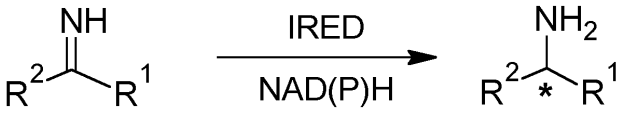
Technology Offer

Novel Imine Reductases (IREDs) for the enantioselective preparation of primary amines
Ref.-No.: 0706-5617-IKF

Chiral amines are crucial building blocks for the synthesis of bioactive compounds in the pharmaceutical, and agrochemical industry. Chiral amines are also important for chemical synthesis as chiral auxiliaries or resolving agents for diastereometric salt crystallizations. In recent years, biocatalysts, particularly imine reductases (IREDs) and reductive aminases capable of reducing imines to chiral amines were discovered and developed for industrial application. However, the portfolio of current imine reductases is limited to the synthesis of secondary and tertiary amines, because these enzymes do not reduce imines to primary amines.

Technology
Scientists from the Max-Planck-Institute for terrestrial Microbiology have identified novel IREDs derived from *P. denitrificans* which reduce free primary imines to chiral primary amines.



The newly identified IREDs are highly specific for the reduction of primary imines to primary amines and do not convert secondary imines to secondary amines or ketones to tertiary amines. Moreover, the IREDs possess a high cofactor specificity towards NADH. Compared to NADPH, NADH is less expensive, more stable and can be applied for cofactor regeneration systems in whole cells on a larger scale. Therefore, IREDs having a specificity for NADH as cofactor are highly desirable for use in *in vivo* or *in vitro* reduction of imines for different applications on an industrial scale.

We are now looking for a collaboration partner to further develop and/or apply these powerful catalysts (e.g. for a concrete application in synthesis), We are also open for developing or licensing the scaffolds for enzyme engineering or complementation of commercial enzyme libraries with partners.

Patent Information
A PCT application was filed on December, 9th 2019: WO2020120420A1. National in EP and US.

Publication
Schada von Borzyskowski et al., *Nature* 2019. https://doi.org/10.1038/s41586-019-1748-4

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