

Russell S. Thomas, Ph.D.



Russell S. Thomas, Ph.D. is director of the Center for Genomic Biology and Bioinformatics and a senior investigator at The Hamner Institutes for Health Sciences, located in Research Triangle Park, North Carolina. The focus of Dr. Thomas' research is studying how cellular processes are altered when an organism is exposed to chemicals or drugs. The metabolic responses of animals and human patients to disease, as well as to the desirable and adverse effects of drugs and chemicals, are very complex. Specifically, Dr. Thomas develops functional genomic screens to dissect cellular signaling pathways involved in toxicity. He applies genomic, proteomic, and metabonomic tools for identifying biomarkers, and integrates functional genomic screens with gene expression technology to identify secondary and tertiary gene expression cascades involved in toxicity.

Metabonomics is the study of metabolic responses to drugs, environmental changes, and diseases; genomics is the study of genes and their function; and proteomics is the study of proteins. Through the application of these three tools, Dr. Thomas works to find results more quickly, economically, efficiently and accurately. His research involves identifying biomarkers to characterize disease pathology, drug efficacy or drug toxicity.

Prior to his position at The Hamner Institutes, Dr. Thomas was a scientist at Kalypsys, Inc., in La Jolla, California, where he simultaneously managed the Lead Profiling and Target Discovery groups in a drug discovery operation that included both Ph.D. scientists and research associates. In earlier research efforts, Dr. Thomas co-developed a novel microarray platform of orthologous genes in humans and mice to evaluate cross-species developmental and toxicological differences in gene expression. He performed polymorphism (SNP) surveys of toxicologically and pharmacologically important genes and co-developed a bioinformatics pipeline for analyzing polymorphism related data. He has also created bioinformatic tools for performing cross-genome comparisons in a distributed computing environment (i.e., Linux cluster), and worked on database development for gene expression and sequence visualization.

The American Chemistry Council, the National Cancer Institute, the National Institutes of Environmental Health Sciences, the U.S. Army, Honeywell, Inc., and the Formaldehyde Council have all at various times awarded Dr. Thomas with grants and contracts for research. He has presented numerous keynote addresses and invited talks at scientific symposiums, forums, and conferences. Dr. Thomas maintains professional memberships in the American Association for the Advancement of Science as well as the Society of Toxicology. The author of numerous scientific articles, Dr. Thomas has served as an editorial and scientific referee for a number of professional journals, including *Pharmacogenomics*, *EHP Toxicogenomics*, *Applied Genomics and Proteomics*, *Chemical Research in Toxicology*, *Life Sciences*, *Toxicological Sciences*, *Physiological Genomics*, and *Reproductive Toxicology*.

Academic and professional honors of Dr. Thomas include fellowships at Colgate-Palmolive/Society of Toxicology, the National Cancer Institute, and Ciba-Geigy/Society of Toxicology. He has won awards for outstanding student presentations from Colorado State Cell and Molecular Biology and Mountain West Society of Toxicology, as well as the Kirke L. Martin Scholarship for Outstanding Graduate Student Research. Dr. Thomas was named a William J. Johnson Chemistry Scholar and received the Tabor College Divisional Science Award for Excellence.

After earning a B.A. in 1991 in chemistry from Tabor College in Hillsboro, Kansas, Dr. Thomas went on to earn an M.S. in 1993 in radioecology and health physics from Colorado State University in Fort Collins, Colorado. He earned a Ph.D. in 1997 in toxicology from Colorado State University. Dr. Thomas did his postdoctoral research in genomics and molecular biology at the McArdle Laboratory for Cancer Research in Madison, Wisconsin.