

## Rayetta G. Henderson, Ph.D.

MANAGING SCIENTIST

### CONTACT INFORMATION

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### PROFESSIONAL PROFILE

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Dr. Rayetta Henderson is a Managing Scientist in the Foods & Consumer Products Practice at ToxStrategies. She has extensive experience in the assessment of food, feed, and dietary supplement ingredients, including a heavy focus in the study of botanicals. Dr. Henderson's work includes developing materials to support regulatory submissions, such as Generally Recognized as Safe (GRAS) and New Dietary Ingredient (NDI) notifications to FDA. More recently, her focus has extended to the assessment of cannabidiol (CBD) and other hemp-derived products for use in foods and dietary supplements, including safety assessment and toxicology testing programs.

Dr. Henderson has prior experience working for an international trade association, including aiding in the development of strategies for addressing regulatory and technical issues in the US and EU. In addition, in her previous role as technical manager of the global Nickel REACH Consortia, she managed the strategic planning and implementation of research programs to fulfill data requirements for nickel-containing substances for the EU's REACH Regulation. Dr. Henderson also has extensive knowledge of the UN's Globally Harmonized System (GHS), including hazard assessment and classification.

Dr. Henderson has substantial experience designing and interpreting scientific data from toxicity studies and alternative-method studies in support of hazard evaluations, with a focus on bioaccessibility-based methods. She has studied and performed health effects assessments on various chemicals, including perfluorinated compounds (PFCs), dioxin-like compounds, and metals, particularly nickel and nickel-containing substances.

Dr. Henderson earned her Ph.D. in Toxicology from the University of North Carolina at Chapel Hill, where her research focused on understanding the mechanism of action leading to the developmental toxicity of perflurooctane sulfonate (PFOS).

## EDUCATION AND DEGREES EARNED

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- 2005 Ph.D., Toxicology and Interdisciplinary Program in Biomedical Sciences, University of North Carolina at Chapel Hill
- 2000 B.S., Biology (Spanish minor), Eckerd College

## PROFESSIONAL ASSOCIATIONS

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- Institute of Food Technologists
- North Carolina Chapter, Society of Toxicology
- Society of Toxicology

## PROFESSIONAL ACTIVITIES

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- 2019-Present Participating member, Council for Responsible Nutrition, CBD Working Group
- 2019-Present Participating member, Council for Responsible Nutrition, Senior Scientific Advisory Council
- 2008–2009 Speaker and participant, HERAG Alloys Fact Sheet meeting at Finnish Institute of Occupational Health
- 2005–2006 Student Councilor, Reproductive and Developmental Toxicology Specialty Section, Society of Toxicology
- 2005 Invited Speaker, Organ System Maturation: The Lung. Middle Atlantic Reproduction and Teratology Association
- 2004–2005 Student Representative, The Teratology Society Continuing Education Committee
- 2004–2005 Student Representative, UNC-CH Curriculum in Toxicology Executive Committee
- 1998–2000 Student Representative, Natural Science Collegium Senate, Eckerd College

## PROFESSIONAL AWARDS

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- Best Paper of the Year (co-author), *Food and Chemical Toxicology* (2017)
- Young Investigator Travel Award, The Teratology Society (2003, 2004, and 2005)
- US EPA Bronze S-Award for Sustained Efforts (2004)
- Marie Taubeneck Award, The Teratology Society (2004)
- Graduate Student Travel Award, Society of Toxicology (2002)

## SELECTED PROFESSIONAL EXPERIENCE

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### ***Foods & Consumer Products***

Performed extensive work in the safety evaluations of food, feed, and nutritional supplement ingredients, such as colors, sweeteners, fibers, pomaces, waxes, lecithins, and plant-based proteins; other examples include fatty acid esters, keto salts, eggshell membrane, and various plant and seed extracts.

Prepared numerous Generally Recognized as Safe (GRAS) dossiers with and without FDA notification.

Created a literature database and systematic evidence map for cannabidiol (CBD) safety.

Conducted data gap assessments and designed testing programs to support future GRAS determinations and/or New Dietary Ingredient Notifications (NDINs).

Managed project evaluating the identification, uses, and doses of ~100 essential oils used in cigarettes and e-cigarettes.

Drafted a comprehensive review of the potential reproductive toxicity of a botanical-derived ingredient to be used in a personal care product; submitted by the client to Health Canada's Pest Management Regulatory Agency (PMRA)

Developed an original framework for safety testing of novel food compounds undergoing sensory testing.

Served as assessor for Systematic Review of the effects of caffeine intake during pregnancy.

