



# The 38th Mildred Trotter Lecture

## Past Mildred Trotter Lecture Speakers

1975 Mary E. Avery, MD	1995 Helen Blau, PhD
1967 Beatrice Mintz, PhD	1996 Jane E. Buikstra, PhD
1977 Rosalyn S. Yalow, PhD	1997 Mary Bartlett Bunge, PhD
1979 Elizabeth E. Neufeld, PhD	1998 Ursula Bellugi, PhD
1980 Elizabeth D. Hay, MD	2000 Janet Rossant, PhD
1955 Marilyn Gist Faquhar, MD	2001 Leslie Ungerleider, PhD
1982 Mary D. Leakey, DSocSc, DSc	2002 Linda Buck, PhD
1982 Marian Koshland, PhD	2004 Susan Lindquist, PhD
1984 Dorothy T. Krieger, MD, DSc	2005 Gwen A. Jacobs, PhD
1985 Dorothea Bennett, PhD	2006 Paula Tallal, PhD
1986 Zena Werb, PhD	2007 Eve Marder, PhD
1987 Lynn Landmesser, PhD	2009 Ann Graybiel, PhD
1988 Lee N. Robins, PhD	2010 Cori Bargmann, PhD
1989 Lily Yeh Jan, PhD	2011 Silvia Arber, PhD, PhD
1990 Nancy Wexler, PhD	2013 Nancy Kanwisher, PhD
1991 Carla Shatz, PhD	2016 Shirley Tilghman, PhD
1993 Mary Lou Oster-Granite, PhD	2018 Constance L. Cepko, PhD
1994 Anne Young, MD, PhD	2019 Dora Angelaki, PhD
2020 Amita Seghal, PhD	



## *Combinatorial Creatures: Cortical Plasticity Within and Across Lifetimes*

*Presented by*  
**Leah Krubitzer, PhD**  
Professor of Psychology  
Center for Neuroscience  
University of California, Davis

Wednesday, October 27, 2021  
4:00 p.m. – 5:00 p.m.  
Eric P. Neuman Education Center (EPNEC)  
Seminar Room B

## Dr. Mildred Trotter

Washington University Medical School Alumni Association honored Mildred Trotter, PhD, a member of the faculty for more than 55 years, by endowing a lectureship in her name. Dr. Trotter, Professor Emeritus and Lecturer in Anatomy since 1967, was the first woman faculty member to be recognized in this way. To acknowledge her deep concern for the role of women in academic life, the lectureship is used to bring a distinguished woman scientist to the University every year.

Dr. Trotter contributed much of what is known today about the influence of age, sex and race on variation in human skeletal mass. Her formulas for estimating stature from long limb bone lengths still are used by the Federal Bureau of Investigation and in forensic medicine. Nutritionists have profited from her research on developmental variation in the mineral content of bone. Her earlier work focused on factors influencing hair growth.

A founding member of the American Association of Physical Anthropologists, Dr. Trotter held elected posts in this Association (including the presidency from 1955-1957) and in the American Association of Anatomists. Her awards include the Viking Fund Medal in Physical Anthropology (1956), the Globe Democrat Award for Women of Achievement in Science (1955) and Honorary Doctor of Science degrees from Western College for Women (1956), Mount Holyoke College (1960), and Washington University (1980).

Dr. Trotter's engagement with science continued after her retirement. She served as Convener of the Subcommittee on Osteology for the International Anatomical Nomenclature Committee and co-chaired a session on "Human Evolution: The Skeletal Dimension" at the 1985 Taung Diamond Jubilee International Symposium in South Africa to celebrate the 60th anniversary of the discovery of the first australopithecine fossil. While in attendance at this meeting, she suffered a debilitating stroke. Dr. Trotter passed away on August 23, 1991.

## Leah Krubitzer, PhD

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The neocortex is one of the most distinctive structures of the mammalian brain, yet also one of the most varied in terms of both size and organization. Multiple processes have contributed to this variability including evolutionary mechanisms (i.e., changes in gene sequence) that alter the size, organization and connections of the neocortex, and activity dependent mechanisms that can also modify these same features over shorter time scales.

Because the neocortex does not develop or evolve in a vacuum, when considering how different cortical phenotypes emerge within a species and across species, it is also important to consider alterations to the body, to behavior, and the environment in which an individual develops. Thus, changes to the neocortex can arise via different mechanisms, and over multiple time scales. Brains can change across large, evolutionary time scales of thousands to millions of years; across shorter time scales such as generations; and across the life of an individual – day-by-day, within hours, minutes and even on a time scale of a second.

The combination of genetic and activity dependent mechanisms that create a given cortical phenotype allows the mammalian neocortex to rapidly and flexibly adjust to different body and environmental contexts, and in humans permits culture to impact brain construction during development.