Deborah Proctor

CHIEF BUSINESS DEVELOPMENT OFFICER
MANAGING PRINCIPAL SCIENTIST

CONTACT INFORMATION

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PROFESSIONAL PROFILE

Ms. Deborah Proctor has more than 30 years of experience in environmental and occupational health risk assessment, specializing in applied toxicology, mode-of-action evaluations for chemical carcinogens, air toxics and air pollution risk assessment, exposure reconstruction, and quantitative dose-response analysis for the purpose of developing toxicity criteria.

Ms. Proctor has technical expertise for assessing the potential human health risk associated with contaminated air, soil, sediments, groundwater, biota, and consumer products; evaluating failure-to-warn litigation claims pursuant to California Proposition 65, including determination of Safe Harbor Levels; designing risk-based site investigations; assessing the environmental fate and toxicity of metals in the environment; determining the bioavailability of metals in soil and solid media; and risk/hazard communications. Ms. Proctor has conducted studies of oral and inhalation bioaccessibility for metals in alloys, slags, and affected soil, dust, and baghouse dust, and has designed and conducted relative bioavailability studies for cobalt, nickel, and manganese. Ms. Proctor uses state-of-the-art scientific approaches to evaluate potential hazards and develop health-protective and science-driven remediation goals. She provides technical comments to regulatory agencies on policy and guidance documents, and technical support for public communication. Ms. Proctor has designed studies involving human volunteers and is experienced with the use of Internal Review Boards (IRBs) and the ethical requirements and considerations associated with research involving humans.

Ms. Proctor is a nationally recognized expert regarding the potential health risks associated with occupational and environmental exposure to chromium. She has published extensively in this field and managed research projects that have been used to develop federal and state regulatory health criteria. Additionally, she has extensive experience in metals risk assessment and specific expertise for evaluation of nickel, cobalt, titanium, manganese, lead, vanadium, beryllium, and arsenic. Ms. Proctor has experience using physiologically based pharmacokinetic (PBPK) modeling in risk assessment for chromium, lead, manganese, and perchlorate.

Ms. Proctor's research has been applied to support regulatory decisions and inform health-based criteria. Specific examples include the USEPA Inhalation Reference Concentration for hexavalent chromium using Malsh et al. (1994), the OSHA risk assessment for the 2006 Hexavalent Chromium Rule and revised Permissible Exposure Limit using Luippold et al. (2003); Crump et al. (2003), and Proctor et al. (2003; 2004), USEPA Office of Prevention, Pesticides and Toxic Substances 2008 Reregistration Eligibility Decision (RED) for Chromated Arsenicals using Technical Study Reports FPRL #012506 and FPRL #012406; and the New Jersey Department of Environmental Protection Soil Cleanup Criteria for dermal contact with hexavalent chromium using Fowler et al. (1999). She recently published an adverse outcome pathway (AOP) analysis for rodent forestomach tumors by nongenotoxic initiating events (Proctor et al., 2018).

Ms. Proctor is a regular science peer reviewer for the *Journal of Applied Toxicology*, *Toxicology*, *Regulatory Toxicology and Pharmacology*, *Chemico-Biological Interactions*, and *PLOS1*.

ACADEMIC CREDENTIALS

B.S., Environmental Toxicology, University of California, Davis, 1988
Graduate Studies, Epidemiology, University of Pittsburgh, 1996–1998

PROFESSIONAL AFFILIATIONS

Society for Risk Analysis (member)

Association for Environmental Health Sciences (Scientific Review Board member)

International Society of Exposure Assessment (member)

Society of Toxicology (Councilor, Risk Assessment Specialty Section)

PUBLICATION AND PRESENTATION AWARDS

Society of Toxicology (SOT) 2014
Awarded top 10 Risk Assessment Presentations at the Society of Toxicology conference (Proctor DM, Suh M, Tachovsky JA, Abraham L, Hixon JG, Brorby GP, Campleman SL) by the RASS.

SOT 2013
Awarded for Three of the Top Ten Risk Assessment Presentations at the Society of Toxicology conference (Kirman et al., Thompson et al., Kopec et al.) by the RASS.

SOT 2012
Awarded top nine published papers Advancing the Science of Risk Assessment by the Risk Assessment Specialty Section (Thompson CM, Haws LC, Harris MA, Gatto NM, Proctor DM) by the RASS.

SOT 2004
Awarded top five Risk Assessment Presentations at the Society of Toxicology conference (Leung H, Madl A, Proctor D, Hays S, Cohen E) by the RASS, Baltimore MD.

SOT 2002
Awarded top five Risk Assessment Presentations at the Society of Toxicology conference (Crump K and Proctor D) by the Risk Assessment Specialty Section (RASS), Nashville, TN.

MANUSCRIPTS

Mittal L, Perry C, Blanchette AD, **Proctor DM**. 2024. Probabilistic risk assessment of residential exposure to electric arc furnace steel slag using Bayesian model of relative bioavailability and PBPK modeling of manganese. Risk Anal, open access.

