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Enzyme shielding in a soft organo-silica layer – pharma/biopharma applications

Yves Dudal

INOFEA AG, Switzerland, yves.dudal@inofea.com

Federica Richina

INOFEA AG, Switzerland

Lucas Durandi

INOFEA AG, Switzerland

Rita Correro

University of Applied Sciences, MuttENZ, Switzerland

Patrick Shahgaldian

University of Applied Sciences, MuttENZ, Switzerland

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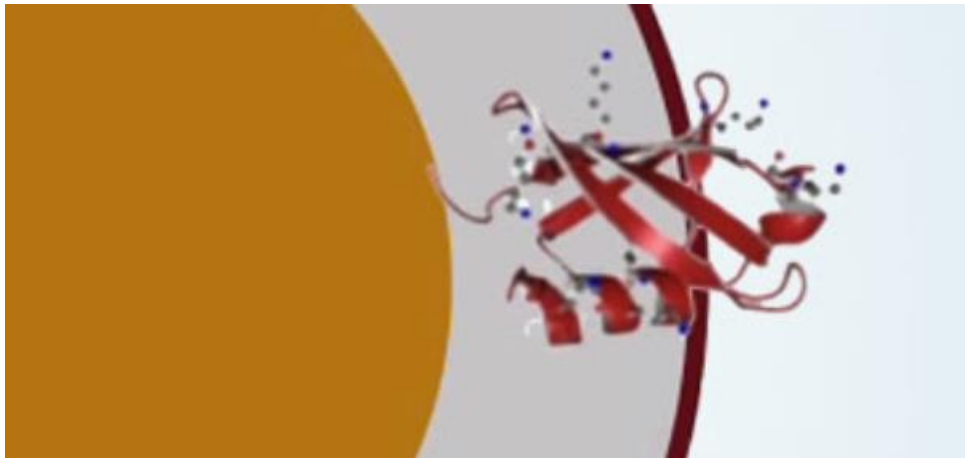
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INOFEA
empowering enzymes