Conducted data-gap analyses on various colors and sweeteners in anticipation of potential future Joint FAO/WHO Expert Committee on Food Additives (JECFA) and/or European Food Safety Authority (EFSA) evaluations.

Generated comments to be submitted to the FDA regarding labeling of a low-calorie sweetener as a food additive.

Coordinated and managed the development of an expert panel and comments on the US CPSC Chronic Hazard Advisory Panel Report on Phthalates.

### ***REACH, CLP, and GHS***

Evaluated available data and recommended hazard classification for Safety Data Sheets (SDSs) based on a metal in a mixture product according to the US OSHA Hazard Communication Standard (HCS; aligned with the UN GHS); co-wrote the supporting technical white paper.

Managed the strategic planning and implementation of research programs to fulfill data requirements under the REACH/CLP 2010 Registration on behalf of a global REACH Consortium.

Served as science team representative to industry stakeholders, including technical working groups and legal and financial subgroups.

Evaluated toxicology data, generated endpoint summaries, and assessed hazard classifications for nickel and nickel-containing substances and alloys.

Drafted dossiers for Proposal for Harmonised Classification and Labelling on behalf of a global metal-industry REACH consortium.

Developed and implemented an *in vitro* system for reading-across the toxicological properties of nickel compounds in order to reduce animal testing.

Conducted data-gap analysis and managed testing for human health, including 60+ OECD-guideline-compliant toxicity studies with contract laboratories.

Assisted in drafting reports regarding health issues for nickel compounds used in regulatory comments and submissions (e.g., technical guidance for read-across of metals toxicity for EU CLP Regulation).

### **Additional Metals**

Drafted comments on the European Food Safety Authority's (EFSA) Opinion on Nickel in Feed; comments were submitted to EFSA for consideration.

Managed a complex multi-year study and drafted the corresponding peer-reviewed publication on an interlaboratory validation method for metals involving 12 different organizations. Following completion of this work, updated the standard operating procedure to assist with submission of a Test Method Submission to the European Union Reference Laboratory for alternatives to animal testing (EURL-ECVAM).

Contributing author to industry documents titled, *Guidance for Bio-elution Testing of Alloy and HERAG Alloys Fact Sheet: Hazard Identification and Classification of Alloys for Human Health Endpoints*.

### **BOOK CHAPTER**

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Verougstraete V, **Henderson R**, Mackie M, Newson T, Oller R. 2018. Human health (toxicity) assessment of complex inorganic materials. Chapter 8 in: Risk Management of Complex Inorganic Materials. Elsevier, ISBN 978-0-12-811063-8.

### **MANUSCRIPTS**

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Wikoff D, Welsh BT, **Henderson R**, Brorby GP, Britt J, Myers E, Goldberger J, Lieberman HR, O'Brien C, Peck J, Tenebein M, Weaver C, Harvey S, Urban J, Doepker C. 2017. Systematic review of the potential adverse effects of caffeine consumption in healthy adults, pregnant women, adolescents, and children. *Food Chem Toxicol* 109(Pt1):585–648. <https://doi.org/10.1016/j.fct.2017.04.002>. E-pub Apr 21.

**Henderson RG**, Verougstraete V, Anderson K, Arbildua JJ, Brock TO, Cappellini D, Delbeke K, Herting G, Hixon G, Wallinder IO, Rodriguez PH, Assche FV, Wilrich P, Oller AR. 2014. Interlaboratory validation of bioaccessibility testing in metals. *Regul Toxicol Pharmacol* 70(1):170–181.

**Henderson RG**, Durando J, Oller A, Merkel DJ, Marone PA, and Bates HK. 2012. Acute oral toxicity of nickel compounds. *Regul Tox Pharmacol* 62(3):425–432.

**Henderson, RG**, Cappellini D, Seilkop SK, Bates HK and Oller AR. 2012. Oral bioaccessibility testing and read-across hazard assessment of nickel compounds. *Regul Tox Pharmacol* 63(1):20–28.

Oller AR, Cappellini D, **Henderson RG**, Bates HK. 2009. Temperature effect on nickel release in ammonium citrate. *J Environ Monit* 11(9):1697–1699.

Oller AR, Cappellini D, **Henderson RG**, Bates HK. 2009. Comparison of nickel release in solutions used for the identification of water-soluble nickel exposures and in synthetic lung fluids. *J Environ Monit* 11(4):823–829.

**Grasty RC**, Bjork JA, Wallace KB, Wolf DC, Lau CS, Rogers JM. 2005. Effects of prenatal perfluorooctane sulfonate (PFOS) exposure on lung maturation in the perinatal rat. *Birth Defects Res B Dev Reprod Toxicol* 74(5):405–416.

