Princeton University

Honors Faculty Members Receiving Emeritus Status

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The biographical sketches were written by colleagues in the departments of those honored.

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Faculty Members Receiving Emeritus Status 2015

David Botstein

David Botstein was educated at Harvard (A.B. 1963) and the University of Michigan (Ph.D. 1967). He joined the faculty of the Massachusetts Institute of Technology, rising through the ranks from instructor to professor of genetics. In 1987, he moved to Genentech, Inc. as vice president–science, and, in 1990, he joined Stanford University's School of Medicine, where he was chairman of the Department of Genetics. In July, 2003 he became director of the Lewis-Sigler Institute for Integrative Genomics and the Anthony B. Evnin '62 Professor of Genomics at Princeton University.

David's research has centered on genetics, especially the use of genetic methods to understand biological functions. His early work in bacterial genetics contributed to the discovery of transposable elements in bacteria and an understanding of their physical structures and genetic properties. In the early 1970s, he turned to budding yeast (*Saccharomyces cerevisiae*) and devised novel genetic methods to study the functions of the actin and tubulin cytoskeletons. In 1980, he began his theoretical contributions on linkage mapping of the human genome by suggesting, with collaborators, that restriction fragment length polymorphisms (RFLPs) could be used to produce a linkage map of the human genome and to map the genes that cause disease in humans. Linkage mapping of human disease genes became one of the foundations of the Human Genome Project. David also participated in the sequencing the genome of *Saccharomyces cerevisiae,* the first eukaryotic genome to be sequenced.

In the 1990s, David's research focused on the emerging science of genomics. With J. Michael Cherry, he founded the *Saccharomyces* Genome Database, which continues to be a major international resource that connects genomic sequences with biological functions; in this role he contributed to the founding of the Gene Ontology Consortium. With Patrick O. Brown, he contributed to the development of DNA microarray technology, notably analysis methods

that connect gene expression data with the biological functions of genes. Together they adapted microarray technology to classify and study human tumors, resulting in discoveries of tumor subtypes with distinct biology and clinical consequences.

As director of the Lewis-Sigler Institute, David led a team of faculty to develop the innovative new Integrated Science Curriculum (ISC), where the basic ideas of physics, chemistry, computer science, and biology, along with the relevant mathematics, are taught together. David also directed one of the national Centers for Systems Biology established by the National Institute of General Medical Sciences (NIGMS). Under his leadership, a new graduate program, the Program in Quantitative and Computational Biology, was established, as well as the Lewis-Sigler Fellows program for early career scientists. David is now the chief scientific officer of Calico, a startup that aims to take innovative, interdisciplinary approaches toward anti-aging and increased lifespan.

David was elected to the U.S. National Academy of Sciences in 1981 and to the Institute of Medicine in 1993. He served on many policymaking and peer-review committees, including the National Academy of Sciences/National Research Council study on the Human Genome Project (1987–88), the National Institutes of Health Program Advisory Committee on the Human Genome (1989–90), the Advisory Council of the National Center for Human Genome Research (1990–1995) and the Advisory Committee to the Director, National Institutes of Health (2003–2008). He has won several awards, including the Eli Lilly Award in Microbiology (1978), the Genetics Society of America Medal (shared with Ira Herskowitz, 1988), the Allen Award of the American Society of Human Genetics (1989), the Dickson Prize in Science (1991), the Rosenstiel Award for Distinguished Work in Basic Medical Research (1992), the Gruber Prize in Genetics (2003), the Albany Medical Center Prize in Medicine and Biomedical Research (shared with Eric Lander and Francis Collins, 2010), the Dan David Prize (shared with Eric Lander and J. Craig Venter, 2012), and the Breakthrough Prize in Life Sciences (2013).