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Rational design of flavoprotein oxidases for biocatalytic valorization of lignin-derived monomers

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Propositions

Belonging to the thesis

Rational design of flavoprotein oxidases for biocatalytic valorization of lignin- derived monomers

By Yiming Guo

1. Lignin-derived phenols can be converted into useful products by using redesigned flavoprotein oxidases (This thesis).
2. Sequence-, structure- and computation-aided enzyme engineering is an efficient approach to create enzymes acting on non-natural compounds (Chapter 2).
3. Enzymatic cascade reactions represent a powerful tool for designing and optimizing multi-step chemical syntheses (Chapters 3 and 4).
4. Recombinant *Escherichia coli* cells and RCF lignin oil: a tasteful combination (Chapter 4).
5. Enzyme redesign can unlock new-to-nature reactions (Chapter 5).
6. By making mutations you cannot only “reshape” an enzyme, but also a PhD’s life.