

Research Project

NCCR MSE - Molecular Factories Based on Artificial Metalloenzymes

Third-party funded project

Project title NCCR MSE - Molecular Factories Based on Artificial Metalloenzymes

Principal Investigator(s) [Ward, Thomas R.](#) ;

Project Members [Heinisch, Tillmann](#) ; [Okamoto, Yasunori](#) ;

Organisation / Research unit

Departement Chemie / Bioanorganische Chemie (Ward)

Department

Project Website http://www.nccr-mse.ch/en/no_cache/research/projects-detail/project/molecular-factories-based-on-artificial-metalloenzymes/

Project start 01.07.2014

Probable end 30.06.2018

Status Completed

Artificial metalloenzymes (ArMs) result from the incorporation of abiotic cofactors within a host protein. In collaboration with various groups of the NCCR, we aim at engineering metabolic pathways incorporating ArMs. The challenges addressed during this funding period include: i) successful compartmentalization and evolution of ArMs within the periplasm of *E. coli*, ii) engineering enzyme cascades with ArMs and iii) cross-regulation of ArMs.

Keywords Artificial metalloenzymes, ArMs, enzyme cascades

Financed by

Swiss National Science Foundation (SNSF)

Add publication

Published results

3350388, Quinto, Tommaso; Köhler, Valentin; Häussinger, Daniel; Ward, Thomas R., Artificial metalloenzymes for the diastereoselective reduction of NAD⁺ to NAD²H, 1477-0520 ; 1477-0539, Organic and Biomolecular Chemistry, Publication: JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

3350378, Zhao, J.; Kajetanowicz, A.; Ward, T.R., Carbonic anhydrase II as host protein for the creation of a biocompatible artificial metathesase, Org. Biomol. Chem., Publication: JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

3350370, Heinisch, Tillmann; Ward, Thomas R., Latest Developments in Metalloenzyme Design and Repurposing, 1434-1948 ; 1099-0682, European Journal of Inorganic Chemistry, Publication: JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

3350368, Reuter, Raphael; Ward, Thomas R., Profluorescent substrates for the screening of olefin metathesis catalysts, 1860-5397, Beilstein journal of organic chemistry, Publication: JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

3350364, Heinisch, Tillmann; Pellizzoni, Michaela; Dürrenberger, Marc; Tinberg, Christine E.; Köhler, Valentin; Häussinger, Daniel; Klehr, Juliane; Baker, David; Ward, Thomas R., Improving the catalytic

performance of an artificial metalloenzyme by computational design, 0002-7863, Journal of the American Chemical Society, Publication: JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

Add documents

Specify cooperation partners