# Designing biocatalysts for non-natural carboligations

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## Propositions

Belonging to the thesis

# Designing Biocatalysts for Non-Natural Carboligations

by Andreas Kunzendorf

1. Novel concepts for enzymatic carbon-carbon bond formations are of high industrial and academic interest.
2. A PhD is like a long-distance cycling trip: Just push the pedals. When you feel lost – stop – and revaluate your directions. Warning: you may make new discoveries in the process!
3. The catalytic diversity in the tautomerase superfamily provides a huge playing field for promiscuous biocatalysis.
4. Looking at the dark side of the moon: Even well-studied enzymes, such as DERA, can provide unsuspected access to novel promiscuous reactions.
5. Directed evolution is a very powerful tool to tailor enzymes for biocatalytic processes. Picking bacterial colonies is also highly tedious.
6. When you can create one carbon-carbon bond with an enzyme, you might also make two new carbon-carbon bonds in one reaction.
7. Even though it costs some time, purification of enzyme variants during rounds of directed evolution is a crucial step to identify improved variants.