Perry CS, Blanchette AD, Vivanco SN, Verwiel AH, **Proctor DM**. 2023. Use of physiologically based pharmacokinetic modeling to support development of an acute (24-hour) health-based inhalation guideline for manganese. Regul Toxicol Pharmacol 145:105518 [open access].

Proctor DM, Vivanco SN, Blanchette AD. 2023. Manganese relative oral bioavailability in electric arc furnace steel slag is influenced by high iron content and low bioaccessibility. Toxicol Sci, 10pp, Advance Publication, https://doi.org/10.1093/toxsci/kfad037.

Thompson CM, **Proctor DM**, Harris MA. 2023. Letter to "Chepelev et al. Establishing a quantitative framework for regulatory interpretation of genetic toxicity dose-response data: Margin of exposure case study of 48 compounds with both in vivo mutagenicity and carcinogenicity dose-response data." Environ Mol Mutagen 64(4):259–260; DOI: 10.1002/em.22537.

Proctor DM, Bhat V, Suh M, Reichert H, Jiang X, Thompson CM. 2021. Inhalation cancer risk assessment for environmental exposure to hexavalent chromium: Comparison of margin-of-exposure and linear extrapolation approaches. Regul Toxicol Pharmacol 124:104969, https://doi.org/10.1016/j.yrtph.2021.104969.

Bhat VS, Cohen SM, Gordon EB, Wood CE, Cullen JM, Harris MA, **Proctor DM**, Thompson CM. 2020. An adverse outcome pathway for small intestinal tumors in mice involving chronic cytotoxicity and regenerative hyperplasia: A case study with hexavalent chromium, captan, and folpet. Crit Rev Toxicol (open access), https://doi.org/10.1080/10408444.2020.1823934.

Thompson CM, Donahue DA, Hobbs C, Costecalde Y, Franzen A, Suh M, **Proctor DM**, Harris MA. 2020. Exposure to environmentally-relevant concentrations of hexavalent chromium does not induce ovarian toxicity in mice. Regul Toxicol Pharmacol 116, open access: https://doi.org/10.1016/j.yrtph.2020.104729.

Suh M, Wikoff D, Lipworth L, Goodman M, Fitch S, Mittal L, Ring C, **Proctor D**. 2019. Hexavalent chromium and stomach cancer: A systematic review and meta-analysis. Crit Rev Toxicol [ePub ahead of print]: doi: 10.1080/10408444.2019.1578730.

Rager JE, Suh M, Chappell G, Thompson CM, **Proctor DM**. 2019. Review of transcriptomic responses to hexavalent chromium exposure in lung cells supports a role of epigenetic mediators in carcinogenesis. Toxicol Lett 305:40–50.

Suh M, Casteel S, Dunsmore M, Ring C, Verwiel A, **Proctor DM**. 2019. Bioaccessibility and relative oral bioavailability of cobalt and nickel in residential soil and dust affected by metal grinding operations. Sci Tot Environ 660:677–689.

Proctor DM, Suh M, Chappell G, Borghoff SJ, Thompson CM, Wiench K, Finch L, Ellis-Hutchings R. 2018. An adverse outcome pathway (AOP) for forestomach tumors induced by non-genotoxic initiating events. Regul Toxicol Pharmacol 96:30–40, doi: 10.1016/j.yrtph.2018.04.016.

Suh M, **Proctor DM**, Chappell G, Rager JE, Thompson CM, Borghoff S, Finch L, Ellis-Hutchings R, Wiench K. 2018. A review of the genotoxic, mutagenic, and carcinogenic potentials of several lower acrylates. Toxicology 402–403:50–67, doi: 10.1016/j.tox.2018.04.006.

Thompson CT, Suh M, Chappell G, Borghoff S, Ellis-Hutchings R, Wiench K, Finch L, **Proctor DM**. 2018. Assessment of the mode of action underlying development of forestomach tumors in rodents following oral exposure to ethyl acrylate and relevance to humans. Regul Toxicol Pharmacol 96:178–189 doi: 10.1016/j.yrtph.2018.05.006.

Thompson CM, Kirman CR, Hays SM, Suh M, Harvey SE, **Proctor DM**, Rager JE, Haws LC, Harris MA. 2018. Integration of mechanistic and pharmacokinetic information to derive oral reference dose and margin-of-exposure values for hexavalent chromium. J Appl Toxicol 38:351–365. doi: 10.1002/jat.3545.

Thompson CM, Wolf, JC, McCoy A, Suh M, **Proctor DM**, Kirman CR, Haws LC, Harris MA. 2017. Comparison of toxicity and recovery in the duodenum of B6C3F1 mice following treatment with intestinal carcinogens captan, folpet, and hexavalent chromium. Toxicol Pathol 45(8):1091–1101. DOI: 10.1177/019262331yy4324.

