G13D. *Cell Reports* 28: 1538-1550.
- > **Parker, J.A.**, A.Y. Volmar, S. Pavlopoulos and C. Mattos. (2018) K-Ras Populates Conformational States Differently from Its Isoform H-Ras and Oncogenic Mutant K-RasG12D. *Structure* 26(5); 810-820.
- > **Parker, J.A.** and C. Mattos. (2017) The K-Ras, N-Ras, and H-Ras Isoforms: Unique Conformational Preferences and Implications for Targeting Oncogenic Mutants. Publication. *Cold Spring Harb Prespect Med*; a031427.

Professional Registrations

Membership and Service to Professional Societies

Publications

- > Kauke, M.J.*, M.W. Traxlmayr*, **J.A. Parker***, J.D. Keifer, R. Knihtila, J. McGee, G. Verdine, C. Mattos and K.D. Wittrup. (2017) An engineered protein antagonist of K-Ras/B-Raf interaction. *Scientific Reports* 7; 5831.
*indicates co-first author
- > Johnson, C.W., D. Reid, **J.A. Parker**, S. Salter, R. Knihtila, P. Kuzmic and C. Mattos. (2017) The small GTPases K-Ras, N-Ras, and H-Ras have distinct biochemical properties determined by allosteric effects. *Journal of Biological Chemistry* 292; 12981-12993.
- > **Parker, J.A.** and C. Mattos. (2015) The Ras–Membrane Interface: Isoform-Specific Differences in the Catalytic Domain. *Molecular Cancer Research* 13(4); 595-603.
- > Panzner, M.J., S.M. Bilinovich, **J.A. Parker**, E.L. Baldholm, C.J. Ziegler, S.M. Berry and T.C. Leeper. (2013) Isomorphic deactivation of a *Pseudomonas aeruginosa* oxidoreductase: The crystal structure of Ag(I) metallated azurin at 1.7 Å. *Journal of Inorganic Biochemistry* 128; 11-16.

Presentations

Conference Poster Presentations

- > Parker, J.A., C. Boles, A. Buerger, E.S. Fung, and A. Maier. 2021. Derivation of an Occupational Exposure Limit for β -glucans. Virtual Poster Presentation at the 2021 Society of Toxicology (SOT) Annual Meeting. March 12-26.
- > Parker, J.A. and C. Mattos. 2015. Probing the Ras-membrane interaction from a structural biology perspective. Poster presentation at the 2015 Experimental Biology Annual Meeting in Boston, Massachusetts; March 31.
- > Parker, J.A. and C. Mattos. 2013. Local docking simulations to elucidate the Ras-membrane interaction. Poster presentation at the 2013 Ondrechen Symposium at Northeastern University in Boston, Massachusetts; July 29.
- > Parker, J.A. and T.C. Leeper. 2011. Gadolinium foot-printing to elucidate protein-protein contact strength in the yeast 3'-mRNA processing complex. Poster presentation at the 2011 Regional NMR Users Meeting in Akron, OH; November 10.
- > Parker, J.A. and T.C. Leeper. 2010. Site-directed mutagenesis of the protein-protein contacts in the yeast mRNA complexing process. Poster presentation at the 41st Central Regional Meeting of the American Chemical Society (CeRMACS) in Dayton, OH; June 16-19.

Published Abstracts

- > More, S.L., J.A Parker, C. Mathis, E. Encina, and E. S Fung. 2021. Quantitative Risk Assessment of Skin Sensitization Induction from Hexavalent Chromium in Leather Consumer Products. Virtual Poster Presentation at the 2021 Society of Toxicology (SOT) Annual Meeting. March 12-26.
- > Kovoichich, M., M. Liang, J.A. Parker, S.C. Oh, J.P. Lee, L. Xi, M.L. Kreider and K.M. Unice. 2021. Physical and Chemical Characterization of Tire and Road Wear Particles: Implications for Single Particle Analysis. Virtual Poster Presentation at the 2021 Society of Toxicology (SOT) Annual Meeting. March 12-26.
- > Bandara, S.B. A. Urban, L.G. Liang, J.A. Parker, E. Fung, and A. Maier. 2021. Active Pharmaceutical Contaminants in Dietary Supplements: A Tier-Based Risk Assessment. Virtual Poster Presentation at the 2021 Society of Toxicology (SOT) Annual Meeting. March 12-26.

- > Fung, E.S., J.A. Parker, and A.D. Monnot. 2021. Impact of Personal Care Product Exposure on Hair Follicle Health. Virtual Poster Presentation at the 2021 Society of Toxicology (SOT) Annual Meeting. March 12-26.
- > Parker, J.A., K.M. Towle, A.D. Monnot, and E.F. Fung. 2020. Effect of Exposure to Commercial Hair Care Products on Primary Human Hair Follicle Dermal Papilla Cells. Poster Presentation at Society of Toxicology 59th Annual Meeting; March 15-19, Anaheim, California.
- > Towle, K., E.S. Fung, J. Parker, and A. Monnot. 2020. A Survey and Quantitative Risk Assessment of PFAS Chemicals in Hair Care Products. Poster Presentation at Society of Toxicology 59th Annual Meeting; March 15-19, Anaheim, California.
- > Bandara, S.B. J.A. Parker, L.G. Liang, S. Chen, A. Maier and E.S. Fung. 2020. The Utility of hERG Inhibition Data in the Derivation of Pharmaceutical Occupational Exposure Limits. Poster Presentation at Society of Toxicology 59th Annual Meeting; March 15-19, Anaheim, California.
- > Kreider, M.L. J.V. Miller, and J.A. Parker. 2020. Efficiency of Removal of Five Per- and Polyfluorinated Alkyl Substances from Drinking Water with Household Granular-Activated Carbon Filters. Poster Presentation at Society of Toxicology 59th Annual Meeting; March 15-19, Anaheim, California.
- > Massarsky, A. J.A. Parker, M.T. Hoang, E.S. Fung, and K.M. Unice. 2020. Using ToxCast and Reactome to Evaluate Toxicity of PFAS. Poster Presentation at Society of Toxicology 59th Annual Meeting; March 15-19, Anaheim, California.
- > Parker, J.A. and C. Mattos. 2015. Probing the Ras-membrane interaction from a structural biology perspective. Abstract no. 893.23. Poster presentation at the 2015 Experimental Biology Annual Meeting in Boston, Massachusetts; March 31.
- > Parker, J.A. and T.C. Leeper. 2010. Site-directed mutagenesis of the protein-protein contacts in the yeast mRNA complexing process. Poster presentation at the 41st Central Regional Meeting of the American Chemical Society (CeRMACS) in Dayton, OH; June 16-19.