BIOGRAPHICAL SKETCH

NAME	POSITION TITLE
Rory Conolly	Senior Research Biologist
eRA COMMONS USER NAME Bongoeight	

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Harvard College, Cambridge, MA	A.B.	1972	Biology
Harvard School of Public Health	Sc.D.	1978	Physiology/Toxicology
Imperial Chemical Industries, Cheshire, England	---	1978 - 1979	Biochemical Toxicology

A. POSITIONS and HONORS

Research and Professional Experience:

1979-1986 Assistant Professor of Toxicology, The University of Michigan
1986-1988 Research Manager, NSI Tech. Services Corp., Dayton, OH
1988-1989 Deputy Director, NSI Technology Services Corp., Dayton, OH
1989-1995 Scientist, Chemical Industry Institute of Toxicology, RTP, NC
1995-2004 Senior Scientist, CIIT Centers for Health Research, RTP, NC
2001-2004 Director, Center for Computational Biology & Extrapolation Modeling, CIIT Centers for Health Research, RTP, NC
2004-2005 Director, Center for Computational Systems Biology & Human Health Assessment, CIIT Centers for Health Research, RTP, NC
2004-2005 Senior Investigator, Computational Systems Biology & Human Health Assessment, CIIT Centers for Health Research, RTP, NC
2005-present Senior Research Biologist, National Center for Computational Toxicology, ORD, U.S. EPA, RTP, NC

Professional Societies and Affiliations:

1981 – present Member, Society of Toxicology
1985 – present Member, Society for Risk Analysis
1985 – present Member, American Association for the Advancement of Science
1997 – 1998 President, Risk Analysis Specialty Section, Society of Toxicology
1998 – 2005 Member, U.S. EPA FIFRA Science Review Board
1998 – present Adjunct Professor of Biomathematics, North Biomathematics, North Carolina State University, Raleigh, NC
2001 – 2001 President, Biological Modeling Specialty Section, Society of Toxicology
2002 – present Faculty Affiliate, Department of Environmental and Radiological Health Sciences, Colorado State University, Fort Collins, CO
2004 – 2005 Member, NAS Board on Environmental Studies and Toxicology
2005 – present Adjunct Professor of Environmental Science, Wright State University, Dayton, OH

Honors and Awards:

1991 Outstanding Presentation in Risk Assessment, Annual Meeting of the Society of Toxicology
1999 Outstanding Presentation in Risk Assessment, Annual Meeting of the Society of Toxicology
2003 Outstanding Presentation in Risk Assessment, Annual Meeting of the Society of Toxicology (2 awards)
2004 Best Published Paper in Risk Assessment, Risk Assessment Specialty Section, Society of Toxicology
2005 Arnold J. Lehman Award for career achievement in risk assessment, Society of Toxicology

Selected Invitations at National & International Symposia (last 3 years):

"Mechanistic Constraints on Sites of Formaldehyde-induced Cancer", Minisymposium, Formaldehyde & Cancer: Current Evidence and Future Perspectives, 17th International Symposium on Epidemiology and Occupational Health, Melbourne, Australia, 13-16 October, 2004.

"'Omics' Data and Computational Modeling of Dose Responses at the Molecular, Cellular, Tissue and Whole Organism Levels", Workshop on PBPK/PD Models for Developing Humans: Risk Assessment Strategies and Research Recommendations, Seventh International Conference On Neuroprotective Agents, Asilomar Conference Grounds, The Monterey Peninsula's "Refuge by the Sea", Pacific Grove, California, November 14-19, 2004.

"Integration of Biologically-based Dose-response Functions and Individual Susceptibility into Cancer Risk Assessment" Würzburger Forum Toxikologie 2004, Thresholds and nonmonotonic curves in dose-response relationships. A new look at the old concept of hormesis. Hörsaal des Instituts für Pharmakologie und Toxikologie der Universität Würzburg, Versbacher Straße 9, 97078 Würzburg, Germany, December 3, 2004.

"Computational Systems Biology: Taking Dose-Response Analysis to a New Level", DOE Low Dose Radiation Research Investigator's Workshop, Hyatt Regency Bethesda, Bethesda, Maryland, April 26, 2005.

"Implications of Homeostasis for Dose-Response at Different Levels of Biological Organization", 4th International Conference on Hormesis: Implications for Toxicology, Medicine and Risk Assessment, University of Massachusetts, Amherst, Massachusetts June 6 – 8, 2005.

"Computational Modeling of Biological Systems: Implications for Use of Laboratory Animals in Toxicological Testing and Research", 5th World Congress on Alternatives and Animal Use in the Life Sciences, Estrel Convention Center, Berlin, Germany, August 21- 25, 2005.

"Use of Physiologically Based Pharmacokinetic Modeling to Characterize Exposures Associated with Biomonitoring Data", Workshop on Integrating Biomonitoring Data into Epidemiology and Toxicology Research, 2006 Annual SOT meeting, San Diego, March 8, 2006.

"Integration of biomarkers in risk assessment; a toxicological perspective", presented at the ENCIS Workshop "Integration of Biomarkers in Cancer Risk Assessment", Mitland Hotel Utrecht, Arienslaan 1, 3573 PT Utrecht, The Netherlands, Thursday, October 19, 2006.

