



Peter B. Dervan

California Institute of Technology
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Peter B. Dervan is the Bren Professor of Chemistry at the California Institute of Technology. Dervan pioneered a field of chemistry with studies directed toward understanding the chemical principles for the sequence specific recognition of DNA. Dervan received his B.S. degree from Boston College, and Ph.D. at Yale. He was a postdoctoral fellow at Stanford University and began his association with Caltech as an assistant professor in 1973. Professor Dervan served as chair of Caltech's division of chemistry and chemical engineering from 1994 to 1999. He is a member of the National Academy of Sciences, the National

Academy of Medicine, the American Academy of Arts and Sciences, the American Philosophical Society, the French Academy of Sciences and the German National Academy of Sciences. Professor Dervan received the 2006 National Medal of Science from President Bush "for his fundamental research contributions at the interface of chemistry and biology and his influence in education and industrial innovation". Other awards include the Harrison Howe Award (1988), Arthur C. Cope Award (1993), Willard Gibbs Medal (1993), Nichols Medal (1994), Maison de la Chimie Foundation Prize (1996), Remsen Award (1998), Kirkwood Medal (1998), Alfred Bader Award (1999), Max Tishler Prize (1999), Linus Pauling Medal (1999), Richard C. Tolman Medal (1999), Tetrahedron Prize (2000), Harvey Prize (Israel) (2002), Ronald Breslow Award (2005), Wilbur Cross Medal (2005), Frank H. Westheimer Medal (2009) and the Prelog Medal (2015). He has served on several Scientific Advisory Boards for the pharmaceutical and biotechnology industries. He is Chair of the Scientific Advisory Board of the Robert A. Welch Foundation. Dervan is an outstanding teacher, having received several teaching awards given by the undergraduate students at Caltech. Over 60 of Dervan's former graduate and postdoctoral coworkers hold academic research positions around the world, many of whom are leaders in chemistry, biology and medicine.

Introduction: Advances in Synthetic and Biological Chemistry

The 2017 Welch Conference on Chemical Research will provide advances in chemistry with applications in biology, medicine and materials. The goal of synthetic chemistry is the discovery or invention of new properties. The late Nelson Leonard described this as "syntheses with a purpose."

In a session on chemical biology, renowned scientists will describe small molecules that control stem cell self-renewal and differentiation, the use of alpha/beta peptide unnatural oligomers in biology, base editing technology that enables programmable correction of point mutations in human genomes, redox chemistry at a distance mediated by DNA through long range signaling and coordination of DNA repair, synthesis of increasingly complex architectures for medicine, and new approaches to glycosylation-targeted cancer therapy.

In a session on new materials, pathfinding researchers will spotlight the evolution of enzymes that catalyze reactions not known in living systems, invent nanoscale materials at the interface between the physical and life sciences, reimagine 3D manufacturing based on continuous liquid interface production technology, innovate selective chemistry on colloidal nanoscale objects, assemble nanosheets for catalytically active late-transition metal nanoparticles, and apply quantum dots to bioimaging and energy harvesting. In addition to the 12 all-star Speakers, 4 distinguished scientists will act as Session Leaders and guide discussion after the talks.