



2002 IOTA SIGMA PI AGNES FAY MORGAN RESEARCH AWARD

Professor Alanna Schepartz, Yale University

Professor Alanna Schepartz is the **2002 recipient of the Iota Sigma Pi Agnes Fay Morgan Research Award**. This annual award is given for research achievement in chemistry or biochemistry. The nominee must be a woman chemist or biochemist, not over forty years of age at the time of her nomination.

Dr. Schepartz worked with Peter Dervan at the California Institute of Technology as a N. I. H. Postdoctoral Fellow. She is currently a professor of molecular, cellular and developmental biology and a professor of chemistry at Yale University. Since her appointment at Yale in 1988, Dr. Schepartz has led her laboratory into a leadership position in the field of organic chemistry and its relationship with molecular biology. One of her early successes include the demonstration that a synthetic ionophore can self-assemble from two separate molecules. This work gave a model for the dimerization of

protein receptors, which is important in cellular signal transduction. Dr. Schepartz developed a strategy for directed cleavage of proteins, and used the technology to study the protein folding problem. She showed that a pair of oligonucleotides tethered by a flexible linker can recognize RNA rapidly and with high specificity by binding to separate sequences that are adjacent in space.

In a *Science* paper, Dr. Schepartz described a series of molecules in which the relative orientations of two DNA-binding peptides were systematically altered through the use of transition metal dimerization domains. She also discovered that the specificities of certain basic region leucine zipper (bZIP) proteins were controlled differently, by an intrinsic bend that preorganized the DNA for binding some proteins and not others. Subsequently, she showed that other bZIP proteins bend DNA through a direct interaction between a single basic side chain and a specific phosphate oxygen. She has explored the kinetic pathway by which protein-DNA complexes assemble. Her research broadened into the area of molecular mechanisms that viruses use to replicate within human cells. Dr. Schepartz has described how the Tax protein produced by the Human T-cell leukemia virus increases the affinity of a cellular bZip protein for the viral promoter. She has made several important contributions to this area of research.

Dr. Schepartz has earned 15 awards and honors and has published 56 papers. She has been invited to give almost 150 lectures at other universities, companies, and professional meetings. During her career, Dr. Schepartz has served as a consultant for Merck & Co., Hoffman-La Roche, Inc., Levine & Wardlaw, Hoechst Marion Roussel, Inc., and Aventis Pharmaceuticals.