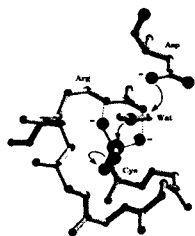


The Department of
Chemistry and Biochemistry
presents the

29th Annual
B.R. Baker Memorial Lecture



*A Biochemical Intersection Between
Bacterial Pathogens and
Signal Transductions Systems*

Jack Dixon, '71

Dean of Scientific Affairs &
Professor of Pharmacology,
Cellular & Molecular Medicine,
Chemistry & Biochemistry
University of California, San Diego

Thursday, May 29, 2003
Bren Hall 1414
University of California, Santa Barbara

Previous speakers include:

Paul Berg, Stanford University 1975
Joseph Bertino, Yale University 1975
Nelson J. Leonard, University of Illinois 1976
Jeremy R. Knowles, Harvard University 1978
Bruce N. Ames, U.C. Berkeley 1979
Linus Pauling 1980
Carl Djerassi, Stanford University 1981
Daniel V. Santi, School of Medicine, UC San Francisco 1982
Christopher T. Walsh, Harvard Medical School 1984
Stephen J. Benkovic, Pennsylvania State University 1985
Alan R. Fersht, Imperial College, London 1986
Harry B. Gray, California Institute of Technology 1987
Richard Lerner, Scripps Clinic & Research Foundation 1988
E.J. Corey, Harvard University 1989
Sir James W. Black, Kings College
School of Medicine, London 1990
Peter G. Schultz, University of California, Berkeley 1991
Peter B. Dervan, California Institute of Technology 1992
Olke C. Uhlenbeck, University of Colorado 1993
Richard Holm, Harvard University 1994
Chi-Huey Wong, The Scripps Research Institute 1995
David S. Sigman, Molecular Biology Institute, UCLA 1996
Daniel E. Koshland, Jr., UC Berkeley 1997
Harold A. Sheraga, Cornell University 1998
Richard E. Dickerson, UCLA 1999
Joanne Stubbe, MIT 2000
Steve Benner, The University of Florida 2001
Gregory Petsko, Brandeis University 2002
Jack Dixon, University of California San Diego 2003

Professor B.R. BAKER, whose memory we honor today was Professor of Chemistry at UCSB from 1966 until his death in 1971. Baker's graduate work on the structural elucidation and synthesis of Cannabis constituents marked the beginning of a prolific career in chemistry of natural products. He undertook many diverse projects of medicinal interest including the synthesis of antihemorrhagic vitamin K analogues, biotin derivatives, compounds with hormone activity, sulfones with activity against tuberculosis, and alkaloids. He published two books and more than 370 papers that included a series of papers on the structure and synthesis of the antimalarial alkaloid from *Hydrangea* that filled an entire issue of the *Journal of Organic Chemistry* in 1952. He determined the structure of the first known nucleoside antibiotic, puromycin, and synthesized it in 1955. This achievement came long before the discovery of the structure of transfer ribonucleic acid (tRNA). Puromycin was later shown to mimic the structure of tRNA and became an important tool of research in molecular biology. Puromycin was too toxic for cancer chemotherapy, but it aroused Bill's interest in this field. Few of the myriad of compounds that he had so meticulously synthesized showed any antitumor activity *in vivo*, so he sought a more rational approach to cancer chemotherapy. Perhaps his greatest contribution to medicinal chemistry was the concept of active-site-directed irreversible enzyme inhibition of substrate-identical enzymes. A monograph summarizing this approach to drug design promptly became one of the classic works in the field.

Jack Dixon, '71 University of California, San Diego

Jack Dixon received his Ph.D. degree in chemistry from the University of California at Santa Barbara with Thomas C. Bruice in 1971 and was a post-doctoral fellow with N.O. Kaplan at UCSD. He was promoted to full professor at Purdue University in 1982 and awarded the Harvey W. Wiley Distinguished Professorship in 1985. In 1991 he became the Minor J. Coon Professor and Chair of the Department of Biological Chemistry at the University of Michigan and in 1998 he received the Henry Russel Award, the University of Michigan's highest honor.

In 2002 he became the Director of the Life Sciences Institute at the University of Michigan, and in 2003 he moved to UCSD, where he is the Dean of Scientific Affairs and a Professor of Pharmacology, Cellular and Molecular Medicine, Chemistry and Biochemistry.

Dr. Dixon has brought a strong chemical background and expertise in biochemistry and molecular biology to his research investigations. Dixon's research has focused on a group of proteins that govern a chemical reaction called "phosphorylation," the addition or removal of a phosphate molecule from another protein. This biochemical reaction serves as a signaling mechanism between cells and has implications for the growth of cancer, the routing of nerve fibers, and the success of disease-causing bacteria and viruses. Insights into the black plague and Down Syndrome reflect some of the important outcomes from Dixon's research.

Professor Dixon has authored or co-authored over 230 scientific articles and served on numerous editorial boards, study sections and advisory committees for journals and federal and private agencies. Professor Dixon has been the President of the American Society for Biochemistry and Molecular Biology, received an NIH MERIT award, was elected to the Institute of Medicine, the American Academy of Arts and Sciences, and the first graduate of UCSB to garner membership in the National Academy of Sciences.

Jack Dixon is being honored in 2003 with the UCSB Alumni Association's highest distinction as a recipient of the Lifetime Achievement Award.

The B.R. Baker Memorial Endowment Fund was established in 1973; the income from this endowment is used to support lectures in those areas of chemistry with which Baker was closely identified and to which he devoted his life. These areas included studies in the synthesis of antihemorrhagic vitamin K analogues, biotin derivatives, compounds with hormone activity, sulfones with activity against tuberculosis, and alkaloids.