OAK CREEK
TOXICOLOGY & RISK ASSESSMENT CONSULTING

JAMES S. SMITH, JR., Ph.D.
President & Toxicologist
Principal Scientist

Experience Summary

Dr. James S. Smith, Jr. has 20 years of professional experience as a toxicologist and risk assessor, 5 years within the Environmental Criteria and Assessment Office of the U.S. Environmental Protection Agency and 15 years consulting in the environmental sciences. He has a multidisciplinary background in the biological and chemical sciences that includes extensive study and research in the fields of carcinogenesis, biology, immunology, biochemistry, molecular genetics, and neurobiology. Dr. Smith has a thorough understanding of the toxicology of hazardous metals, polycyclic aromatic hydrocarbons, and polychlorinated dioxins, furans, and biphenyls. He has derived site-specific risk-based cleanup levels and performed human health risk assessments at CERCLA, RCRA, and state lead sites. Special areas of expertise include derivation and use of chemical-specific information on bioavailability, evaluation of endocrine disruptors, use of dioxin toxic equivalency factors (TEF), and the use of the estimated order of potency (EOP) approach for polycyclic aromatic hydrocarbon (PAH) compounds. Dr. Smith successfully uses new technologies and methods to derive alternative cleanup levels for compounds at hazardous waste sites. Dr. Smith uses the best available scientific information and techniques in the development of practical and cost effective solutions to environmental problems.

Professional Experience

1997 – Present **President & Toxicologist**, **Principal Scientist,** *OAK CREEK, Inc. Toxicology & Risk Assessment Consulting, Buxton, Maine*. Responsible for all areas of business operations. Providing toxicology and risk assessment expertise to industries, attorneys, trade organizations, governmental agencies, and environmental science and engineering firms.

1995 – 1997 **Senior Toxicologist/Project Manager**, *Exponent, Inc., formerly Performance Technologies, Inc. (PTI), Boston, Massachusetts*. Sole human health risk assessment practitioner in the eastern U.S. for this national firm. Managed human health risk assessment projects for Fortune 100 clients. Developed national business areas in the evaluation of endocrine disrupting compounds and in the development and use of oral bioavailability information for inorganic mercury and chromium in human health risk assessments. Performed human health risk assessments for CERCLA, RCRA, and state lead hazardous waste sites. Contributed to the growth of the company's human health risk assessment practice on the East Coast and was a key participant in the acquisition of significant contract work.

1993 – 1995 **Senior Associate Health Scientist**, *ChemRisk, A Division of McLaren/Hart Environmental Engineering, Portland, Maine*. Responsible for the evaluation and critical review of human health risk assessments, toxicity profiles, risk assessment methods, chemical bioaccumulation, metabolism, and environmental fate and transport. Provided toxicological support to clients on issues relating to endocrine disruption, polychlorinated dioxins, furans, and biphenyls, hazardous metals, HAPS delisting of glycol ethers, and in support of an argument for an alternative reference dose for Aroclor 1254.

1987 – 1992 **Student Scientist**, *National Center for Environmental Assessment (NCEA), formerly Environmental Criteria and Assessment Office (ECAO), US Environmental Protection Agency, Cincinnati, Ohio.* Evaluation of ECAO documents, including critical review of animal and human studies, statistics, exposure, and risk assessment end points. Derived chemical-specific health-based criteria for compounds in drinking water, chronic oral reference doses and inhalation reference concentrations, reportable quantities, and cancer potency/unit risk estimates. Reviewed, compiled, and summarized Agency reviewer comments for World Health Organization/International Programme for Chemical Safety (WHO/IPCS) monographs and health safety documents. Assisted development of the Agencies quantitative structure activity relationship program.

1982 – 1983 **Research Specialist**, *University of Pennsylvania, School of Dental Medicine, Department of Anatomy and Biochemistry, Philadelphia, Pennsylvania.* Responsible for DNA and RNA isolation and characterization, DNA cloning, sequencing and analysis. Managed departmental sequencing and dark room facilities. Maintained laboratory genetic stocks.

