

James L. Wittliff, Ph.D., M.D.

Professor

Department of Biochemistry & Molecular
Biology

Research Professor of Surgery

School of Medicine

Research Activities:

Dr. Wittliff's team explores the roles of hormones and their mimics in human cancer, exploiting proteomics and genomics. He was among the first to prove appearance of estrogen receptors in breast cancer predicted a patient's response to hormone therapy. This finding led to collaborations with the National Surgical Adjuvant Breast Project, establishing Tamoxifen as adjuvant therapy for breast cancer and use of receptors as tissue biomarkers of a patient's prognosis and response. Wittliff's discovery of receptor polymorphism in cancer provided evidence of another receptor isoform, confirmed recently as ER-beta. With NEN/DuPont, Dr. Wittliff developed the original FDA-approved kits for assessing receptors in biopsies, celebrated as a major contribution to laboratory medicine. His laboratory in the Brown Cancer Center was designated the National Reference Facility for performing QA surveys of receptor testing for historic clinical trials in North America. Focusing expertise on other molecules exhibiting estrogen mimicry, Dr. Wittliff and IA, Inc. patented receptor-based biosensors detecting endocrine-disrupting compounds in the environment.

In recognition of contributions to medicine, the University of Innsbruck, Austria awarded him, Doctor of Medicine *honoris causa*. More than 200 students and research fellows have trained in Dr. Wittliff's program in the Hormone Receptor Laboratory. He has received the Award for Outstanding Contributions to Clinical Chemistry in a Selected Area of Research from the American Association for Clinical Chemistry and was given the Distinguished Scientist's Award by the Clinical Ligand Assay Society. In 2004, the American Cancer Society recognized his lifetime achievements with the Goldsmith Research Excellence Award. Recently, Dr. Wittliff served as Visiting Industry Professor at Arcturus Applied Genomics, where research on the genomics of human breast cancer using laser capture microdissection revealed clinically relevant molecular signatures. These latest discoveries and his development of a unique Tumor Marker Database and biorepository have resulted in the filing of numerous new patents for the University of Louisville and the licensing of his technologies.

Grants Funded:

Role: Principal Investigator

Title: A Genomic Approach for Assessing Clinical Outcome of Breast Cancer using Cells Isolated by Laser Capture Microdissection

Funding Agency: Phi Beta Psi Sorority Research Foundation

Direct Costs Funded: \$47,250

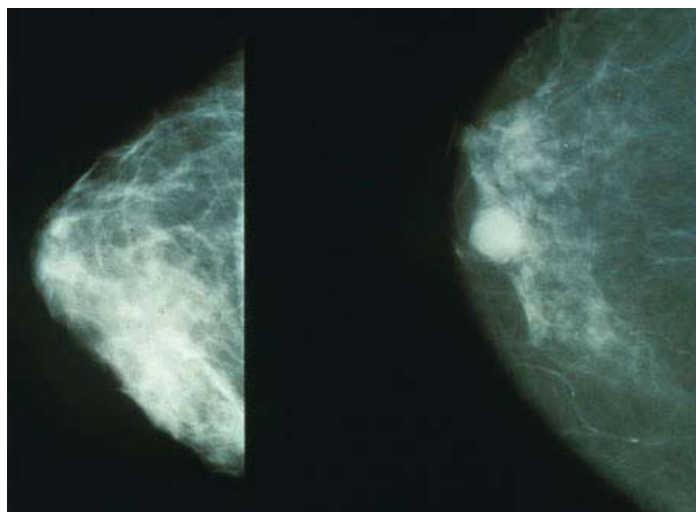
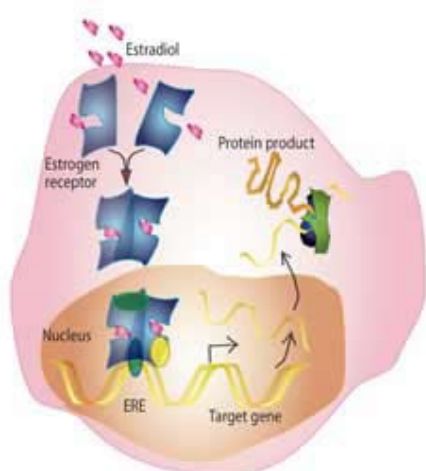
Role: Principal-Investigator
Title: University of Louisville component, Commercialization of Nutraceuticals to Enhance Sustainable Agriculture in Limited Resource Caribbean Farming Communities
Funding Agency: USAID/Clemson University
Direct Costs Funded: \$97,306

Role: Core Faculty/Recruiter
Title:
Funding Agency: National Institutes of Health, Cancer Education Grant Program, NCI
Direct Costs Funded: \$356,665

Role: Investigator
Title: Podocytes and Oxidative Stress in Diabetic Kidney
Funding Agency: National Institutes of Health
Direct Costs Funded: \$96,728

Role: Principal Investigator
Title: Gene Expression Profiling of Human Lung Cancer Cells Isolated by Laser Capture Microdissection
Funding Agency: Kentucky Lung Cancer Research Program
Direct Costs Funded: \$271,845

Role: Principal Investigator
Title: Optimization of a Comprehensive Database with Tissue Processing and Evaluation for Genomic & Proteomic Analyses
Funding Agency: Asterand, Inc.
Direct Costs Funded: \$105,000



Role: Principal Investigator
Title: The Proof of Concept Grant
Funding Agency: Office of Technology Transfer
Direct Costs Funded: \$25,000

Role: Co-Principal Investigator
Title: Genomic Approach to Predicting Breast Cancer Recurrence
Funding Agency: Brown Cancer Center Pilot Project 2006
Direct Costs Funded: \$37,750

Peer-reviewed Publications:

Wittliff JL, Kruer TL, Andres SA, Smolenkova IA. Molecular Signatures of Estrogen Receptor-associated Genes in Breast Cancer Predict Clinical Outcome. In : Hormonal Carcinogenesis V (Li JJ, Li SA, Mohla S, Rochefort H, Maudelone T, Eds.), *Springer Verlag*, pp.349-357, 2008.

Kerr II, DA, Eliason JF, **Wittliff JL** Steroid Receptor and Growth Factor Receptor Expression in Human Non-small Cell Lung Cancers Using Cells Procured by Laser-Capture Microdissection. In : Hormonal Carcinogenesis V (Li JJ, Li SA, Mohla S, Rochefort H, Maudelone T, Eds.), *Springer Verlag*, pp.377-384, 2008.

Andres, S.A., Kerr II, D.A., Bumpus, S.B., Kruer, T.L., Thieman, J.W., Smolenkova, I.A., **Wittliff, J.L.** A Three-Tiered Approach for Calibration of a Biosensor to Detect Estrogen Mimics. *Adv Exp Med Biol*, 614:305-313, 2008.

Wittliff, J.L., Andres SA, Kruer TL, Kerr II, DA, Erb JL Biosensors and Molecular Signatures: Detecting Estrogen-like Therapeutics & Predicting Clinical Outcome of Cancer. *Adv Exp Med Biol*, 315-322, 2008.