Enzyme Engineering Conference
Toulouse, September 28, 2017

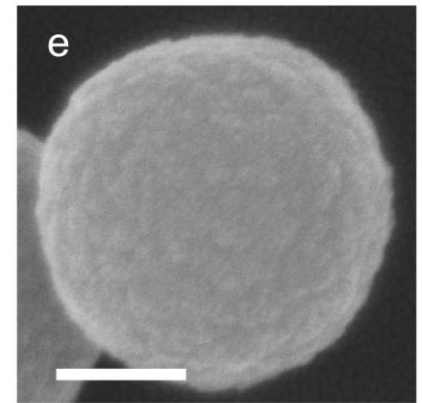
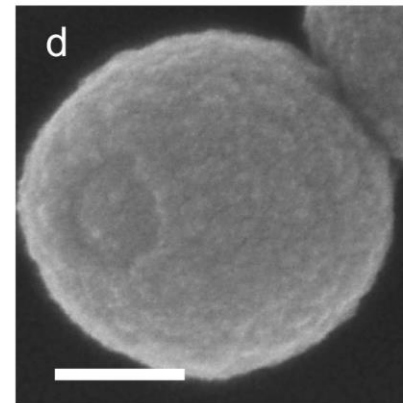
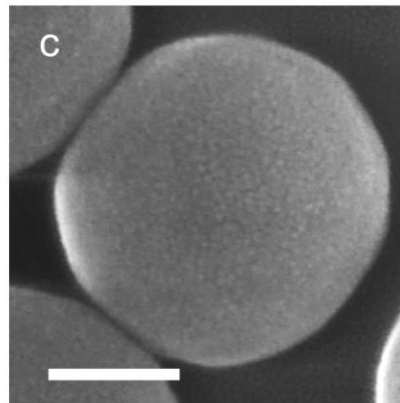
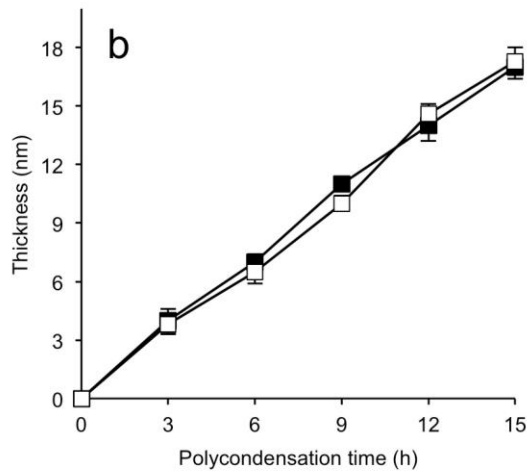
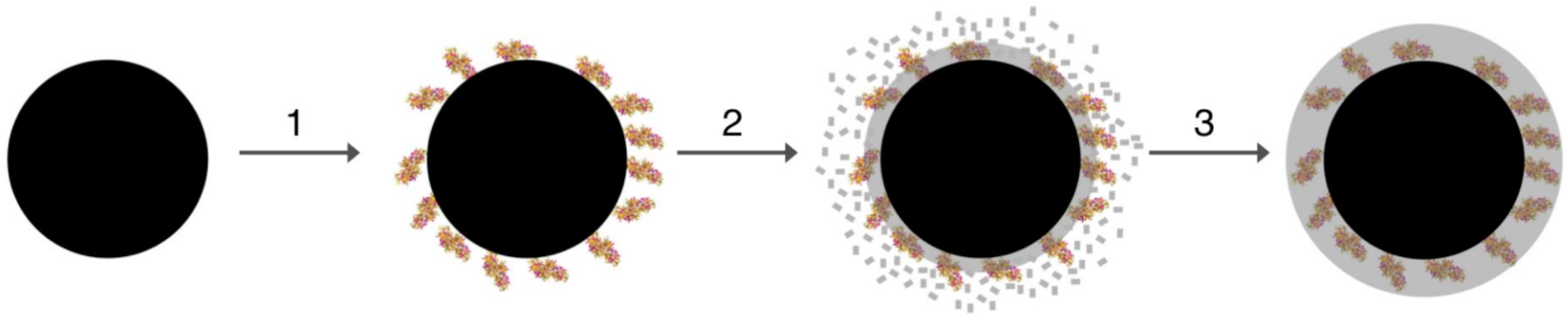


Engineer the enzyme's
nano-environment



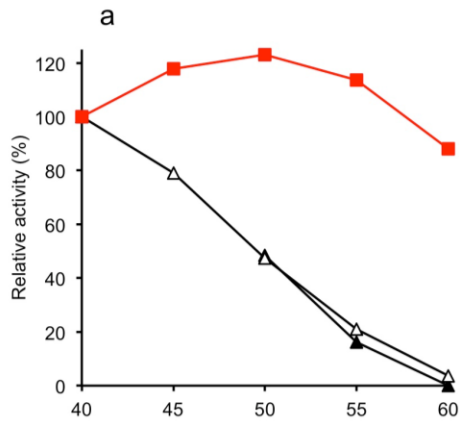
Dr. Patrick Shahgaldian
U. Applied Sciences
Basel, Switzerland