1981 – 1982 **Technician**, *Roy F. Weston's Inc., West Chester, Pennsylvania*. Performed separation and detection of inorganic and organic contaminants from environmental matrices. Responsible for determination of phenols, cyanides, heavy metals, and pesticides from ground water and soil samples.

Education

Ph.D. Toxicology *1984 - 1992*
University of Cincinnati, Medical College, Cincinnati, Ohio

Course Work in Toxicology *1983 - 1984*
University of California, Davis, California

B.S. Biological Sciences *1976 - 1981*
Cornell University, Ithaca, New York
- Specialization in Neurobiology and Behavior
- Undergraduate Research in Immunology

Professional Affiliations/Activities

American Academy of Forensic Sciences (AAFS)
American Association for the Advancement of Science (AAAS)
American Chestnut Cooperators Foundation (ACCF)
American Chemical Society (ACS)
American Society for Testing Materials (ASTM), E47: Biological Effects & Environmental Fate
Boston Risk Assessment Group (BRAG)
Maine Environmental Priorities Project, Human Health Technical Work Group (1994 – 1995)
New England Environmentally Acceptable Endpoints Work Group: Soil Bioavailability.
New York Academy of Sciences (NYAS)
Science by Mail, Mentor - Museum of Science, Boston, MA (2000-2001)
Society of Environmental Toxicologists and Chemists (SETAC)
Society of Risk Analysis (SRA)
The American Chestnut Foundation (TACF), Maine Chapter, Board of Directors (2000 - 2002)

Journal Referee

Archives of Environmental Contamination and Toxicology (1994)
Association for the Environmental Health of Soils, Journal of Soil Contamination (1994)
Environmental Toxicology and Chemistry (2001, 2008)
Neurotoxicology and Teratology (1994)

Selected Presentations & Publications

Smith, Jr. J.S. 2008. Species-Specific Differences in Dioxin Toxicity: Differences in Gene Regulation? To Be Presented at the Annual Meeting of the American Academy of Forensic Scientists. February 21. Washington, DC.

Smith, Jr. J.S. 2008. Acetaminophen Carcinogenic Dose-Response Assessment. To Be Presented at the Annual Meeting of the American Academy of Forensic Scientists. February 21. Washington, DC.

Smith, Jr. J.S. 2007. Risk Characterization: What do the Numbers Mean? Presented at the Annual Meeting of the National Ground Water Association 2006 NGWA Ground Water and Environmental Law Conference in Columbus, OH., July 23..

Smith, Jr. J.S. 2006. Species-Specific Differences in Dioxin Toxicity: Differences in Gene Regulation? Presented at the Annual Meeting of the National Ground Water Association 2006 NGWA Ground Water and Environmental Law Conference in Chicago, IL., July 6-7. Abstract ID:2535.

Smith, Jr. J.S. 2006. Determining Free Cyanide Levels from Historical Measures of Total Cyanide in Groundwater. Presented at the Annual Meeting of the National Ground Water Association 2006 NGWA Ground Water and Environmental Law Conference in Chicago, IL., July 6-7. Abstract ID:2532.

Smith, Jr. J.S. 2005. Petroleum or Coal Ash: Determining the Origin of PAH Compounds in Soils. Presented at the Annual Meeting of the American Academy of Forensic Scientists, February 25, New Orleans, Louisiana. Abstract 876.

Smith, Jr. J.S. 2005. Characterizing Human Health Risk: Art or Science? Presented at the Annual Meeting of the American Academy of Forensic Scientists, February 25, New Orleans, Louisiana. Abstract 875.

Smith, Jr. J.S. 2005. Case Studies in Indoor Air Quality: It's Not Always What You Think. Presented at the Annual Meeting of the American Academy of Forensic Scientists, February 25, New Orleans, Louisiana. Abstract 874.

