

Biotechnology and Healthcare

Title

Escherichia Coli For Producing 5-aminolevulinic Acid And Method Of Producing 5-aminolevulinic Acid

Abstract

The present invention provides a kind of Escherichia coli-producing 5-aminolevulinic acid, which has a double pdxY gene. The present invention also provides a method for producing 5-aminolevulinic acid, which comprises providing the above-mentioned Escherichia coli; acid and pyridoxal to produce 5-aminolevulinic acid. According to the Escherichia coli producing 5-aminolevulinic acid and the method for producing 5-aminolevulinic acid as described above, a strain with fast growth and high ALA production and a fast and high-yield production method are provided as a method of producing ALA.

Benefits

Although the existing bio-manufacturing strategy of ALA can achieve 18.5 g/ L ALA production in Corynebacterium glutamicum, the culture time is 72 hours, resulting in low production efficiency, and it must be produced after multiple gene editing and metabolic regulation. Furthermore, the strains expressing foreign proteins with plastids are more unstable, and they are more likely to encounter difficulties in the production of ALA in large-scale industrial cultivation.

1. The growth rate of E. coli is faster, so the yield is higher; 2. By expressing highly active ALA synthetase, the production of branched metabolites can be avoided, and the metabolic regulation step of the strain can be omitted 3. Enhance the cofactor synthesis of ALA synthetase, which can replace the cofactor as its precursor and reduce the cost; 4. Avoid the use of plastids, which can improve the stability of protein expression in strains; 5. The mixed medium carbon source can simultaneously achieve the benefits of inhibiting ALA dehydratase activity, improving ALA synthetase expression, and reducing costs.

Industry Categories

1. Pharmaceutical field 2. Agriculture 3. Beauty and skin care products 4. Health food

Keywords

5-aminolevulinic acid, Δ - aminolevulinic acid, pyridoxal phosphate

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