Thompson CM, Suh M, **Proctor DM**, Haws LC, Harris MA. 2017. Ten factors for considering the mode of action of Cr(VI)-induced gastrointestinal tumors in rodents. Mut Res/Genetic Toxicol Environ Mutagen 823:45–57.

Thompson CM, Young RR, Dinesdurage H, Suh M, Harris MA, Rohr AC, **Proctor DM**. 2017. Assessment of the mutagenic potential of hexavalent chromium in the duodenum of big blue® rats. Toxicol Appl Pharmacol 330(1):48-52.

Rager JE, Ring CL, Fry RC, Suh M, **Proctor DM**, Haws LC, Harris MA, Thompson CM. 2017. High-throughput screening data interpretation in the context of *in vivo* transcriptomic responses to oral Cr(VI) exposure. Toxicol Sci kfx085. doi: 10.1093/toxsci/kfx085.

Kirman CR, **Suh M, Proctor DM**, Hays SM. 2017. Improved physiologically based pharmacokinetic model for oral exposures to chromium in mice, rats, and humans to address temporal variation and sensitive populations. Toxicol Appl Pharmacol 325:9–17.

Thompson CM, Wlolf, JC, McCoy A, Suh M, **Proctor DM**, Kirman CR, Haws LC, Harris MA. 2017. Comparison of toxicity and recovery in the duodenum of B6C3F1 mice following treatment with intestinal carcinogens captan, folpet, and hexavalent chromium. Toxicol Pathol 45(8):1091–1101. DOI: 10.1177/019262331yy4324.

De Flora S, Camoirano A, Micale RT, La Maestra S, Savarino V, Zentilin P, Marabotto E, Suh M, **Proctor DM**. 2016. Reduction of hexavalent chromium by fasted and fed human gastric fluid. I. Chemical reduction and mitigation of mutagenicity. Toxicol Appl Pharmacol 306:113–119.

Kirman CR, Suh M, Hays SM, Gurleyuk H, Gerads R, De Flora S, Parker W, Lin S, Haws LC, Harris MA, **Proctor DM**. 2016. Reduction of hexavalent chromium by fasted and fed human gastric fluid. II. Ex vivo gastric reduction modeling. Toxicol Appl Pharmacol 306:120–133.

Suh M, Thompson CM, Brorby GP, Mittal L, **Proctor DM**. 2016. Inhalation cancer risk assessment of cobalt metal. Regul Toxicol Pharmacol 79:74–82.

Thompson CM, Suh M, Mittal L, Wikoff DS, Welsh B and **Proctor DM**. 2016. Development of linear and threshold no significant risk levels for inhalation exposure to titanium dioxide using systematic review and mode of action considerations. Regul Tox Pharm. 80:60–70.

Proctor DM, Suh MS, Mittal L, Hirsch S, Valdes Salgado R, Bartlett C, Van Landingham C, Rohr A, Crump K. 2016. Inhalation cancer risk assessment of hexavalent chromium based on updated mortality for Painesville chromate production workers. J Expo Sci Environ Epidemiol 26:224–231.

Thompson CM, Wolf JC, Elbekai RH, Paranjpe MG, Seiter JM, Chappell MA, Tappero RV, Suh M, **Proctor DM**, Bichteler A, Haws LC, Harris MA. 2015. Duodenal crypt health following exposure to Cr(VI): Micronucleus scoring, γ-H2AX immunostaining, and synchrotron x-ray fluorescence microscopy. Mut Res 789–790:61–66.

Thompson CM, Young RR, Suh M, Dinesdurage HR, Elbekai RH, Harris MA, Rohr AC, **Proctor DM**. 2015. Assessment of the mutagenic potential of Cr(VI) in the oral mucosa of Big Blue® transgenic F344 rats. Environ Mol Mutagen 56:621–628.

Young RR, Thompson CM, Dinesdurage HR, Elbekai RH, Suh M, Rohr AC, and **Proctor DM**. 2015. A robust method for assessing chemically induced mutagenic effects in the oral cavity of transgenic Big Blue® rats. Environ Mol Mutagen 56:629–636.

Thompson CM, Seiter J, Chappell MA, Tappero RV, **Proctor DM**, Suh M, Wolf JC, Haws LC, Vitale R, Mittal L, Kirman CR, Hays SM, Harris MA. 2015. Synchrotron-based imaging of chromium and γ-H2AX immunostaining in the duodenum following repeated exposure to Cr(VI) in drinking water. Toxicol Sci 143(1):16–25.

Proctor DM, Suh M, Campleman S, Thompson C. 2014. Assessment of the mode of action for hexavalent chromium-induced lung cancer following inhalation exposures. Toxicology 325:160–179.