Smith, Jr. J.S. 2004. Is Amorphous Silica Gel Non-Toxic? Differences in Dose: Exposure Route and Physical Form. Presented at the Annual Meeting of the American Academy of Forensic Scientists, February 20. Dallas, Texas.

Smith, Jr. J.S. 2004. The Toxicology of Molds. Presented at the Annual Meeting of the American Academy of Forensic Scientists, February 20. Dallas, Texas.

Smith, Jr. J.S. 2004. Trial Testimony: Mold Health Effects – Can You Prove Causation? How to be a Better Expert Witness Workshop Course at the Annual Meeting of the American Academy of Forensic Scientists, February 20. Dallas, Texas.

Smith, Jr. J.S. 2003. Mold Problem? How Would You Know? Presented at the Annual Meeting of the American Academy of Forensic Scientists, February 22. Chicago, Illinois.

Smith, Jr. J.S. 2002. Are We Over Regulating Arsenic? Presented at the Annual Meeting of the American Academy of Forensic Scientists, February 15. Atlanta, Georgia.

Smith, Jr. J.S. 2001. Are We Over Regulating Mercury? Presented at the Annual Meeting of the American Academy of Forensic Scientists, February 24. Seattle, Washington.

Smith, Jr. J.S. 1999. Carcinogenic Dose-Response for Acetaminophen: A Comparison with Other Threshold Carcinogens. Presented at the Annual Meeting of the American Academy of Forensic Scientists. February 15-20. Orlando, Florida.

Smith, Jr. J.S. 1999. The Contribution of Natural Estrogen to Total Estrogenic Activity in Surface Water: An Estimate of Relative Exposure. Presented at the Annual Meeting of the American Academy of Forensic Scientists. February 15-20. Orlando, Florida.

Smith, Jr., James S. 1999. An Evaluation of the Use of Toxic Equivalency Factors to Assess Reproductive Hazards of PCBs to Wildlife. In: Environmental Toxicology and Risk Assessment. Standardization of Biomarkers for Endocrine Disruption and Environmental Assessment. 8th Volume. Diane S. Henshel, Marsha C. Black, and Michael C. Harrass eds. ASTM. West Conshohocken, PA. pp 461-472.

Smith, Jr. J.S. 1998. Drinking Water Quality and Safety. Buxton News. 6(12):pp4. June 1.

Smith, Jr. J.S. 1998. What is an Endocrine Disrupting Compound? A Useful Definition. Chairman and Invited speaker, International Business Communications. Endocrine Disruptors: An Unbiased Examination of the Impact Recent Scientific Developments Will Have on Industry. April 14-15. Washington, DC.

Smith, Jr. J.S., D. Bencivengo, and J.S. Smith. 1998. Are We Over-Regulating PAHs? Presented at the Annual meeting of the American Academy of Forensic Scientists, February 9-14. San Francisco, California.

Smith, Jr., J.S. 1998. An evaluation of the use of toxic equivalency factors to assess reproductive hazards of PCBs to wildlife. Presented at the ASTM Symposium on (Eighth) Environmental Toxicology and Risk Assessment: Standardization of Biomarkers for Endocrine Disruption and Environmental Assessment. Committee E47 on Biological Effects and Environmental Fate. April 20-23. Atlanta, Georgia.

Smith, Jr., J.S. 1997. Review of the current toxic equivalency factor approach for assessing potential reproductive health risks of PCBs in humans. Presented at the ILSI North American Conference on Human Diet and Endocrine Modulation: Estrogenic and Androgenic Effects. November 19-21. Fairfax, Virginia.

Smith, Jr. J.S. 1997. Reducing remedial costs at hazardous waste sites: Soil metal bioavailability. *In: The Environmental Corporate Counsel Report*. Invited contribution. August 1997, p14-16.

Ludwig D.F., J.S. Smith, Jr., and R.A. Pastorok. 1997. Biotech Ecology. Response to R. Baum's editorial "Regulating Biotech." Chemical & Engineering News, Letters, March 17th. p7.