**Grasty RC**, Grey BE, Wolf DC, Lau CS, Rogers JM. 2003. Prenatal window of susceptibility to perfluorooctane sulfonate-induced neonatal mortality in the Sprague-Dawley rat. *Birth Defects Res (Part B) Dev Reprod Toxicol* 68(6):465–471.

Smith DM, **Grasty RC**, Theodosiou NA, Tabin CJ, Nascone-Yoder NM. 2000. Evolutionary relationships between the amphibian, avian, and mammalian stomachs. *Evol Dev* 2(6):348–359.

## ABSTRACTS AND PRESENTATIONS

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**Henderson RG**, Franzen A, Franke K, Payne L, Schmitt D, Wikoff D. Creating a literature database for cannabidiol (CBD): Systematic evidence mapping. Poster for Society of Toxicology, Virtual Annual Meeting, 2020, <https://eventpilotadmin.com/web/page.php?page=Session&project=SOT20&id=P1236>.

**Henderson RG**, Doepker C, Lopez JG. Safety evaluation of L-theanine administered via hard chew to dogs. Poster at Society of Toxicology Annual Meeting, Baltimore, MD, March 2019.

**Henderson R**, Miller J, Lopez JG. Safety evaluation of daily oral administration of egg shell membrane via soft chew to male and female beagles. Presented at the Society of Toxicology's 57<sup>th</sup> Annual Meeting, San Antonio, TX, March 2018.

Wikoff DW; Welsh BT, **Henderson R**, Brorby G, Britt J, Myers E, Goldberger J, Lieberman HR, O'Brien C, Doepker C. Application of systematic review in the evaluation of caffeine safety: Potential adverse effects of caffeine consumption in healthy adults, pregnant women, adolescents, and children. Society of Risk Analysis Annual Meeting. Arlington, VA, December 2017.

**Henderson R**, Verougstraete V, Anderson K, Arbidua JJ, Brock TO, Brouwers T, Cappellini D, Delbeke K, Herting G, Hixon G, Odnevall Wallinder I, Rodriguez PH, Van Assche F, Wilrich P, Oller AR. Inter-laboratory validation of bioaccessibility test for metals. Presented at the Society of Toxicology's 53rd Annual Meeting. Phoenix, AZ, March 2014.

**Henderson R**, Verougstraete V, Anderson K, Arbidua JJ, Brock TO, Brouwers T, Cappellini D, Delbeke K, Herting G, **Hixon G**, Odnevall Wallinder I, Rodriguez PH, Van Assche F, Wilrich P, Oller AR. Interlaboratory comparison of bioaccessibility tests for metals. Annual meeting of the Belgian Society for Toxicology and Ecotoxicology (BelTox), 2013.

Oller A, **Henderson RG**. Bioaccessibility testing and its application to read-across for hazard assessment and risk characterisation of metals. Annual meeting of the Belgian Society for Toxicology and Ecotoxicology (BelTox), 2011.

Semeraro A, Patriarca M, Taylor A, **Henderson R**, Bates H. Nickel kinetics after oral exposure: Urinary excretion. IUPAC 4th International Symposium for Trace Elements in Food, 2011.

**Henderson RG**, Cappellini D, Seilkop S, Oller A, Bates H. 2011. Bioaccessibility-based read-across assessment of nickel compounds for oral systemic toxicity. Abstract 298. *The Toxicologist* (CD—An official journal of the Society of Toxicology) 120:S-2.

**Grasty RC**, Roberts N, Klinefelter G, Bjork JA, Wallace KB, Lau CS, Rogers JM. 2005. Effects of prenatal perfluorooctanesulfonate (PFOS) exposure on lung maturation in the perinatal rat. *Birth Defects Res A Clin Mol Teratol* 73:314.

**Grasty RC**, Roberts N, Grey BE, Lau C, Rogers JM. 2004. Effects of prenatal exposure to perfluorooctane sulfonate on the developing lung in the rat. *The Toxicologist*, 78(1-S):1916.

**Grasty RC**, Roberts N, Grey BE, Lau C, Rogers JM. 2004. Perfluorooctane sulfonate (PFOS) alters lung development in the neonatal rat. *Birth Defects Res Part A*, 70(5):42.

**Grasty RC**, Grey BE, Lau CS, Rogers JM. 2003. Window of susceptibility to perfluorooctane sulfonate (PFOS)-induced neonatal mortality in the rat. *Birth Defects Res Part B*, 68(3):5.

**Grasty RC**, Grey BE, Thibodeaux J, Lau C, Rogers JM. 2002. Critical period for increased neonatal mortality induced by perfluorooctane sulfonate (PFOS) in the rat. *The Toxicologist* 66(1-S):118.