Frank H. Westheimer Prize Lecturers

2002 – 2003	Daniel E. Koshland, Jr.
2003 – 2004	Albert Eschenmoser
2004 – 2005	Thomas A. Steitz
2005 – 2006	David Eisenberg
2006 – 2007	Lubert Stryer
2007 – 2008	Elizabeth Blackburn
2008 – 2009	Alanna Schepartz
2009 – 2010	Peter B. Dervan
2010 – 2011	Roger D. Kornberg
2011 – 2012	Paul Schimmel
2012 – 2013	Ronald Breslow
2013 – 2014	Kevan Shokat
2014 – 2015	Jennifer Doudna
2015 – 2016	Jonathan Weissman
2016 – 2017	Peter G. Schultz
2017 – 2018	Harry B. Gray
2018 - 2019	Professor Jack Szostak

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Harvard University

Department of Chemistry
and Chemical Biology

Presents

2020 Frank H. Westheimer Prize Lecture

Professor Jacqueline K. Barton

California Institute of Technology
Division of Chemistry and Chemical Engineering

Signaling through DNA

Tuesday, November 15th, 2022

4:15 P.M.

Pfizer Lecture Hall
12 Oxford St.

The public is welcome.

Frank H. Westheimer

The Frank H. Westheimer Prize Lecture was established in 2002 by the Department of Chemistry and Chemical Biology at Harvard University in recognition of Professor Westheimer's major contributions to organic chemistry.

Frank Westheimer was born in Baltimore, Maryland on January 15, 1912. He received his B.A. from Dartmouth College in 1932 and his Ph.D. from Harvard University in 1935. He was a National Research Fellow at Columbia University from 1935-36.

A member of the faculty of the University of Chicago from 1936-43, Professor Westheimer was Research Supervisor of the Explosives Research Laboratory of the National Defense Research Committee from 1944-45. He was Associate Professor at the University of Chicago from 1946-53. From 1953-54 he was a Visiting Professor at Harvard University and was appointed Professor from 1954-60, when he was named the Morris Loeb Professor. In 1983 he became the Morris Loeb Professor, Emeritus.

Widely published, Professor Westheimer's research centered on the derivation (with J.G. Kirkwood) of equations for the calculation of electrostatic effects in organic chemistry, the invention (with J.E. Mayer) of molecular mechanics, the determination of mechanisms of chromic acid oxidations, the determination of the mechanisms of metal ion catalyzed and enzymic decarboxylation of βketoacids, the demonstration (with B. Vennesland) of the direct and stereospecifc transfer of hydrogen in the biochemical oxidation-reduction reactions that require NAD as coenzyme, a demonstration of the need for pseudorotation in the hydrolysis of phosphate esters, and the invention of photoaffinity labeling.

Professor Westheimer was a Guggenheim Fellow at Cambridge University (1962-63); an Overseas Fellow, Churchill College, Cambridge (1962-63); a Fulbright-Hayes Fellow, Yugoslavia (1974); a National Academy of Sciences Exchange Fellow, Peoples Republic of China (1982); and a Fellow of the Japan Society for the Promotion of Science (1982). He was a member of the President's Science Advisory Committee (1967-70) and served on the editorial boards of the Journal of Chemical Physics, the Journal of the American Chemical Society, and the Proceedings of the National Academy of Sciences.

He was a member of the National Academy of Sciences, the American Academy of Arts and Sciences, the American Philosophical Society, a Fellow of the American Association for the Advancement of Science, a Foreign Member of the Royal Society of London and an Honorary Member of the New York Academy of Sciences.

Along with numerous honorary degrees and lectureships, Professor Westheimer's awards included the Naval Ordnance Award (1946), the Willard Gibbs Medal (1970), the Theodore William Richards Medal (1976), the NAS Award in the Chemical Sciences (1980), the Robert A. Welch Award (1982), the Ingold Medal of the Royal Chemical Society (1983), the National Medal of Science (1986), the Priestley Medal (1988), the Repligen Award (1992) and the Nakanishi Prize (1996).

Professor Westheimer passed away on April 14, 2007.

Jacqueline K. Barton Biosketch

Dr. Jacqueline K. Barton is the John G. Kirkwood and Arthur A. Noyes Professor of Chemistry, Emerita at the California Institute of Technology. Barton was awarded the A.B. at Barnard College and a Ph.D. in Inorganic Chemistry at Columbia University. After a postdoctoral fellowship at Bell Laboratories and Yale University, she became an assistant professor at Hunter College, City University of New York. Soon after, she returned to Columbia University, becoming a professor of chemistry after three years.

In the fall of 1989, she joined the faculty at Caltech, and from 2009-2019, she served as Chair of the Division of Chemistry and Chemical Engineering.

Professor Barton has pioneered the application of transition metal complexes to probe recognition and reactions of double helical DNA. In particular, she has carried out studies to elucidate electron transfer chemistry mediated by the DNA double helix, a basis for understanding long range DNA-mediated signaling in DNA damage, repair, and replication. Through this research, Barton has trained more than 100 graduate students and postdoctoral students. In particular, many women, trained in her laboratory, have moved on to academic and industrial positions across the country. Barton has also served the chemistry community through her service on government and industrial boards. She served as a Director of the Dow Chemical Company for over twenty years and currently serves as a Director of Gilead Sciences. Barton has received many awards. These include the NSF Alan T. Waterman Award, the American Chemical Society (ACS) Award in Pure Chemistry, and a MacArthur Foundation Fellowship. She has been elected to the American Academy of Arts and Sciences, the American Philosophical Society, the National Academy of Sciences, the National Academy of Medicine, along with an honorary fellowship in the Royal Society of Chemistry. In 2011, Dr. Barton received the 2010 National Medal of Science from President Obama, and in 2015, she received the ACS Priestley Medal, the highest award of the ACS.