Thompson CM, Kirman CR, **Proctor DM**, Haws LC, Suh M, Hays S, Hixon JG, Harris MA. 2013. A chronic oral reference dose for hexavalent chromium-induced intestinal cancer. J Appl Toxicol. 34:525–536. doi: 10.1002/jat.2907.

Suh M, Thompson C, Kirman C, Carakostas M, Haws LC, Harris M, **Proctor D**. 2014. High concentrations of hexavalent chromium in drinking water alter iron homeostasis in F344 rats and B6C3F1 mice. Food Chem Toxicol 65:381–388.

Suh, M, Troese, MJ, Hall, DA, Yasso, B., Yzenas, JJ, **Proctor, DM**. 2014. Evaluation of electric arc furnace-processed steel slag for dermal corrosion, irritation, and sensitization from dermal contact. J Appl Toxicol DOI 10.1002/jat.2974.

Suh M, Abraham L, Hixon JG, **Proctor D**. 2014. The effects of perchlorate, nitrate, and thiocyanate on free thyroxine for potentially sensitive subpopulations of the 2001–2002 and 2007–2008 National Health and Nutrition Examination Surveys. J Expo Sci Epidemiol 2013:1—9

Kirman CR, Aylward LL, Suh M, Harris MA. Thompson CM, Haws KC, **Proctor DM**, Parker W, Hays SM. 2013. Physiologically based pharmacokinetic model for humans orally exposed to chromium. Chem Biol Interact 204:13–27.

O'Brien TJ, Ding H, Suh M, Thompson CM, Parsons BL, Harris MA, Winkelman WA, Wolf JC, Hixon JG, Schwartz AM, Meyers MB, Haws LC, **Proctor DM.** 2013. Assessment of K-Ras mutant frequency and micronucleus incidence in the mouse duodenum following 90-days of exposure to Cr(VI) in drinking water. Mutation Res Gen Tox and Environ Mut 754:15–21.

Thompson CM, **Proctor DM**, Suh M, Haws LC, Kirman CR, Harris MA. 2013. Assessment of the mode of action underlying development of rodent small intestinal tumors following oral exposure to hexavalent chromium and relevance to humans. Crit Rev Toxicol 43(3): 244–274.

Kirman CR, Hays SM, Aylward LL, Suh M, Harris MA, Thompson CM, Haws LC, **Proctor DM.** 2012. Physiologically based pharmacokinetic model for rats and mice orally exposed to chromium. Chem Biol Interact 200(1):45–64.

Kopec AK, Kim S, Forgacs AL, Zacharewski TR, **Proctor DM**, Harris MA, Haws LC, Thompson CM. 2012. Genome-wide gene expression effects in B6C3F1 mouse intestinal epithelia following 7 and 90 days of exposure to hexavalent chromium in drinking water. Toxicol Appl Pharmacol 259(1):13–26.

Proctor DM, Suh M, Aylward LL, Kirman CR, Harris MA, Thompson CM, Gürleyük H, Gerads R. Haws LC, Hays SM. 2012. Hexavalent chromium reduction kinetics in rodent stomach contents. Chemosphere 89(5):487–493.

Thompson CM, Fedorov Y, Brown DD, Suh M, **Proctor DM**, Kuriakose L, Haws LC, Harris MA. 2012. Assessment of Cr(VI)-Induced Cytotoxicity and Genotoxicity Using High Content Analysis. PLoS ONE 7(8):e42720.

Thompson CM, Hixon JG, **Proctor DM**, Haws LC, Suh M, Urban JD, Harris MA. 2012. Assessment of genotoxic potential of Cr(VI) in the mouse duodenum: An in silico comparison with mutagenic and nonmutagenic carcinogens across tissues. Regul Toxicol Pharmacol 64(1):68–76.

Thompson CM, **Proctor DM**, Suh M, Haws LC, Hebert CD, Mann JF, Shertzer HG, Hixon JG, Harris MA. 2012. Comparison of the effects of hexavalent chromium in the alimentary canal of F344 rats and B6C3F1 mice following exposure in drinking water: Implications for carcinogenic modes of action. Toxicol Sci 125(1):79–90.

Gujral JS, **Proctor DM**, Su SH, Fedoruk JM. 2011. Water adherence factors for human skin. Risk Anal 31(8):1271–1280.

Thompson CM, **Proctor DM**, Haws LC, Hebert CD, Grimes SD, Shertzer HG, Kopec AK, Hixon JG, Zacharewski TR, Harris MA. 2011. Investigation of the mode of action underlying the tumorigenic response induced in B6C3F1 mice exposed orally to hexavalent chromium. Toxicol Sci 123(1):58–70.

Thompson CM,Haws LC, Harris MA, Gatto NM, **Proctor DM**. 2011. Application of the U.S. EPA mode of action framework for purposes of guiding future research: A case study involving the oral carcinogenicity of hexavalent chromium. Toxicol Sci 119(1):20–40.