"The different roles of cytolethality and DNA reactivity in the carcinogenicity of formaldehyde: Implications for risk assessment", 39th Annual Symposium, Society of Toxicology of Canada, Delta Centre-Ville, 777 University Street, Montréal, Quebec, Canada, December 5, 2006.

"Computational Modeling to Evaluate Candidate Modes of Action for Arsenic", presented at the Workshop session "How Can Biologically-Based Modeling of Arsenic Kinetics and Dynamics Inform the Risk Assessment Process?" 46th Annual Meeting, Society of Toxicology, Charlotte, NC, USA, March 27, 2007.

Selected Expert Committees/Advisory Panels/Organizing Committees

"Computational Systems Biology: The Integration of Data Across Multiple Levels of Biological Organization to Understand How Perturbations of Normal Biology Become Adverse Health Effects", NRC Committee on Models in the Regulatory Process, Workshop on Emerging Issues for Regulatory Environmental Modeling, National Academy of Sciences, Washington, DC, December 2, 2005.

Organized the minisymposium "Computational systems biology and health risks of environmental chemicals" as part of the joint SIAM/SMB Conference on the Life Sciences, Brownstone Hotel, Raleigh, NC, July 31 – August 4, 2006.

Organized the workshop "Systems Biology and the Health Risks of Environmental Chemicals" as part of the Seventh International Conference on Systems Biology, Yokohama, Japan, October 9-13, 2006.

Co-organized (with Richard Phillips, Exxon-Mobil) the symposium "Computational Toxicology – Industry-Wide Initiative Plus EPA/NEHS Initiative" as part of the 27th Annual Meeting of the American College of Toxicology, Renaissance Esmeralda Resort & Spa, Indian wells, California, November 5-8, 2006.

Invited discussion leader, "Additivity to background as a potential source of linearity. Applicability of the general argument of Crump, Hoel, Langley and Peto, 1976. JNCI 58:1537-41", NRC Workshop on the Implications of Receptor-Mediated Events on Dose-Response, NRC, Washington, DC, May 3 – 4, 2007.

"(A biologist's perspective on) Estimating low-dose risk from high-dose data and its associated uncertainty", NRC Workshop on Quantitative Approaches to Characterizing Uncertainty in Human Cancer Risk Assessment Based on Bioassay Results, NRC, Washington, DC, June 5, 2007.

Invited participant, IOM Brainstorming Session "Approximating Dose-Response Relationships Using Limited Data", Institute of Medicine, Washington, DC, June 18, 2007.

Selected Assistance/Advisory Support to the Agency

"Computational Toxicology and New Directions in Risk Assessment", SOT Contemporary Concepts in Toxicology Workshop: Probabilistic Risk Assessment (PRA): Bridging Components Along the Exposure-Dose-Response Continuum, Washington, DC, July 25 - 27, 2005.

B. SELECTED PUBLICATIONS (selected from >100).

Clewell, H.J., III, Quinn, D.W., Andersen, M.E., and Conolly, R.B. (1995). An improved approximation to the exact solution of the two-stage clonal growth model of cancer. *Risk. Anal.* 15, 467-473.

Goldsworthy, T.L., Conolly, R.B., and Fransson-Steen, R. (1996). Apoptosis and cancer risk assessment. *Mutat. Res.* 365, 71-90.

Kramer, D.A. and Conolly, R.B. (1997). Computer simulation of clonal growth cancer models. I. Parameter estimation using an iterative absolute bisection algorithm. *Risk Anal.* 17,115-126.

R.B. Conolly and M.E. Andersen. (1997). Hepatic foci in rats after diethylnitrosamine initiation and 2,3,7,8-tetrachlorodibenzo-p-dioxin promotion: Evaluation of a quantitative two-cell model and of CYP1A1/1A2 as a dosimeter. *Toxicol. Appl. Pharmacol.* 146, 281-293.

Conolly, R.B., Beck, B.D., and Goodman, J.I. (1999). Stimulating research to improve the scientific basis of risk assessment. *Toxicol. Sci.*, 49, 1-4.

You, L., Archibeque-Engle, S., Casanova, M., Conolly, R.B., and Heck, H.d'A. (1999). Transplacental and lactational transfer of p,p'-DDE in Sprague-Dawley rats. *Toxicol. Appl. Pharmacol.* 157,134-144.

Keys, D.A., Wallace, D.G., Kepler, T.B., and Conolly, R.B. (2000). Quantitative evaluation of alternative mechanisms of blood disposition of di(n-butyl) phthalate and mono(n-butyl) phthalate in rats. *Toxicol. Sci.* 53,173-184.

Haag-Gronlund, M., Conolly, R.B., Scheu, G., Warngard, L., and Fransson-Steen, R. (2000). Analysis of rat liver foci growth with a quantitative two-cell model after treatment with 2,4,5,3',4'-pentachlorobiphenyl. *Toxicol. Sci.* 57, 32-42.

