

12<sup>th</sup> World Congress on

# Biotechnology and Microbiology

June 28-29, 2018 | Amsterdam, Netherlands



**Roberto Fernandez-Lafuente**

*El-hocine Siar and Sara Arana-Peña*

UAM-CSIC, Spain

## Enzyme immobilization using glutaraldehyde: Taking advantages of the versatility of the method

Glutaraldehyde is among the most employed reagents in the preparation of immobilized enzyme biocatalysts. Usually, a support containing primary amino groups is used. This way, this support is actually a heterofunctional one with ion exchange capacity and hydrophobic groups, and also bearing chemical reactivity that can generate covalent bonds. For this reason, glutaraldehyde may immobilize enzyme by very different reasons, biocatalysts with very different activity/stability properties. For example: Adsorption of the enzymes on the aminated support via ion exchange followed by treatment with glutaraldehyde. Use of preactivated supports at low ionic strength, where the first step of the immobilization remains the ion exchange. Use of preactivated supports at high ionic strength to avoid ion exchange as first step of the immobilization, forcing the covalent attachment as the first immobilization step, that may depend on the immobilization pH. Lipases will be treated as a particular case, as they can become interfacially adsorbed on the activated supports.

## Biography

Roberto Fernandez-Lafuente has completed his PhD at UAM and Postdoctoral studies from UCL-London. He is leading the "Optimization of biocatalysts and bioprocess" group at ICP-CSIC, a premier Bio-Soft service organization. He has published more than 390 papers in ISI Journal, with an H index of 68 (Scopus) and more than 2200 citations/year, he is co-author of 20 patents and co-supervisor of 18 doctoral thesis. He is an Associated Editor of *Process Biochemistry* and has been serving as an Editorial Board Member of more than 20 journals (e.g., *Enzyme and Microbial Technology*, *Journal of Biotechnology*, *Journal of Molecular Catalysis* etc.).

[rfl@icp.csic.esr](mailto:rfl@icp.csic.esr)

Notes: