

***Candida Antarctica Lipases A and B in
Dynamic Kinetic Resolution.
Model Studies and Directed Evolution***

Prof. Jan-E. Bäckvall

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Friday 12th November, 2010. ICIQ Auditorium, 12 p.m.



Jan-E. Bäckvall received his Master of Science degree in chemical engineering from the Royal Institute of Technology, Stockholm in 1971 where he also obtained his Ph. D. in 1975. During 1975–1976 he spent one year as a postdoc with K. B. Sharpless at the MIT. In 1976, he became Assistant Professor and in 1977 Associate Professor, both at the Royal Institute of Technology, Stockholm. In 1986, he moved to Uppsala University as a full Professor. In 1997 he moved to his current position at Stockholm University. In 2009 he received the prestigious ERC Advanced Grant.

He is a Member of the Royal Swedish Academy of Sciences, Finnish Academy of Science and Letters, the Academia Europaea and the Nobel Committee for Chemistry. He is a member of a number of Editorial Boards for many journals and he is the Chairman of the Editorial Board of Chemistry – A European Journal. He has published more than 380 papers.

Bäckvall is renowned for his contribution to organopalladium chemistry and catalytic oxidation reactions where he has done mechanistic work and developed new reactions. During the 1980's and early 1990's he developed a series of palladium-catalyzed oxidative 1,4--additions to conjugated dienes. These reactions, which allow the stereocontrolled 1,4-addition of two nucleophiles to conjugated dienes, have found use in synthetic organic chemistry and have been applied in natural product synthesis. More recently efficient systems for dynamic kinetic resolution of secondary alcohols based on combined ruthenium and enzyme catalysis were developed in his laboratory. These reactions have been recently extended to amines and other substrates. The Bäckvall group has also developed a range of biomimetic oxidation reactions that utilize O₂ or H₂O₂ as the oxidant. In these reactions electron-transfer mediators are employed to facilitate low-energy electron transfer similar to that occurring in natural systems.