

Nineteenth Lecture in the Series

James P. Holland Memorial Lecture

Monday, October 15, 2018, at 4:00 p.m.

Myers Hall 130 (915 East Third Street)
Indiana University Bloomington campus

Critical roles for chromatin and epigenetics in transcription and development

Trevor K. Archer, Ph.D.

Chief, Epigenetics & Stem Cell Biology
Laboratory, National Institute of
Environmental Health Sciences

The long-term goal of Archer's research is to understand the mechanisms by which gene transcription is altered in disease states, focussing principally on breast cancer and during early development. To realise these goals, he and his colleagues use embryonic stem cells and breast cancer cell lines as model systems to study the mechanisms that govern regulated transcription from mammalian genes in response to endogenous and exogenous signals. Because of their widespread use in endocrine therapy, their work has placed an emphasis on the mode of action of steroid hormone receptors in response to natural ligands, as well as synthetic agonists and antagonists. They pay particular attention to the principles that permit the modulation of transcriptional responses via sequence specific binding of transcription factors. In this area, Archer's research team has extensively studied the potential regulatory role of chromatin architecture in modulating the activity of these transcriptional effectors. In pursuing this line of investigation, he anticipates that discoveries with respect to the way gene transcription is altered in normal and pathological states will have implications for the deregulated control of gene expression that is characteristic of cancer. His Holland lecture will touch on both glucocorticoid regulation of transcription in breast cancer cells and functions of epigenetic enzymes in stem cell biology.

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About Trevor Archer

Trevor K. Archer is recognized for his research on the transcriptional functions of nuclear receptors in cancer cells. Steroid hormones, such as estrogen and progesterone, play an important role in the development and treatment of breast cancer. Archer and his lab members have undertaken detailed analysis of the steroid receptors' mechanism of action and clinically important steroid receptor antagonists which are used to block their action. They focus on the role of chromatin and epigenetics critical to understanding their function. Archer's lab seeks to provide new insight into the role that nuclear receptors play in breast cancer and the potential development of novel and effective treatments.

Professional Experience

National Institute of Environmental Health Sciences:
Chief, Epigenetics and Stem Cell Biology Laboratory,
2014-present; Chief, Laboratory of Molecular
Carcinogenesis, 2003-2014; Senior Investigator, Head,
Chromatin and Gene Expression Section, Laboratory of
Reproductive and Developmental Toxicology, 1999-2003
University of Western Ontario, Departments of Obstetrics
& Gynaecology, Biochemistry, and Oncology: Associate
Professor, 1996-1999; Assistant Professor, 1992-1996; NCIC
Career Scientist, 1992-1998
Victoria Hospital Research Institute: Scientist, 1994-1999
National Cancer Institute, NIH: Visiting Associate, Laboratory
of Molecular Virology, 1989-1991; Visiting Fellow, Laboratory
of Experimental Carcinogenesis, 1987-1989

Education

Queen's University, Ontario, Ph.D., Biochemistry, 1987

Honors

NIH Equity, Diversity, and Inclusion Award of the Year, 2017
NIH Merit Awards, 2004, 2005, 2008, 2011, 2014

