

Abbott Lectures, 2003

LECTURE 1

Thursday April 24, 7:00PM

*The Chemistry of Human Behavior:
Ethical, Social and Religious Issues*

LECTURE 2

Friday April 25, 12:00 PM

*Exploring the Chemistry of
Biological Information Transduction
in Conformational and
Topographical Space*

Victor J. Hruby

Victor J. Hruby is Regents Professor and professor of chemistry and biochemistry at the University of Arizona. He is responsible for many advances in the field and has applied his basic research on peptide structure and function to many biological and medical problems.

Hruby is particularly renowned for his use of high field nuclear magnetic resonance and other physical methods for the conformational analysis of peptide hormones and analogs and neurotransmitters. His success includes synthesis of conformationally and topographically restricted oxytocin antagonist analogs with prolonged inhibitory activities. These compounds have clinical potential to be agents for blocking premature births.

Other research using a variety of methods — such as computer-assisted molecular modeling, molecular dynamics simulations, and pseudo-isosteric cyclization — has led to the design and synthesis of a number of linear and cyclic a-melanotropin analogs and antagonists with very prolonged biological activity and high potency that have a number of possible medical applications, including cancer prevention, and treatment of

obesity/a norexia and cardiovascular disease. Peptide analogs of a-melanotropin are currently in clinical trials for erectile dysfunction and pigmentation dysfunctions. Hruby has also used these methods to design conformationally constrained analogs of enkephalin with delta opioid receptor specificity. These compounds are providing new insights into the conformational and stereoselective requirements of the delta opioid receptor as compared with other receptors.

Also in the area of cancer research, Hruby is doing work that focuses on the development of a highly potent and receptor-selective melanocyte-stimulating hormone, conjugates, and analogs for detection and treatment of melanoma cancer. Such compounds could be used to protect normal cells from damage by UV radiation.

Hruby received his undergraduate and master's degree in chemistry at the University of North Dakota and a Ph.D. at Cornell University. After completing a postdoc/instructorship at Cornell's Medical College, Hruby began as an assistant professor at the University of Arizona in 1968. Named professor in 1977, he was appointed Regents Professor, the university's highest honor, in 1989. Today, Hruby holds several joint appointments in departments and laboratories at the university, and has served as a lecturer and visiting professor at a number of other institutions around the world.

Hruby's awards and honors stretch back more than 40 years. Among them are the Pierce Award in Peptide Chemistry from the American Peptide Society (1993), the American Diabetes Association Research Award (1996), and the Javits neuroscience Investigator Award (1987-94). His fellowships are numerous, and he serves on many national science committees, including several for the American Chemical Society. He is editor-in-chief of the *Journal of Peptide Research* and also served in that capacity for the *International Journal of Peptide & Protein Research*. He presently sits on several journal editorial boards, has published more than 900 papers, and has written three books.

— Dave Hanson (Reprinted in large part with permission from *Chem. Eng. News*, January 14, 2002, 80(2), p 37. Copyright 2002 American Chemical Society.)

George A. Abbott

1874-1973

Dr. George Alonzo Abbott, Professor Emeritus at the University of North Dakota, had a long and fruitful service to the State of North Dakota and to the science of chemistry. He was born July 7, 1874, in Alma, Illinois. Dr. Abbott received both the B.S. and M. A. *pro merito* from DePauw University. From 1896 until 1904 he taught chemistry in high schools in Indiana and Minnesota. In 1903, he received the Austen Research Fellowship at the Massachusetts Institute of Technology. Under the guidance of A. A. Noyes, he received a Ph. D. in 1908. In this first class of doctorates in chemistry were such notables as Edward Washburn, Charles Kraus, and Richard Tolman. Dr. Abbott joined the chemistry staff of the North Dakota Agricultural College (North Dakota State University) in 1909. In 1910 he was appointed Professor and Chairman of the Department of Chemistry at the University of North Dakota. His devotion to teaching and the application of chemistry for the betterment of North Dakota summarize his outstanding contributions. His interests in water quality and in natural products such as lignite, for which North Dakota is known, gave him national recognition. For half a century he was the only toxicologist in a wide area of the upper Midwest. He found time to do a weekly radio program "Science from the Sidelines" which was broadcast for over twenty years. Professor Abbott was a founder and charter member of the North Dakota Academy of Science. He was a member of the Red River Valley Section of the American Chemical Society, a Fellow of the American Institute of Chemists, member of Sigma Xi, and a charter member of the University of North Dakota Phi Beta Kappa chapter. Dr. Abbott retired from administration in 1948 and from teaching in 1952. He continued toxicological work until 1970.

The George A. Abbott Lectureship was established by gifts from the University of North Dakota Alumni.