

Kinetic resolution of racemic amines using threonine deaminase and ω -transaminase장영호, 신종식[†]

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The increasing need for enantiomerically pure chiral compounds has accelerated development of various chemical and physical methods of kinetic resolution and asymmetric synthesis. To this end, ω -transaminase(ω -TA) can be employed for kinetic resolution or asymmetric synthesis of chiral amine. Simultaneous production of L-homoalanine and (*R*)- α -methylbenzylamine from racemic α -methylbenzylamine and L-threonine was achieved using an ω -TA and threonine deaminase (TD) in a coupled reaction. To this purpose, (S)-selective ω -TA from *Ochrobactrum anthropi* and TD(*ilvA*) from *Escherichia coli* were cloned into a pRSF duet vector and functionally expressed in *Escherichia coli* BL21 cells. In whole cell reaction, TD converts L-threonine 2-oxobutyrate which is used as an amino acceptor for ω -TA. As a result, optically pure (*R*)- α -methylbenzylamine and L-homoalanine could be obtained and the method is applicable to kinetic resolution of various chiral amines.