ICIQ Institut Català d'Investigació Química

2012 Seminar Program

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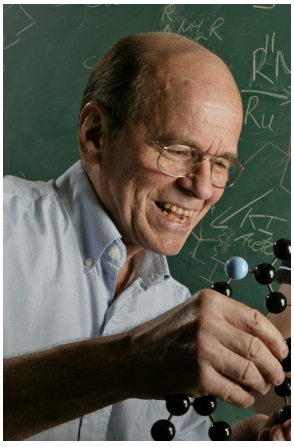
Av. Països Catalans, 16, Campus Sescelades (St. Pere i St. Pau), Tarragona. Tel. 977920200

New Applications of Click Chemistry

Prof. K. Barry Sharpless

The Scripps Research Institute (TSRI), California (USA)

Wednesday 4th July, 2012. ICIQ Auditorium, 12 p.m.



Professional career

Unlike most academics engaged in basic research, K. Barry Sharpless has always been exclusively interested in useful chemistry. Since he regards the oxidation of olefins as the single most versatile, powerful and reliable class of transformations in organic synthesis, Sharpless concentrates on expanding the scope of existing oxidative reactions and discovering new ones.

Sharpless is best known for discovering three "name" reactions, general methods for catalytic asymmetric epoxidation, dihydroxylation, and aminohydrxylation. His Nobel Prize citation says, "many scientists have identified Sharpless's epoxidation (discovered in 1980 with Tsutomu Katsuki) as the most important discovery in the field of synthesis during the past few decades."

Descended from one of the original land purchasers in William Penn's New World venture, Barry Sharpless received a Quaker education at the Friends Central School, Haverford, Pennsylvania. In 1963 he graduated from Dartmouth College, where he was introduced, most fortuitously, to the wonders of chemistry and chemical research by T. A. Spencer.

Following graduate research with E.E. vanTamelen at Stanford University, Sharpless completed postdoctoral studies with J.P Collman, also at Stanford, and at Harvard University with Konrad Bloch. While Sharpless was a graduate student, he recognized a role model in D.H.R. Barton; later, and until his death, Sir Derek became Sharpless's valued mentor.

Sharpless set up his own laboratory when in 1970 he became an assistant professor at the Massachusetts Institute of Technology. Except for several years in the 1970s when he was a member of Stanford's chemistry faculty, Sharpless remained at MIT until moving to the Scripps Research Institute (TSRI) in 1990. At TSRI he is W.M.Keck Professor of Chemistry and a member of the Skaggs Institute for Chemical Biology.

Sharpless continues at TSRI his career-long search for useful new reactivity and general methods for selectively controlling chemical reactions. A recent creation is click chemistry, a set of powerful, virtually 100% reliable, selective reactions for the rapid synthesis of new compounds *via* heteroatom links. Click chemistry is integral now to all research within the Sharpless Lab, including numerous collaborations with biologists both within TSRI and beyond its walls.