Gatto NM,Kelsh KA, Mai DH, Suh M **Proctor DM**. 2010. Occupational exposure to hexavalent chromium and cancers of the gastrointestinal tract: a meta-analysis. Cancer Epidemiol 34(4):388–99.

Driscoll SK,McArdle ME, Plumlee MH, **Proctor D**. 2009. Evaluation of hexavalent chromium in sediment pore water of the Hackensack River, New Jersey, USA. Environ Toxicol Chem 29(3):617–620.

Menzie, C, Ziccardi L, **Proctor D**. 2009. Importance of considering the framework principals in risk assessment of metals. Environ Sci Technol 43(22):8478–8482 (Feature Article).

Scott PK, **Proctor D**. 2008. Soil suspension/dispersion modeling methods for estimating health-based soil cleanup levels of hexavalent chromium at chromite ore processing residue sites. J Air Waste Manag Assoc 58(3):384–403.

Proctor DM, Gatto NM, Hong SJ, Allamneni KP. 2007. Mode-of-action framework for evaluating the relevance of rodent forestomach tumors in cancer risk assessment. Toxicol Sci 98(2):313–326.

Becker DS, Long ER, **Proctor DM**, Ginn TC. 2006. Toxicity and bioavailability of chromium in sediments associated with chromite ore processing residue. Environ Toxicol Chem 25(10):2576–2583.

Proctor DM, Panko JP, Liebig EW, Paustenbach DJ. 2004. Estimating historical occupational exposure to airborne hexavalent chromium in a chromate production plant: 1940–1972. Occup Environ Hyg 1:752–767.

Proctor DM, Panko JP, Liebig EW, Scott PK, Mundt KA, Buczynski MA, Barnhart RJ, Harris MA, Morgan RJ, Paustenbach DJ. 2003. Workplace airborne hexavalent chromium concentrations for the Painesville, Ohio chromate production plant (1943–1971). Appl Occup Environ Hyg 18(6):430–449.

Crump C, Crump KS, Hack E, Luippold RS, Mundt KA, Panko JP, Liebig EW, Paustenbach DJ, **Proctor DM**. 2003. Dose-response and risk assessment of airborne hexavalent chromium and lung cancer mortality. Risk Anal 23(6):1155−1171.

Luippold RS, Mundt KA, Austin RP, Liebig E, Panko JP, Crump C, Crump K, **Proctor DM**. 2003. Lung cancer mortality among chromate workers. Occup Environ Med 60:451−457.

Proctor DM, Otani JA, Paustenbach DJ. 2002. Is hexavalent chromium carcinogenic via ingestion? A weight-of-evidence review. J Toxicol Environ Health, Part A 65:701−746.

Proctor DM, Fehling KA, Shay EC, Finley BL. 2002. Assessment of human health and ecological risks posed by the uses of steel-industry slags in the environment. Hum Ecol Risk Assess 8(4):681–711.

Proctor DM Fehling KA, Shay EC. 2000. Physical and chemical characteristics of blast furnace, basic oxygen furnace, and electric arc furnace steel industry slags. Environ Sci Technol 34:1576–1582.

Fowler JF, Kauffman CL, Marks JG, **Proctor DM**, Fredrick MM. 1999. An environmental hazard assessment of low-level dermal exposure to hexavalent chromium in solution among chromium sensitized volunteers. JOEM 41(3):150–160.

Proctor DM, Panko JM, Finley BL, Butler WJ, Barnhart RJ. 1999. Need for improved science in standard setting for hexavalent chromium: Commentary. Regul Toxicol Pharmacol 29:99–101.

Proctor DM, Fredrick MM. 1998. Prevalence of chromium allergy in the United States and its implications for setting soil cleanup levels: A cost-effectiveness case study. Regul Toxicol Pharmacol 28:27–37.

Zak M, **Proctor D**. 1997. Using risk-based corrective action to facilitate redevelopment of a former steel mill brownfields: A success story. Environmental Manager of the AWMA 9–12.

Finley B, Burton S, **Proctor D**, Panko J, Trowbridge K. 1997. A preliminary assessment of PCB risks to human health and the environment in the Lower Passaic River. Environ Toxicol Chem 52:95–118.

Proctor D, Harris M, Finley B. 1997. Chromium in soil: Perspectives in chemistry, health and environmental regulation. Special Issue of J Soil Contam 6(6).

Proctor D, Zak M, Finley B. 1997. Resolving uncertainties associated with the construction worker soil ingestion rate: A proposal for risk-based remediation goals. Hum Ecol Risk Assess 3(3):299–303.

Paustenbach D, Fredrick M, Panko J, Finley B, **Proctor D**. 1997. Urinary chromium as a biomarker of environmental exposure: What are the limitations? Regul Toxicol Pharmacol 26:523–534.

