



Innovative biocatalysis technology and processes for production of hydroxy-functionalised chemicals

Daniel Mink

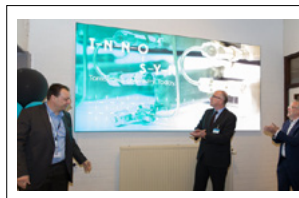
InnoSyn B V, The Netherlands

Abstract

InnoSyn B.V. is a young SME of about 50 employees originating from a spin-out of DSM's biocatalysis, chemocatalysis and organic chemistry R&D department Innovative Synthesis. InnoSyn B.V. provides services for all phases of process/product/technology development starting from idea generation all the way to running business. The over 25 years of experience and history as chemical R&D group at DSM (both fundamental research & chemical process design) has resulted in a broad synthetical competence base, using the most innovative technologies in e.g. biocatalysis, chemocatalysis and flow chemistry. New routes to a wide range of chemicals for all kind of markets have been successfully developed and implemented.

In the recent years we have focused our biocatalytic technology and process on the selective introduction of oxygen-functionalities into target molecules and structures as well as oxidative biocatalytic processes using oxygen in a safe and efficient manner. These include biocatalytic, regio- and stereo-selective water additions to C=C double bonds in for instance fatty acids by hydratases and selective introduction and oxidation of oxygen by cytochrome P450 and Baeyer-Villiger Monooxygenases as well as alcohol oxidases and dehydrogenases.

In this contribution we will highlight recent achievements in enzyme identification and engineering, fermentative enzyme production, process development and pilot plant demonstrations of our hydratase technology.



Biography

Daniel Mink obtained his Ph.D. from the University of New Brunswick (Canada) under the supervision of Prof. G. Deslongchamps. He did a postdoc at MIT and Scripps Research Institute with Prof. J. Rebek Jr. He joined DSM in 1998 and was a Corporate Scientist and Center Manager. Since 2017, he is heading InnoSyn BV in the Netherlands.

Publications

1. Publication I: Exploring *Castellaniella defragrans* Linalool (De)hydratase-Isomerase for Enzymatic Hydration of Alkenes
2. Publication II: Evolving the Promiscuity of *Elizabethkingia meningoseptica* Oleate Hydratase for the Regio- and Stereoselective Hydration of Oleic Acid Derivatives
3. Publication III: Evolving the Promiscuity of *Elizabethkingia meningoseptica* Oleate Hydratase for the Regio- and Stereoselective Hydration of Oleic Acid Derivatives
4. Publication IV: Recombinant expression, purification and biochemical characterization of kievitone hydratase from *Nectria haematococca*
5. Publication V: Process development for oxidations of hydrophobic compounds applying cytochrome P450 monooxygenases in-vitro

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