

Barbara H. Neal, DABT
Senior Managing Scientist

Professional Profile

Ms. Barbara H. Neal is a Senior Managing Scientist in Exponent's Health Sciences Center for Toxicology and Mechanistic Biology. Ms. Neal is a board-certified toxicologist with over 25 years of professional experience, specializing in reproductive and developmental biology, and neurotoxicology. She is an expert in toxicological issues that affect crop protection chemicals and industrial chemicals, and she has experience with pre-clinical studies of medical devices and pharmaceuticals. She has developed overall product testing strategies; designed, monitored, and interpreted multiple regulatory toxicological studies; and reviewed hundreds of regulatory and non-regulatory studies of potential developmental, reproductive, neurological, and endocrine-disrupting effects relevant to human health and environmental risk assessment. Ms. Neal assists clients in developing and implementing scientific strategies for the use and safety assessment of various products, and has experience as a non-testifying expert witness in product and environmental litigation.

Academic Credentials and Professional Honors

B.S., Biology, American University (*cum laude*), 1974

Licenses and Certifications

Diplomate, American Board of Toxicology, (1990; re-certified 1995, 2001, 2005)

Publications

Neal, BH, Collins JJ, Strother DE, Lamb JC. Weight-of-the-evidence review of Acrylonitrile reproductive and developmental toxicity studies. *Crit Rev Toxicol* 2009; 39(7):589–612.

Lamb JC, Neal BH, Goodman J. Risk assessment of toxaphene and its breakdown products: Time for a change? *Crit Rev Toxicol* 2008; 38(9):805.

Brown NA, Lamb JC, Brown SM, Neal BH. A review of the reproductive and developmental toxicity of styrene. *Regul Toxicol Pharm* 2000; 32:228–247.

Freeman GB, Lordo RA, Singer AW, Peters AC, Neal BH, McConnell EE, Mayer BA. An assessment of neurotoxicity of Aroclors 1016, 1242, 1254, and 1260 administered in diet to Sprague-Dawley rats for one year. *Toxicol Sci* 2000; 53, 377–391.

Mayes BA, McConnell EE, Neal BH, Bruner MJ, Hamilton SB, Sullivan TM, Peters AC, Ryan MJ, Toft JD, Singer AW, Brown JF, Menton RG, Moore JA. Comparative carcinogenicity in Sprague-Dawley rats of the polychlorinated biphenyl mixtures Aroclors 1016, 1242, 1254, and 1260. *Toxicol Sci* 1998; 41:62–76.

Reel JR, Lamb JC IV, Neal BH. Survey and assessment of mammalian estrogen biological assays for hazard characterization. *Fundam Appl Toxicol* 1996; 34:288–305.

Presentations and Posters

Bus JS, Neal BH, Zabloutny, CL, Yano BL, Saghir S, Marty MS. 2,4-Dichlorophenoxyacetic Acid (2,4-D): Evaluation of systemic toxicity in a dietary extended one-generation study in Crl:CD(SD) rats. The Dow Chemical Co., Midland, MI, Exponent, Alexandria, VA. Accepted and to be presented at the 2010 Society of Toxicology Meeting, Salt Lake City, UT, March 8, 2010.

Neal BH, Bus JS, Zabloutny CL, Yano BL, Passage J, Marty MS. 2,4-Dichlorophenoxyacetic Acid (2,4-D): Evaluation of reproductive/endocrine endpoints in a dietary extended one-generation study in Crl:CD(SD) rats. The Dow Chemical Co., Midland, MI, Exponent, Alexandria, VA. Accepted and to be presented at the 2010 Society of Toxicology Meeting, Salt Lake City, UT, March 8, 2010.

Andrus AK, Woolhiser M, Boverhof D, Bus JS, Neal BH, Marty MS. 2,4-Dichlorophenoxyacetic Acid (2,4-D): Evaluation of Developmental Neurotoxicity (DNT) and Developmental Immunotoxicity (DIT) in a dietary extended one-generation study in Crl:CD(SD) rats. The Dow Chemical Co., Midland, MI, Exponent, Alexandria, VA. Accepted and to be presented at the 2010 Society of Toxicology Meeting, Salt Lake City, UT, March 8, 2010.

Lamb JC, Walker CL, Neal BH, Klaunig JE. Inhibition of Gap Junction Intercellular Communication (GJIC) in mouse liver cells by technical toxaphene and toxaphene congeners.

Accepted and to be presented at the 2010 Society of Toxicology Meeting, Salt Lake City, UT, March 8, 2010.

Saghir S, Marty M, Clark A, Zablony C, Bus J, Perala A, Yano B, Neal B. A dietary dose range-finding and toxicokinetic (TK) study of 2,4-Dichlorophenoxyacetic acid (2,4-D) in adult CRL:CD(SD) rats and their offspring: I. Toxicokinetics. *The Toxicologist* 2009, p. 242.

Marty M, Saghir S, Zablony C, Clark A, Bus J, Perala A, Yano B, Neal B. A dietary dose range-finding and toxicokinetic (TK) study of 2,4-Dichlorophenoxyacetic acid (2,4-D) in adult CRL:CD(SD) rats and their offspring: II. Toxicology. *The Toxicologist* 2009, p. 262.

Gordon E, Neal BH, Ehrlich T. The rabbit is not an appropriate developmental toxicity test system for bacteriostatic compounds such as Folpet. *The Toxicologist* 2008; 362:1540.