Proctor D, Shay E, Scott P. 1997. Health-based soil action levels for trivalent and hexavalent chromium: A comparison to state and federal standards. J Soil Contam 6(6):595–648. CHECK: chromium, Cr(VI), Cr(III), Brownfields, screening levels, action levels, remediation standards, Soil Screening Level, SSL

Finley BL, **Proctor DM**, Scott PK, Price PA, Harrington N, Paustenbach DJ. 1994. Recommended distributions for exposure factors frequently used in health risk assessment. Risk Anal 14(4):533–554.

Malsch PA, **Proctor DM**, Finley BL. 1994. Estimation of a chromium inhalation reference concentration using the benchmark dose method: A case study. Regul Toxicol Pharmacol 20:58–82.

Finley BL, **Proctor DM**, Paustenbach DJ. 1992. An alternative to the USEPA's inhalation reference concentrations for hexavalent and trivalent chromium. Regul Toxicol Pharmacol 16:161–176.

Paustenbach DJ, **Meyer (Proctor) DM**, Sheehan PJ, Lau V. 1991. The assessment and quantitative uncertainty analysis of the health risks to workers exposed to chromium contaminated soils. Toxicol Indust Health 7(3):159–196.

Sheehan P, **Meyer (Proctor) D**, Sauer M, Paustenbach D. 1991. Assessment of the human health risks posed by exposure to chromium contaminated soils at residential sites. J Toxicol Environ Health 32:161–201.

BOOK CHAPTERS

Proctor DM. 2008. Hexavalent chromium. In: Encyclopedia of Quantitative Risk Analysis and Assessment. Melnick EL, Everitt BS (eds). John Wiley & Sons, Ltd.

Proctor DM, Harris M, Rabbe D. 2002. Risk assessment of chromium-contaminated soils: Twelve years of research to characterize the health hazards. In: Human and Ecological Risk Assessment: Theory and Practice. Paustenbach DJ (eds). pp. 513–582.

CONFERENCE SYMPOSIA SESSION CHAIR

2018 ASSOCIATION OF ENVIRONMENTAL HEALTH SCIENCES: Session 5b: The Evolving Risk Assessment Landscape in California.

2017 AMERICAN INDUSTRIAL HYGIENE ASSOCIATION CONFERENCE: Challenges in Protecting Worker Health and Achieving Compliance in the World of Low Submicrogram Concentrations: A Case Study of Beryllium.

2016 SOCIETY OF TOXCIOLOGY: The Cancer Risk Assessment for Ingested Hexavalent Chromium: Challenges and Controversies

2015 SOCIETY OF TOXICOLOGY: Advanced Approaches for Quantitative Risk Assessment Using Human Data with Applications Across Disciplines

2014 TOXICOLOGY AND RISK ASSESSMENT: Using New Data and Methods to Improve the Risk Assessment of Environmental Perchlorate Exposure

2011 SOCIETY OF TOXICOLOGY: Using Mode of Action Data to Guide Quantitative Cancer Risk Assessment: A Case Study of Hexavalent Chromium in Drinking Water

2003 SOCIETY OF TOXICOLOGY: Health Risk Assessment of Hexavalent Chromium in Drinking Water: Carcinogenicity, Research and Regulation.

1996 ASSOCIATION FOR THE ENVIROMENTAL HEALTH OF SOIL: Chromium in Soil: Perspectives in Chemistry, Health and Environmental Regulation.

ABSTRACTS AND PRESENTATIONS

Allen B, Vincent M, Lipword L, Panko J, Suh M, Jiang X, Mumma, **Proctor D**. Lung cancer risk and exposure to hexavalent chromium: Results of extended mortality study of workers with low level exposures and quantitative risk assessment using pooled analysis of three cohorts. Society of Toxicology Annual Meeting, Salt Lake City, UT, March 2024.

Perry CS, Vivanco SN, Verwiel AH, **Proctor DM**. Derivation of manganese 24-hour acute inhalation guideline protective of respiratory and neurological effects. Abstract 4751, Society of Toxicology Annual Meeting, Salt Lake City, UT, March 2024.

Racz L, Mittal L, Perry CS, Blanchette A, **Proctor D**. Assessing sustainable applications of electric arc furnace steel slag as construction aggregate: Applications of probabilistic risk assessment and physiologically-based pharmacokinetic modeling. Poster presented at Society of Environmental Toxicology and Chemistry North America 44th Annual Meeting, Louisville, KY, November 2023.

Proctor DM, Vivanco S, Blanchette A. Relative oral bioavailability of manganese in electric arc furnace steel slag is influenced by high iron content and low bioaccessibility. Poster presented at Society of Toxicology Annual Meeting, Nashville, TN, March 2023.

Thompson CM, Wikoff DS, **Proctor DM**, Harris MA. An evaluation of risk assessments on hexavalent chromium [Cr(VI)]: The past, present, and future of mode of action research. Poster presented at Society of Toxicology Annual Meeting, Nashville, TN, March 2023.

