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(54) Title: ENGINEERED MONOAMINE OXIDASES FOR THE PREPARATION OF STEREOMERICALLY PURE FUSED BICYCLIC PROLINE COMPOUNDS

(57) Abstract: The present invention provides novel biocatalysts and associated methods of use for the oxidative desymmetrization of fused bicyclic proline analogues to produce APIs and intermediates. The novel biocatalysts of the present disclosure are engineered monoamine oxidase enzymes with improved solubility, thermostability, and activity on fused bicyclic proline compounds, as compared to a reference monoamine oxidase. In particular, the engineered monoamine oxidase enzymes of the present disclosure require reduced enzyme loading for the manufacturing of APIs and intermediates, as compared to a reference monoamine oxidase enzyme.

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