Title (en)

STEREOSELECTIVE PREPARATION OF CYCLIC L-AMINO ACIDS

Title (de)

VERFAHREN ZUR STEREOSELEKTIVEN HERSTELLUNG VON ZYKLISCHEN L-AMINOSÄUREN

Title (fr)

PREPARATION STEREOSELECTIVE DE L-ACIDES AMINES CYCLIQUES

Publication

EP 1409691 A2 20040421 (FR)

Application

EP 02747526 A 20020610

Priority

- FR 0201983 W 20020610
- FR 0107559 A 20010608

Abstract (en)

[origin: FR2825717A1] The invention concerns a method for producing a cyclic L-amino acid of formula (I), characterised in that it consists in reacting a L-diamino acid of formula (II) or an enantiomeric mixture comprising such a L-diamino acid and a corresponding D-diamino acid in variable proportions, in the presence of an ornithine cyclodeaminase or a polypeptide homologous to the ornithine cyclodeaminase.
[origin: FR2825717A1] Stereoselective production of cyclic L-aminoacids (I) involves conversion of an L-diaminoacid (II) in presence of an ornithine cyclodeaminase (OCDA) (or a homologous peptide) in an aqueous medium, followed by recovery of (I) having an enantiomeric excess (e.e.) of at least 80%. Stereoselective production of cyclic L-aminoacids of formula (I) (or their salts or derivatives) involves conversion of an L-diaminoacid of formula (II) (or its salts or derivatives, optionally as a mixture with corresponding D-diaminoacid compounds) in presence of an ornithine cyclodeaminase (OCDA) (or a homologous peptide) in an aqueous medium, followed by recovery of (I) having an enantiomeric excess (e.e.) of at least 80%. Provided that: (1) If the enzyme is a native OCDA from Clostridium or Agrobacterium, then (II) is other than L-ornithine; and (2) if (II) is L-lysine, then reaction is not carried out using living, non-recombinant microorganisms of genus Alcaligenes, Providencia, Proteus, Bacillus, Agrobacterium, Morganella or Planococcus. R1 = H or 1-6C alkyl; X = saturated, linear or branched 2-9C (preferably 2-4C) hydrocarbon chain (optionally interrupted by one or more of O, S and NR2; and optionally substituted by one or more of OH, NH2 or halo); R2 = H or 1-4C alkyl. Independent claims are included for three polynucleotide sequences encoding recominbant enzymes for use in the production of cyclic L-aminoacids. (1) 1097 bases; the pipA asterisk gene sequence; (2) 1061 bases; the rapL asterisk gene sequence; and (3) 1061 bases; the rapL asterisk asterisk gene sequence. The sequences are fully defined in the specification.

IPC 1-7

C12N 15/60; C12P 17/12; C12P 17/10; C12P 41/00; C12P 13/04; C12P 13/24; C12N 9/88; C12N 1/21

IPC 8 full level

C12N 15/09 (2006.01); **C07B 53/00** (2006.01); **C07D 211/60** (2006.01); **C07D 241/04** (2006.01); **C07D 279/12** (2006.01); **C12N 1/21** (2006.01); **C12N 9/88** (2006.01); **C12N 15/60** (2006.01); **C12P 13/04** (2006.01); **C12P 17/10** (2006.01); **C12P 17/12** (2006.01); **C12P 41/00** (2006.01)

CPC (source: EP KR US)

C12N 9/88 (2013.01 - EP KR US); **C12P 13/04** (2013.01 - EP US); **C12P 17/10** (2013.01 - EP US); **C12P 17/12** (2013.01 - EP US); **C12P 41/006** (2013.01 - EP US)

Citation (search report)

See references of WO 02101003A2

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)

FR 2825717 A1 20021213; **FR 2825717 B1 20050218**; AU 2002317920 A1 20021223; CA 2449836 A1 20021219; CA 2449836 C 20120814; CN 100482800 C 20090429; CN 1529756 A 20040915; EP 1409691 A2 20040421; JP 2004537296 A 20041216; JP 3943540 B2 20070711; KR 100731597 B1 20070622; KR 20040026660 A 20040331; US 2005038255 A1 20050217; US 7425530 B2 20080916; WO 02101003 A2 20021219; WO 02101003 A3 20040226

DOCDB simple family (application)

FR 0107559 A 20010608; AU 2002317920 A 20020610; CA 2449836 A 20020610; CN 02814281 A 20020610; EP 02747526 A 20020610; FR 0201983 W 20020610; JP 2003503755 A 20020610; KR 20037016066 A 20031208; US 47971904 A 20040526