Gordon E, Neal BH, Ehrlich T. The rabbit is not an appropriate developmental toxicity test system for bacteriostatic compounds such as Captan. Presented at 2007 Teratology Society Meeting, Pittsburgh, PA, June 23–28, 2007.

Neal B, Strother DE, Collins JJ, Lamb JC. Acrylonitrile: Evaluation of reproductive and developmental toxicity 1235. *The Toxicologist* 2006; 90(S-1); 252:1236.

Neal BH, Mandella R, Gordon EB. Developmental neurotoxicity of Diazinon in rats. 2004 International Neurotoxicology Conference, Honolulu, HI, February 10–14, 2004.

Norenberg KM, Hentz KL, Neal BH, Lamb JC. Evaluation of a common mechanism of action for dithiocarbamates. *The Toxicologist* 2002, 66:17S.

Neal BH, Ehrlich T, Gordon E. Developmental toxicity of Folpet and Captan in rabbits. *The Toxicologist* 2001; 60 (S-1); 1028:1028.

Neal BH, Hilaski RJ, O'Shaughnessy DD, Sondergaard D, Sonawane MB, Schaefer GJ. Evaluation of neurotoxicity of Dimethoate 4E following short-term dermal exposure to Sprague-Dawley rats. *The Toxicologist* 2000; 54(1):334:1569.

O'Shaughnessy D, Neal B, Svanborg N, Pedersen K, Weilor M, White JC, Schaefer GJ. Design and evaluation of a protocol for assessment of acute dietary neurotoxicity. Presented at the 1999 International Neurotoxicology Conference, Little Rock, AR, 1999.

Schaefer GJ, White JC, Neal B, Sondergaard D, Sonawane M, O'Shaughnessy D. An acute dietary neurotoxicity study of dimethoate technical in rats. Presented at the 1999 International Neurotoxicology Conference, Little Rock, AR, 1999.

O'Shaughnessy D, Gains M, Neal B. Background incidence of nerve fiber degeneration in neurotoxicity studies. Presented at the 1999 American College of Toxicology Meeting, VA, 1999.

Prior Experience

Senior Director, The Weinberg Group Inc. 2003–2009
BBL Sciences, Senior Toxicologist II/Associate 2000–2003
Battelle Columbus Laboratories Toxicologist 1979–1983

Project Experience: Exponent

Presented and negotiated pyrethroids bridging design with EPA with successful client outcome.

Presented extended one-generation study results to EPA focusing on reproductive and endocrine outcomes.

Updated functional equivalence materials to correlate with Tier 1 screening guidelines.

Monitored three reproductive toxicity studies including evaluation of endocrine related end points.

Provided input into OECD extended one-generation issues:

- Developed and reviewed in-vitro data on MOA for a tumor promoter
- Evaluating several compounds for potential OSRI for Tier 1 endocrine screening
- Participating in developing comments on Tier 1 endocrine screening assays
- Assisting in evaluating laboratory capabilities for Tier 1 endocrine screening.

Project Experience

Developed bridging argument for developmental neurotoxicity testing for several Type I pyrethroid compounds.

Monitored extended one-generation reproductive toxicity studies, including assessments of potential endocrine toxicity developmental neurotoxicity and immunotoxicity.

Monitored reproductive and developmental toxicity studies on a medical device.

Monitored range-finding and PK studies and initiated Extended One-Generation study for 2,4-dichlorophenoxyacetic acid (2,4-D), implementing a novel testing paradigm proposed for agrichemicals. This study design incorporated pharmacokinetic information into dose setting for reproductive toxicity assessment and intended to also evaluate potential perinatal toxicity, endocrine effects, immunotoxicity, and developmental neurotoxicity.

Monitored subchronic toxicity studies for a pharmaceutical compound, and advised regarding the design of juvenile toxicity studies.

Developed a weight-of-evidence evaluation of the reproductive and developmental toxicology of acrylonitrile, including a review of human and animal data relevant to assessment of potential reproductive and developmental toxicity.

Reviewed evidence for potential adverse effects in humans from intermittent low-level exposure to rat thyrotoxins.

Developed successful data waivers of developmental neurotoxicity and comparative thyroid studies based on extant data.

Rebutted developmental and reproductive labeling designations for three major products in the EU, including designing studies to address specific concerns.

Provided non-testifying expert witness support for pesticide data compensation arbitration.

Monitored toxicological studies on pesticides and industrial chemicals, including multiple developmental toxicity assessments, developmental neurotoxicity studies, and reproductive toxicity evaluations.

Developed hazard characterizations for multiple products, including industrial chemicals and pesticides.

Provided non-testifying expert witness support in environmental contamination cases and in pesticide data arbitration.

Designed and monitored toxicity studies for EPA, FDA, and international regulatory submission, including multiple reproductive and developmental studies; carcinogenicity assays; acute, short-term, and delayed neurotoxicity studies; and *in vivo* and *in vitro* dermal penetration studies.

Monitored PCB carcinogenicity and neurotoxicity assays.

Developed reduced risk arguments for pesticide products.

Performed complete due diligence review of toxicological issues for a major pesticide product.

Evaluated toxicity results for multiple chemicals for 8(e) reporting obligations.

Peer Reviewer

Environmental Health Perspectives

Professional Affiliations

Society of Toxicology