Drug Discovery & Development

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Inventors: Andrew Buller, Jonathan Ellis, Prasanth Kumar

The Invention

UW-Madison researchers have developed a highly efficient biocatalytic route for production of diverse γ-hydroxy amino acids starting from L-aspartate and readily available aldehydes. The method leverages an engineered variant of the enzyme UstD, which is natively involved in the biosynthesis of Ustiloxin D. Through protein engineering/directed evolution, the researchers identified a series of mutations that increased the catalytic activity of UstD, thereby improving its potential utility as a biocatalyst. The mutant UstD enzyme is compatible with virtually any hydrocarbon aldehyde substrate as well as a subset of hydrocarbon ketones, yielding a variety of γ-hydroxy amino acids, the vast majority of which show the formation of only a single diastereomer. These range from sterically demanding aryl aldehydes (biphenyl-4-carboxaldehyde) to electronically deactivated aryl aldehydes (4-hydroxybenzaldehyde) to aliphatic aldehydes (glycolaldehyde).

Additional Information

For More Information About the Inventors

- Andrew Buller

Tech Fields

- Drug Discovery & Development : Drug production & design

For current licensing status, please contact Rafael Diaz at rdiaz@warf.org or 608-960-9847