

Production of Chiral Amine and Specialty Amino Acids Using Transaminase Technology

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Transaminase plays a vital role in aminoacid metabolism in a cell, where the transfer of aminogroup of amino donors to keto group of amino acceptors occurs frequently. Its features such as several superfamilies, broad substrate specificity, high reaction rate, no need of external cofactors except pyridoxalphosphate and wide applicability in the preparation of enantiomerically pure natural and non-natural aminoacids, amino alcohols and amines, etc. makes it very attractive biocatalyst for industrial preparation. As demand for enantiomerically pure compounds, especially with amino functional group, from chemical and pharmaceutical industries is still in its infancy, transaminase coupled with other enzymes can be widely used to prepare a variety of such chemicals. In addition, now microbial genome data are accumulating rapidly, so that it gives a new dimension to finding new transaminases using bioinformatics. In this talk, we will discuss how the transaminase can be efficiently used by enzyme reaction engineering and screened by using 3-D comparative modeling for the production of chiral amines and non-natural amino acids.