Scripps Scientist to Receive Prestigious International Chemistry Award

La Jolla, CA. September 22, 1993 — Chi-Huey Wong, Ph.D., an internationally recognized chemist and Ernest Hahn Professor of Chemistry at The Scripps Research Institute (TSRI), has been selected as the 1994 recipient of the prestigious International Carbohydrate Award in Honor of Roy Whistler, given by the International Union of Pure and Applied Chemistry (IUPAC). The award will be presented at the XVIIth International Carbohydrate Symposium in Ottawa next July.

Wong specializes in the production and use of natural or modified enzymes for organic synthesis. This emphasis has important implications for efforts related to the creation of rationally designed drugs.

According to K.C. Nicolaou, Ph.D., Chairman of TSRI’s Department of Chemistry, "The $10,000 award recognizes Wong’s work in developing strategies, techniques and molecular designs based on enzymatic or combined chemical-enzymatic reactions that bring a new and refreshing dimension to carbohydrate chemistry and biochemistry. Both academic and industrial laboratories have recognized the practical aspects of his work and major applications are now being implemented."
Known for his pioneering work on chemo-enzymatic carbohydrate synthesis and glycoenzyme inhibition, Wong is considered one of the world's leaders in the field of carbohydrate chemistry. His research includes the development of new synthetic strategies using enzymes, the mechanistic investigation of bioorganic reactions of synthetic value, and the rational design and synthesis of biologically active compounds such as enzymes and inhibitors.

For example, Wong's development of aldolases for asymmetric aldol condensations has opened a new route to numerous novel carbohydrate structures. His recent accomplishments in this enzymatic strategy include the synthesis of a number of sugar-related substances. His work on enzymatic aldol reactions combined with Pd-catalyzed reductive aminations has provided a practical route to aza sugars and led to the development of new glycosidase inhibitors.

Another enzyme-based methodology developed by Wong is oligosaccharide synthesis, a multi-enzyme strategy proven to be effective, with no product inhibition and useful for large-scale synthesis. His most recent contribution in the field is the large-scale synthesis of sialyl Lewis X, a tetrasaccharide derivative useful as an anti-inflammatory agent.

Wong also has made contributions in the field of glycopeptide synthesis. His modification of serine proteases has provided practical and efficient catalysts for glycopeptide condensation in aqueous solution. His group was the first to develop enzymes that are stable and active in polar organic solvents for the synthesis of sugars, nucleosides and peptides; work that has provided guidelines for redesigning enzymes for use in polar organic solvents.
In work with other enzymatic reactions, Wong’s first use of enol esters as transesterification reagents represents a practical method for stereoselective acylation of sugars. These reactions are often fast and occur with high stereoselectivity; they avoid product inhibition and minimize isolation problems.

Wong received his doctorate in chemistry from the Massachusetts Institute of Technology, and was a postdoctoral fellow at Harvard University. He was named Searle Scholar in 1985, and in 1986 was selected for the Presidential Young Investigator Award in Chemistry. In 1993 the American Chemical Society recognized him as an Arthur C. Cope Scholar. Prior to his appointment at The Scripps Research Institute in 1989, he was a professor of chemistry at Texas A & M University in College Station. Wong is the author of more than 190 scientific publications and one book.

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