Conolly, R.B., Lilly, P.D., and Kimbell, J.S. (2000). Simulation modeling of the tissue disposition of formaldehyde to predict nasal DNA-protein cross-links in F344 rats, rhesus monkeys, and humans. *Environ. Hlth. Perspect.* 108(suppl 5), 919-924.

Ou, Y.C., Conolly, R.B., Thomas, R.S., Xu, Y., Andersen, M.E., Chubb, L.S., Pitot, H.C., and Yang, R.S.H. (2001). A clonal growth model: Time-course simulations of liver foci growth following penta- or hexachlorobenzene tratment in a medium-term bioassay. *Cancer Res.* 61, 1879-1889.

Kimbell, J.S., Overton, J.H., Subramaniam, R.P., Schlosser, P.M., Morgan, K.T., Conolly, R.B., and Miller, F.J. (2001). Dosimetry modeling of inhaled formaldehyde: Binning nasal flux predictions for quantitative risk assessment. *Toxicol.Sci.* 64:111-121.

Conolly, R.B., Kimbell, J.S., Janszen, D., Schlosser, P.M., Kalisak, D., Preston, J., and Miller, F.J. (2003). Biologically motivated computational modeling of formaldehyde carcinogenicity in the F344 rat. *Toxicol. Sci.* 75, 432-447.

Ou, Y.C., Conolly, R.B., Thomas, R.S., Gustafson, D.L., Long, M.E., Dobrev, I.D., Chubb, L.S., Xu, Y., Lapidot, S.A., Andersen, M.E., and Yang, R.S.H. (2003). Stochastic simulation of hepatic preneoplastic foci development for four chlorobenzene congeners in a medium-term bioassay. *Toxicol. Sci.* 73, 301-314.

Conolly, R.B. and Lutz, W.K. (2004). Non-monotonic dose-response relationships: Mechanistic basis, kinetic modeling, and implications for risk assessment. *Toxicol. Sci*. 77:151-157.

Gaylor, D.W., Lutz, W.K., and Conolly, R.B. (2004) Statistical analysis of non-monotonic dose response relationships: Research design and analysis of nasal cell proliferation in rats exposed to formaldehyde. *Toxicol. Sci.* 77:158-164.

Tan, Y.-M., Butterworth, B.E., Gargas, M.L. and Conolly, R.B. (2003). Biologically motivated computational modeling of chloroform cytolethality and regenerative cellular proliferation. *Toxicol. Sci.* 75:192-200.

Paul S. Price, P.S., Conolly, R.B., Chaisson, C.F., Gross, E.A., and Young, J.S. (2003). Modeling inter-individual variation in physiological factors used in PBPK models of humans. *CRC Crit. Rev. Toxicol*. 33:469-503.

Conolly, R.B., Kimbell, J.S., Janszen, D.J., Schlosser, P.M., Kalisak, D., Preston, J., and Miller, F.J. (2004). Human respiratory tract cancer risks of inhaled formaldehyde: Dose-response predictions derived from biologically-motivated computational modeling of a combined rodent and human dataset. *Toxicol. Sci*. 82:279–296

Andersen, M.E., Thomas, R.S., Gaido, K.W., and Conolly, R.B. (2005). Dose-response modeling in reproductive toxicology in the systems biology era. *Reproductive Toxicol*. 19, 327-337.

Andersen, M.E., Dennison, J.E., Thomas, R.E., and Conolly, R.B. (2005). New directions in incidence-dose modeling. *TRENDS Biotechnol.* 23, 122-127.

Conolly, R.B., Gaylor, D.W., and Lutz, W.K. (2005). Population variability in biological adaptive responses to DNA damage and the shapes of carcinogen dose-response curves. Toxicol. Appl. Pharmacol. 207, S570-S575.

Lutz, W.K., Gaylor, D.W., Conolly, R.B., and Lutz, R.W. (2005). Nonlinearity and thresholds in dose-response relationships for carcinogenicity due to sampling variation, logarithmic dose scaling, or small differences in individual susceptibility. Toxicol. Appl. Pharmacol. 207, S565-S569.

Zhang, Q., Andersen, M.E., and Conolly, R.B. (2006). Binary gene induction and protein expression in individual cells. Theor. Biol. Med. Modelling 3:18, DOI:10.1186/1742-4682-3-18.

Tan, Yu-Mei, Liao, K.H., Conolly, R.B., Blount, B.C., Mason, A.M., and Clewell, H.J. (2006). Use of a physiologically based pharmacokinetic model to identify exposures consistent with human biomonitoring data for chloroform. J. Toxicol. Environ. Health, Part A, 69, 1727-1756, DOI: 10.1080/15287390600631367.

Breen, M.S., Villeneuve, D.L., Breen, M., Ankley, G.T., and Conolly, R.B. (2007). Mechanistic computational model of ovarian steroidogenesis to predict biochemical responses to endocrine active compounds. Annals Biomed. Engineering, 35, 970-981, DOI: 10.1007/s10439-007-9309-7.

Conolly, R.B., and Thomas, R.S. (2007). Biologically motivated approaches to extrapolation from high to low doses and the advent of systems biology: The road to toxicological safety assessment. Human and Ecological Risk Assessment 13, 52-56.