the **enzen®** platform: a soft protection layer

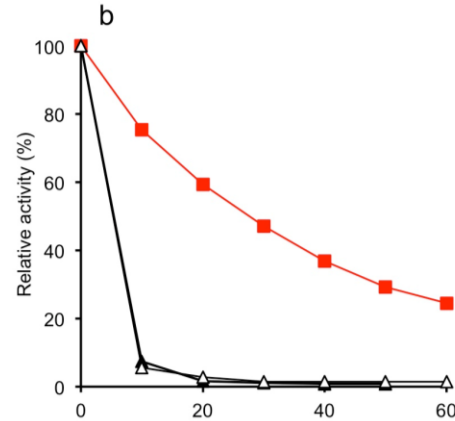


Enzymes made resistant

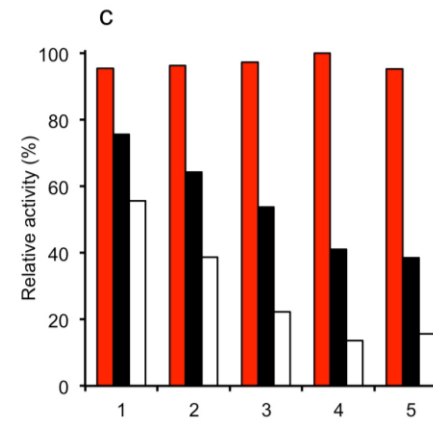
Angewandte Chemie
(2016) 55: 6285-89



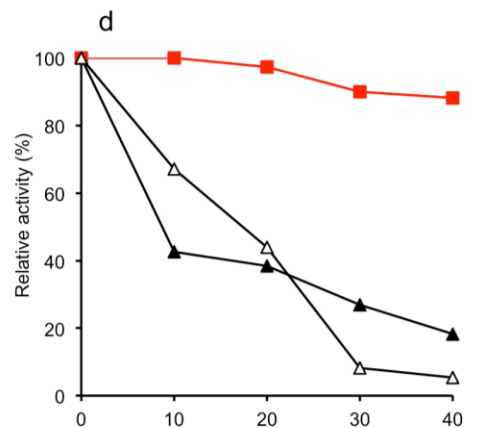
Reaction temperature (°C)



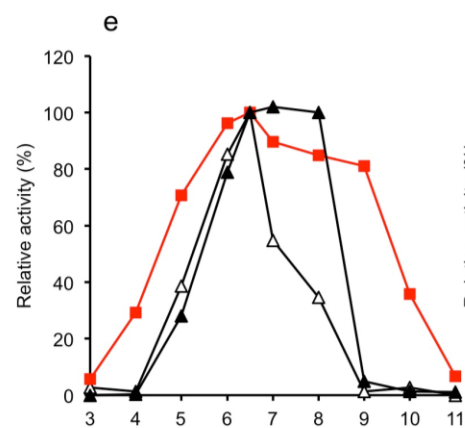
Incubation time (min)



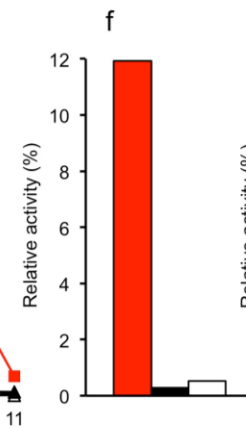
Freeze/dry cycles



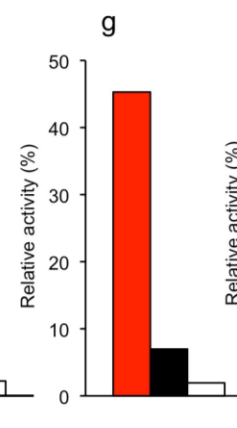
Ultrasound treatment (min)



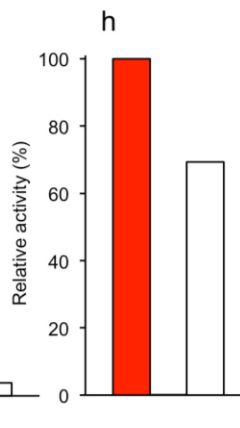
Incubation pH



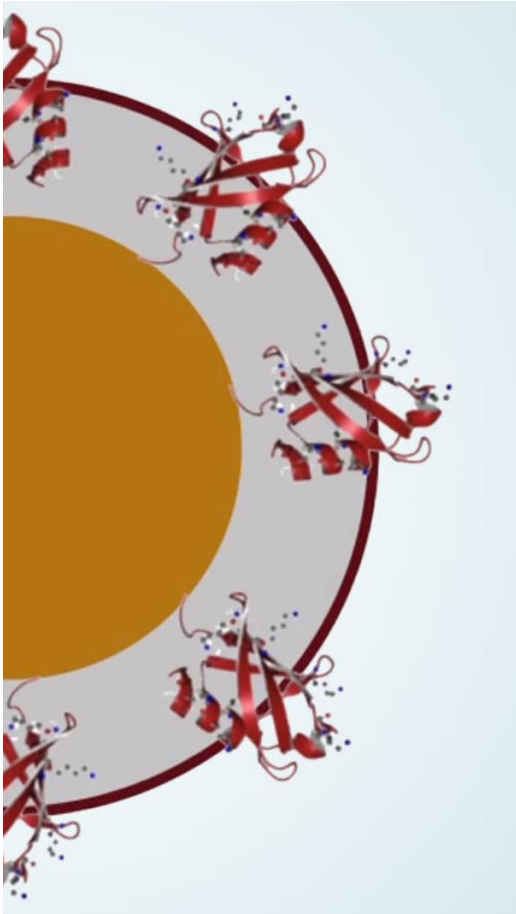
Urea (6M)



