CiQUS

Centro Singular de Investigación en Química Biolóxica e Materiais Moleculares

Conferencia:

Designer (metallo-)enzymes featuring abiological catalytic functionalities

Gerard Roelfes

Stratingh Institute for Chemistry

University of Groningen

11/10/19

Aula de Seminarios do CIQUS

12:15h

Más información:
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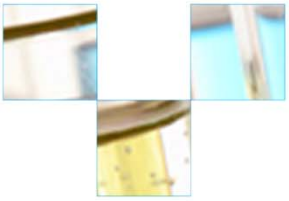

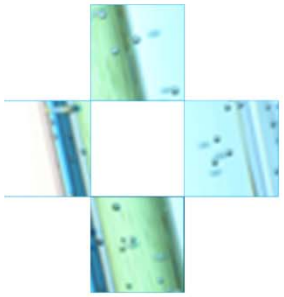

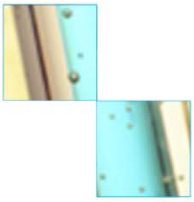

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Abstract:

Biocatalysis is recognized as a key component in the transition towards a more sustainable and "greener" chemistry. Yet, compared to the toolbox of chemists, enzymes have a limited chemical repertoire. Our research aims at creating enzymes for reactions that have no equivalent in nature. For this, we have developed new designer enzymes based on the transcription factor LmrR (Lactococcal multidrug resistance Regulator), involving either supramolecular anchoring of a metal complex in the binding pocket of the protein, or biosynthetic incorporation of a catalytically active unnatural amino acid using expanded genetic code methodology. Here, I will discuss our recent results on the design, directed evolution and application in catalysis of these novel designer enzymes.

Biographical sketch:

Gerard Roelfes obtained his MSc and PhD (2000) from the University of Groningen, the Netherlands. His PhD research he carried out under supervision of Prof. Ben L. Feringa, in a joint project with the group of Prof. Lawrence Que Jr. (Univ. Minnesota), in whose lab he carried out part of the work. After his PhD he went for a post-doc with Prof. Donald Hilvert at the ETH-Zurich (Switzerland). In 2003 he returned to the University of Groningen as a junior research group leader. He became Assistant Professor in 2006, Associate Professor in 2010 and since 2015 is Full Professor of Biomolecular Chemistry & Catalysis. Among others, he is recipient of the three main career grants in the Netherlands (veni, vidi, vici) and an ERC grant. His research interests are focussed on enzyme design, bio-orthogonal catalysis and catalysis in living cells.