

## Elina Siirola, PhD <sup>[1]</sup>



### **Co-Mentor: Thomas Vorherr, PhD**

*Global Discovery Chemistry*

*Basel, Switzerland*

The Bioreactions group is using enzymes as biocatalysts to support the synthesis of chiral building blocks and drug candidates, facilitating Novartis research from early discovery through to development. Enzymes' inherent chemo-, regio- and stereoselective properties make them great catalysts in stereochemically challenging syntheses and their evolvability allows them to be engineered towards different targets. Leveraging advances in bioinformatics, we identify novel enzymes by applying genome mining principles to build novel and diverse enzyme screening panels. We conduct enzyme engineering to improve the efficiency and/or selectivity and to deliver better catalysts to our collaborators across the organisation. This is enabled by our recently established high throughput and automated screening workflows. Biocatalysis will help us to tackle the increasing chemical complexity in pharmaceutical industry especially in areas such as late-stage functionalisation, bioconjugates and post-translational peptide modifications. Our vision is to improve the environmental

footprint of our chemistry as biocatalysts usually operate in aqueous and mild reaction conditions.

## Selected Publications

Cipargamin: Biocatalysis in the Discovery and Development of an Antimalarial Drug. [2]

Ruch T, Siirola E, Snajdrova R.

Pharmaceutical Biocatalysis 2020; Grunwald P. (Ed.).

Understanding and Overcoming the Limitations of Bacillus badius and Caldalkalibacillus thermarum Amine Dehydrogenases for Biocatalytic Reductive Amination. [3]

Pushpanath A, Siirola E, Bornadel A, Woodlock D, Schell U.

ACS Catal. 2017 March 30; 7(5): 3204-3209.

Intensified biocatalytic production of enantiomerically pure halophenylalanines from acrylic acids using ammonium carbamate as the ammonia source. [4]

Weise NJ, Ahmed, ST, Parmeggiani F, Siirola E, Pushpanath A, Schell U, Turner NJ.

Catal. Sci. Technol. 2016 May 24; 6: 4086-4089.

Click [here](#) [5] for additional publications.

---

**Source URL:** <https://www.novartis.com/our-science/postdoc-program/research-themes/chemistry/elina-siirola-phd>

### Links

[1] <https://www.novartis.com/our-science/postdoc-program/research-themes/chemistry/elina-siirola-phd>

[2] <https://www.taylorfrancis.com/books/e/9780429353116/chapters/10.1201/9780429353116-15>

[3] <https://pubs.acs.org/doi/abs/10.1021/acscatal.7b00516>

[4] <https://pubs.rsc.org/en/content/articlelanding/2016/CY/c6cy00855k#!divAbstract>

[5] <https://scholar.google.com/citations?user=5TVOXR8AAAAJ&hl=en&oi=ao>