Perry C, **Proctor D**. Short-term environmental inhalation toxicity criteria for airborne manganese protective of neurological and respiratory effects for use in air toxics risk assessment. Presentation 5-15.t-04 to Society of Environmental Toxicology and Chemistry, Pittsburgh PA, November 2022.

Proctor D, Mittal L, Vivanco S, Perry C, Blanchette A. Probabilistic health risk assessment for residential exposures to metals in electric arc furnace (EAF) steel slag. Presentation 5.15.P-Th123 to Society of Environmental Toxicology and Chemistry, Pittsburgh PA, November 2022.

Proctor DM, Mittal L, Vivanco S, Antonijevic T. Probabilistic health risk assessment for residential exposures to metals in electric arc furnace (EAF) steel slag. Poster at Society of Environmental Toxicology and Chemistry (SETAC), Philadelphia, PA, November 2022.

Proctor DM, Antonijevic T. Refined health risk assessment for residential exposures to manganese in EAF steel slag. Poster presented at Society of Toxicology Annual Meeting, San Diego, CA, March 2022.

Thompson CM, Chappell GA, Mittal L, Gorman B, **Proctor DM**, Haws LC, Harris MA. Use of targeted mode-of-action research to inform human health risk assessment of hexavalent chromium. Poster presented at Society of Toxicology Annual Meeting, San Diego, CA, March 2022.

Suh M, Verwiel A, **Proctor D**. Oral and inhalation bioaccessibility of cobalt and nickel in metal alloys: A critical consideration for site-specific human health risk assessments and read across. Poster for Society of Toxicology, Virtual Annual Meeting, 2020, https://eventpilotadmin.com/web/page.php?page=Session&project=SOT20&id=P3190.

Proctor D. Use of the latest science in cancer risk assessment for hexavalent chromium: Is it time to step away from the default regulatory approaches? Invited presentation to the International Union of Toxicology (IUTOX) / International Congress of Toxicology (ICT) meeting, Honolulu, HI, June 17, 2019.

Ring CL, Suh M, Casteel S, Dunsmore M, Verwiel A, **Proctor D**. Relative oral bioavailability of cobalt and nickel in residential soil and dust affected by metal grinding operations. Presented at Joint Annual Meeting of International Society of Exposure Science and International Society for Environmental Epidemiology (ISES-ISEE 2018), Ottawa, Canada, August 2018.

Suh M, Wikoff D, Harvey S, Mittal L, Lipworth L, Goodman M, Goodmanson A, Ring C, Rohr A, **Proctor D**. Hexavalent chromium and stomach cancer: A systematic review and meta-analysis. Presented at Joint Annual Meeting of International Society of Exposure Science and International Society for Environmental Epidemiology (ISES-ISEE 2018), Ottawa, Canada, August 2018.

Proctor, DM. Hexavalent chromium in drinking water: When is the science sufficient to deviate from defaults? Invited Speaker, Genetic and Environmental Toxicology Association (GETA). Thresholds in Toxicology and Risk Assessment Fall Symposium. Oakland, CA, November 14, 2018.

Proctor, DM. Updating the regulatory risk assessment for hexavalent chromium in California: Implications for regulatory standards. Association of Environmental Health Sciences San Diego, CA, March 20, 2018.

Thompson CM, Suh M, **Proctor DM**, Harris MA. Ten factors for considering the mode of action of Cr(VI)-induced intestinal tumors in rodents. Society of Toxicology Annual Meeting, San Antonio, TX, March 11-15.

Thompson CM, Wolf JC, Suh M, **Proctor DM**, HJaws LC, Harris MA. Toxicity and recovery in the duodenum of B6C3F1mice following treatment with intestinal carcinogens; captan, folpet, and hexavalent chromium: Evidence for an adverse outcome pathway. Society of Toxicology Annual Meeting, San Antonio, TX, March 11-15.

Proctor DM, Corbett ME. The world of low submicrogram beryllium concentrations. Session F5, American Industrial Hygiene Conference and Exhibition (AIHce), Seattle, WA, June 6, 2017.

Thompson C, Rager J, Suh M, **Proctor D**, Haws L, Harris M. Mechanistic support for nonlinear risk assessment of rat oral cavity tumors induced by exposure to Cr(VI) in drinking water. Poster presented at Society of Toxicology Annual Meeting. March 15, 2017. Baltimore, MD.

Proctor DM, Suh M, Dunsmore D, Verwiel A, Casteel S. Bioaccessibility and relative oral bioavailability of cobalt and nickel from metal alloys in soil and dust. Poster presented at Society of Toxicology Annual Meeting. March 15, 2017. Baltimore, MD.

Kirman CR, **Proctor D**, Suh M, Haws L, Harris M, Thompson C, Hays S. Using physiologically-based pharmacokinetic modeling to address potentially sensitive subpopulations exposure to hexavalent chromium. Poster presented at Society of Toxicology Annual Meeting. March 15, 2017. Baltimore, MD.

