

## Research Project

### Functional Robustness of Enzyme Promiscuity

#### Third-party funded project

**Project title** Functional Robustness of Enzyme Promiscuity

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**Organisation / Research unit**

Departement Chemie / Chemie

**Department**

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**Status** Completed

Robustness is a ubiquitous property of biological systems, which can be defined as the phenotype resilience to perturbations. Laboratory selection for increased promiscuous activity suggest that native enzyme activities are robust to mutagenesis. However, it remains unclear whether native activities are actually any more robust than their promiscuous activities. Moreover, little is known of the underlying molecular mechanisms leading to functional robustness of enzyme activities or how these mechanisms relate to enzyme evolvability.

The objective of this project is to explore whether the native activity of an enzyme is more robust to mutagenesis than its promiscuous activity. Toward this aim, we are investigating the bacterial metalloenzyme succinyl-L,L-diaminopimelate desuccinylase (DapE), a promising target for novel antibiotics.

**Keywords** metalloenzyme, evolution, robustness, promiscuity, antibiotics

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Foundations and Associations

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**Specify cooperation partners**