SDS (1%)



Protease



- Tuning the layer thickness, its composition, its porosity
- Co-immobilizing cocktails of enzymes
- Possibly built on a magnetic core
- Directed binding with specific tags

Applications – Health industry

INOFEA

enzen®

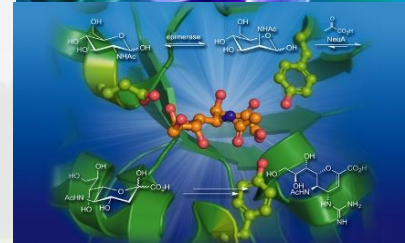
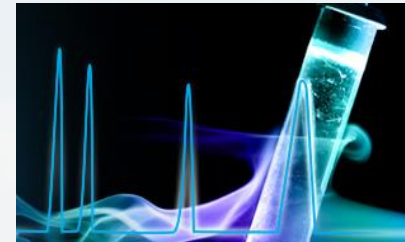
Enzyme
empowering
platform
technology

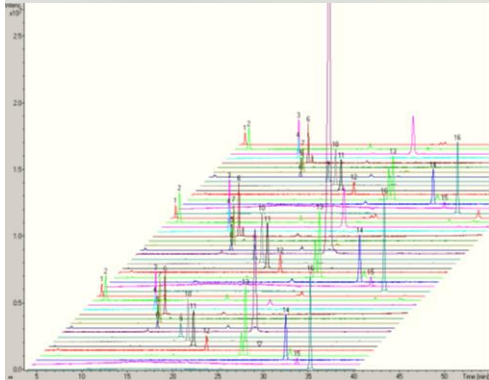
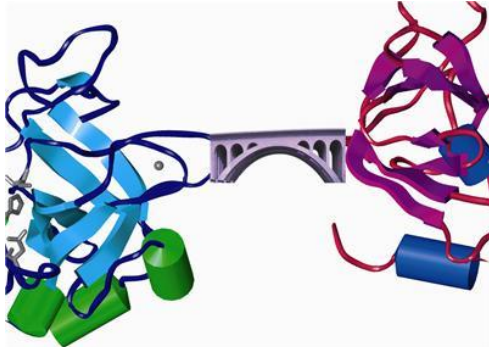
Bioanalysis & Biosensing