Thompson C, Kirman C, Suh M, **Proctor D**, Haws L, Harris M, Hays S. Risk assessment of oral exposure to Cr(VI): Integration of mode of action, pharmacokinetics, and dose-response modeling. Poster presented at Society of Toxicology Annual Meeting. March 14, 2017. Baltimore, MD.

Suh M, Harvey S, Wikoff D, Mittal L, Ring C, Goodmanson A, **Proctor D**. Meta-analysis of hexavalent chromium and stomach cancer. Poster presented at Society of Toxicology Annual Meeting. March 13, 2017. Baltimore, MD.

Verwiel A, **Proctor D**, Tachovsky A. Principal component analysis of metals in soil and dust to distinguish background and anthropogenic sources in an urban area. Association for Environmental Health and Sciences Foundation Annual Meeting. San Diego, CA. March 14, 2016.

Verwiel A, **Proctor DM**. Oral bioaccessibility of nickel and cobalt from metal alloy emissions in soil and dust. Society for Risk Analysis Annual Meeting. Arlington, VA, December 7, 2015.

Proctor, DM. Overview of hexavalent chromium mode of action (MOA) and implications for determining safe drinking water concentrations. Naturally occurring compounds of regulatory concern. Groundwater Resources Association Symposium. Garden Grove, CA, November 18, 2015.

Brorby G, Suh M, Bichteler A, **Proctor D**. Use of cluster analysis and homogeneity testing to characterize distributions of exposures among beryllium workers: Tools for developing occupational exposure limits from quantitative risk assessment. 2015 International Society For Exposure Science Annual Meeting. Henderson, NV, October 22, 2015.

Kirman CR, **Proctor DM**, Suh M, Hays S. Reduction of hexavalent chromium by gastric fluids from fed and fasted individuals with applications to toxicokinetic modeling. Presented at the Society of Toxicology's 54th Annual Meeting. San Diego, CA, March 22-26, 2015.

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Proctor D, Suh M, Thompson C, Hixon G. Inhalation Cancer Risk Assessment of Titanium Dioxide. Presented at the Society of Toxicology's 54th Annual Meeting. San Diego, CA, March 22-26, 2015.

Harris MA, Thompson CM, **Proctor DM**, Suh M, Wolf JC, Seiter JM, Chappell MA, Haws LC. Analysis of Duodenal Crypt Health following Exposure to Cr(VI) in Drinking Water. Presented at the Society of Toxicology's 54th Annual Meeting. San Diego, CA, March 22-26, 2015.

Thompson CM, Young RR, Suh M, Dinesdurage H, Elbekai R, Harris, MA, Rohr AC, **Proctor DM**. Hexavalent Chromium Does Not Induce Mutations in the Oral Mucosa of Transgenic Big Blue® Rats following Drinking Water Exposures at a Carcinogenic Dose. Presented at the Society of Toxicology's 54th Annual Meeting. San Diego, CA, March 22-26, 2015.

Crump KS, Suh M, Bichteler A, Brorby GP, Hixon JG, and **Proctor DM**. Chronic Beryllium Disease Risk Assessment for Occupational Beryllium Exposure. Presented at the Society of Toxicology's 53rd Annual Meeting. Phoenix, AZ, March 23-27, 2014.

Proctor DM, Suh M, Tachovsky JA, Abraham L, Hixon JG, Brorby GP, Campleman SL. Cumulative Risk Assessment of Urban Air Toxics: A Pilot Study in San Antonio, TX. Presented at the Society of Toxicology's 53rd Annual Meeting. Phoenix, AZ, March 23-27, 2014.

Suh M, Yzenas JJ, **Proctor DM**. Evaluation of Electric Arc Furnace-Processed Steel Slag for Dermal Corrosion, Irritation, and Sensitization. Presented at the Society of Toxicology's 53rd Annual Meeting. Phoenix, AZ, March 23-27, 2014.

Hays SM, Kirman CR, Suh M, **Proctor DM**. Gastric Reduction of Hexavalent Chromium [Cr(VI)] in Fed and Fasted Human Stomach Samples. Presented at the Society of Toxicology's 53rd Annual Meeting. Phoenix, AZ, March 23-27, 2014.

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Kirman C, Thompson C, **Proctor D**, Suh M, Haws L, Harris MA, Hays S. Using PBPK modeling to address diurnal variation and age differences in hexavalent chromium toxicokinetics in humans. Presented at the Society of Toxicology's 52st Annual Meeting. San Antonio, TX March 10-14, 2013.

Thompson C, Kirman C, **Proctor D**, Suh M, Hays S, Haws L, Harris MA. A chronic oral reference dose for hexavalent chromium. Presented at the Society of Toxicology's 52nd Annual Meeting. San Antonio, TX, March 10-14, 2013.

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