



VANDERBILT PRIZE IN BIOMEDICAL SCIENCE LECTURE

ELAINE FUCHS, PH.D.

STEM CELLS IN SILENCE, ACTION AND CANCER

MARCH 30, 2017

4:00 P.M.

208 LIGHT HALL



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Upcoming Discovery Lecture:

JAMES SPUDICH, PH.D.

*Stanford University School of Medicine Department of Biochemistry
Douglass M. and Nola Leishman Professor of Cardiovascular Disease
Member, National Academy of Sciences*

April 6, 2016

208 Light Hall / 4:00 P.M.

VANDERBILT  UNIVERSITY
MEDICAL CENTER

STEM CELLS IN SILENCE, ACTION AND CANCER

Elaine Fuchs is the Rebecca Lancefield Professor of Mammalian Cell Biology and Development at The Rockefeller University, and a Howard Hughes Medical Institute Investigator. Fuchs has published over 320 papers and is renowned for her research in skin biology, its stem cells and its associated human genetic disorders. Using skin as a model, Fuchs studies how resident stem cells communicate and respond to their local neighbors (their “niche”) and how these signals prompt them to adjust their program of gene expression and begin to make tissue, and how new signals instruct them when to stop once enough tissue has been made. By studying these basic properties of stem cells, Fuchs’ team has made major contributions towards understanding how tissues repair injuries and how abnormalities in stem cell behavior can lead to cancers. She’s devised and employed innovative and imaginative approaches to biomedical research for over three decades. Her team developed technology to conduct genome-wide RNAi screens in mice, and her recent publications include genome wide screens for oncogenic regulators, tumor suppressors, oncogenic microRNAs and genes that perturb the balance between growth and differentiation in epidermal skin stem cells. Her group has also used in utero lentiviral delivery technology to generate mice in which they can track stem cells as they acquire mutations that lead to malignancy, and then follow these tumor-initiating cells in cancers as the stem cells transition through periods of tumor growth and dormancy. This approach led them to the discovery of a population of tumor-initiating stem cells that is slow-cycling, invasive and resistant to chemotherapy. These discoveries have brought them to the interface of basic and clinical science as they progress to develop new and improved methods for cancer therapeutics.



ELAINE FUCHS, PH.D.

**HEAD, LABORATORY OF MAMMALIAN
CELL BIOLOGY AND DEVELOPMENT,
THE ROCKEFELLER UNIVERSITY**

**INVESTIGATOR, HOWARD HUGHES
MEDICAL INSTITUTE**

Fuchs received her Ph.D. in Biochemistry from Princeton University. After her postdoctoral research at the Massachusetts Institute of Technology, she joined the faculty at the University of Chicago in 1980. In 2002, she relocated to The Rockefeller University. Fuchs’ awards and honors include the Presidential Young Investigator Award, Richard Lounsbery Award from the National Academy of Sciences, Novartis-Drew Award for Biomedical Research, Dickson Prize in Medicine, FASEB Award for Scientific Excellence, National Medal of Science, L’Oreal-UNESCO Award, Madison Medal, Passano Award, Albany Prize, March of Dimes Prize, Kligman-Frost Leadership Award, Pasarow Award for Cancer Research, International Pezcoller Award, and the EB Wilson Award from the American Society of Cell Biology. In 2017, in addition to receiving the Vanderbilt Prize, Fuchs will receive the McEwen Award for Innovation from the International Society for Stem Cell Research. Fuchs is an elected member of the National Academy of Sciences, Institute of Medicine, American Academy of Arts and Sciences, American Philosophical Society, European Molecular Biology Organization (foreign member) and the inaugural group of 100 American Association for Cancer Research Fellows. She holds honorary doctorates from Mt. Sinai/New York University School of Medicine, the University of Illinois and Harvard University. Fuchs is past President of American Society of Cell Biology, International Society for Stem Cell Research and Harvey Society, and is on the Board of Governors of the New York Academy of Sciences. She has trained over 25 graduate students and 100 postdoctoral fellows, most now at major academic universities and medical schools. She has been a long-standing advocate of women in science. The title of her presentation at Vanderbilt will be: “Stem Cells in Silence, Action and Cancer.”