

CaL-A-mediated synthesis of benzofuranyl- β -amino acid derivatives

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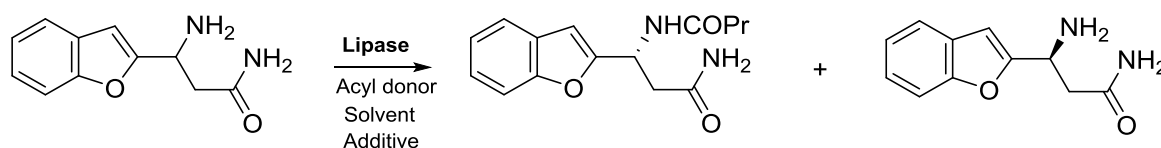
Enantiopure β -amino acids are present in a variety of natural products, still they are not found in nature as frequently as their α analogs. For this reason, the stereoselective synthesis of β -amino acids and their derivatives represents a topic of great interest nowadays and consequently many efforts are being led in this direction.

Optically pure β -amino acids possess broad biological activity¹ and represent important chiral building blocks for the synthesis of peptidomimetics², β -lactam antibiotics³ and numerous bioactive compounds^{4,5}, in addition to their valuable applications in organic synthesis.

Biocatalytic stereoselective methods often offer elegant and efficient routes to achieving the desired compounds in highly enantiopure forms. Among these, lipase-catalysed kinetic resolution of a racemate represents the most popular biocatalytic approach presently used. High enantioselectivity, stability, versatility and commercial availability have made lipases extremely attractive chiral catalysts through the acylation of a nucleophilic functionality or through the deacylation of an ester functionality in the molecule⁶.

This research is focused on the synthesis of a series of enantiomerically enriched benzofuran-based β -amino amides and their corresponding *N*-acyl derivatives through lipase-mediated enantioselective *N*-acylation reaction. For this purpose, commercially available free or immobilized lipases were screened in various organic solvents for the stereoselective *N*-acylation of the model compound *rac*-3-amino-3-(benzofuran-2-yl)propanamide with three different acyl donors.

Lipase A from *Candida antarctica* immobilized on Celite proved to be the most suitable catalyst in CH₂Cl₂ for the selective acylation of the model compound with 2,2,2-trifluoroethyl butyrate, in the presence of small amounts of dimethyl sulfoxide as additive.



Scheme 1. Enzymatic kinetic resolution of *rac*-3-amino-3-(benzofuran-2-yl)propanamide

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