Biotransformation

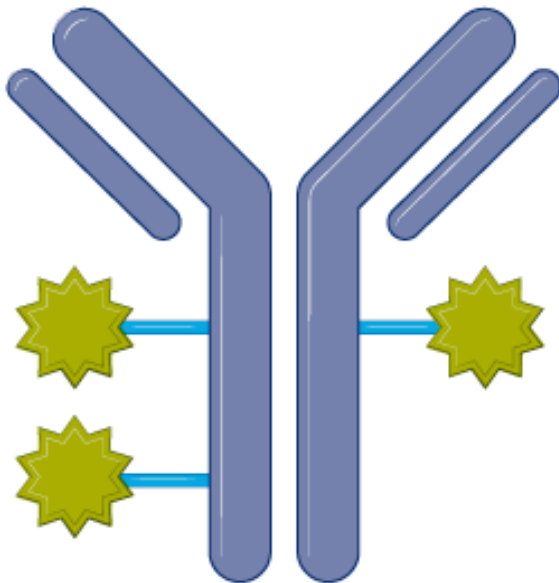
Safe bioingredients

Therapeutic Enzymes

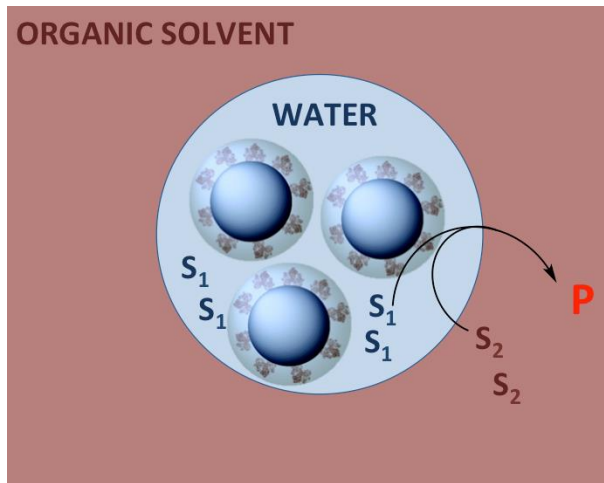




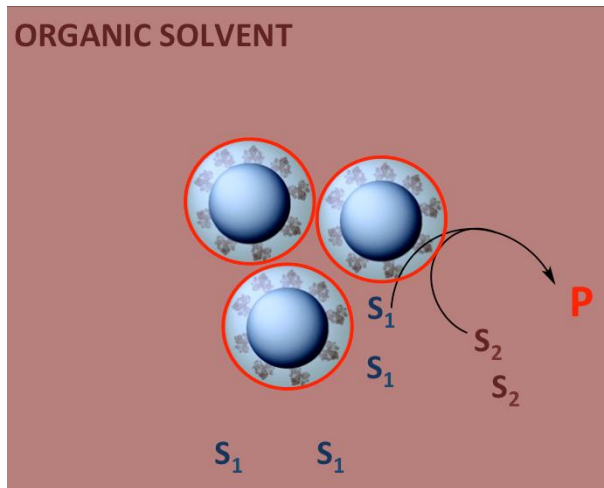
- Cross-linked fibrotic proteins
- 6 different digestion enzymes
- No self-digestion
- Resistance to chaotropic conditions
- Unpolluted AA spectra
- Quantitative release of a biomarker



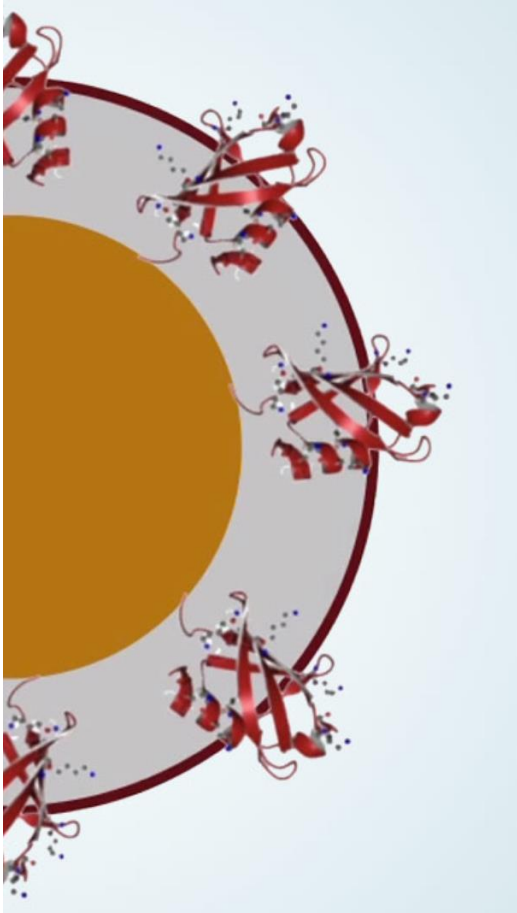
- Sortase-mediated bioconjugation
- No enzyme in the final product
- Tuning the layer thickness for large substrate accessibility
- Avoid Ab binding
- Post-translational modifications of biologics



- Resistance to solvents
- Tuning the layer composition



- Up to 360 fold increased yield
- Glucosidase, transaminase, lipase, etc.



- Adapted with large particles, formulation material
- Absence of immunogenicity measured with anti-Enz Ab
- Less than 0.1% leachate of the enzyme



INOFEA AG founded in 2014

Located in Basel, Switzerland

5 employees

Privately funded

Addressing the Health Industry

Manufacturing at CMO in Switzerland

5 major customers



INOFEA

empowering enzymes

[yves.dudal @ inofea.com](mailto:yves.dudal@inofea.com)