Smith, Jr., J.S., M. Ruby, A. Nicholson, and R.A. Schoof. 1997. Soil metal speciation and bioavailability studies: Reducing remedial costs. Platform presentation at the New England Environmental Exposition, Boston. Published in the proceedings of the New England Environmental Exposition, April 14. Boston, Massachusetts.

Smith, J., N. Gard, M. Moore, R. Schoof, G. Bigham. 1997. Is mercury an endocrine disruptor? Presented at the Annual Meeting of the Society of Environmental Toxicologists and Chemists. November 12-18th. San Francisco, California.

Smith, Jr., J.S., M.L. Moore and R.A. Schoof. 1997. Is mercury an environmental endocrine disruptor? Presented at the International Conference on Human Health Effects of Mercury Exposure, June 12-14th. Faroe Islands.

Yost, L., J. Smith, M. Moore, R. Barrick and A. Mason. 1997. Decreasing trends in human tissue concentrations of persistent organochlorine compounds. Presented at the Annual Meeting of the Society of Environmental Toxicologists and Chemists. November 12-18th. San Francisco, California.

Moore, M., R. Barrick, J. Smith and A. Mason. 1997. Trends of persistent organochlorine compounds in north American and European wildlife. Presented at the Annual Meeting of the Society of Environmental Toxicologists and Chemists. November 12-18th. San Francisco, California.

Smith, Jr. J.S., D. Bencivengo, and J.S. Smith. 1996. Comparison of carcinogenic risk for PAHs in soils at a Superfund site and PAHs in shampoo containing coal tar. Presented at the Annual Meeting and Exposition of the Society of Risk Analysis and International Society of Exposure Analysis, December 8-12. New Orleans, Louisiana.

Smith, J.S. 1995. Putative dioxin-responsive elements (DREs) identified down-stream of the rat phosphoenolpyruvate carboxykinase (PEPCK) gene. Presented at the Annual Meeting of the Society of Toxicology, Baltimore, Maryland.

Gillis C.A., Smith J.S., Maritato M.C., and Price P.S. 1995. The relative carcinogenic hazard posed by polychlorinated dibenzo-*p*-dioxin and dibenzofuran, and Aroclor 1254 at a transformer maintenance and repair facility. Presented at the Annual Meeting of the Society of Environmental Toxicologists and Chemists.

Smith, Jr., J.S., H.E. Wey, G.D. Leikauf, and C.S. Baxter. 1992. Carba-protacyclin inhibition of TPA-induced transformation. Carcinogenesis 13(10):1859–1862.

Smith, Jr., J.S., H.E. Wey, and C.S. Baxter. 1989. Role of prostaglandin I_2 in sensitivity of mouse JB6 cells to TPA-induced anchorage independent growth, Published in: *Proceedings, American Association for Cancer Research*, May 24-27, San Francisco, Abstract # 9414.

Smith, Jr., J.S., H.E. Wey, G.D. Leikauf, and C.S. Baxter. 1992. Differential arachidonic acid metabolism in marine epidermal JB6 cell sensitive and resistant to 12-*O*-tetradecanoyphorbol-13-acetate (TPA)-induced transformation. Carcinogenesis 13:196–198.

Smith, Jr., J.S., H.E. Wey, and C.S. Baxter. 1988. Arachidonic acid metabolism in JB6 mouse epidermal cells sensitive and resistant to transformation to anchorage independence by phorbol diester, Published in: *Proceedings, American Association for Cancer Research*, May 25-28, New Orleans, Abstract # 632.

Kyonggeun, Y., J.M. Davidson, D. Boyd, D. May, P. Lu Valle, N. Ornstein, J.S. Smith, K. Indik, A. Ross, E. Golub, and J. Rosenbloom. 1985. Communication: Analysis of the 3′ region of the sheep elastin gene. Archives of Biochemistry and Biophysics 241(2):684–691.

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