

Economical and Non-Toxic Antifreeze Peptide Solution for Cryopreservation

TECHNOLOGY DESCRIPTION

This technology is a method to produce peptide that can be used for both in vivo and in vitro cell and tissue cryopreservation.

TECHNOLOGY FEATURES

The peptide is environmental friendly as the solvent/media (water/ Isopropanol) used as medium in the organic reactions can further be used as cryo-protector solution. This technology will be greatly beneficial in the field of medicine. It can be utilized to cryo-preserve tissue and their membranes. It can also be used in cell culture technology and can greatly increase the half-life of frozen food and dough. This peptide can be used to produce better and safer cryo-preservative solution and media at relatively lower cost since it uses specific peptide and not proteins. It inhibits ice crystal growth and lower the freezing temperature of the water without altering the melting point.

ADVANTAGES

- Economical than antifreeze proteins
- Nontoxic to the cells and tissues
- Reusable for certain time period

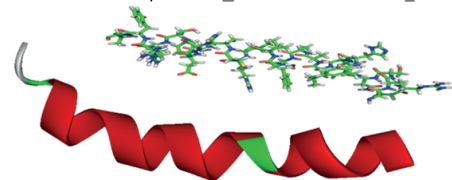
INDUSTRY OVERVIEW

Prospect Industry: Cryopreservation industries

This new product can be used to produce relatively low cost cryopreservative agents or cryoprotectant for living cells, tissue, organs and fresh food products. Its applications include in medicine such as tissue and their membranes, tissue and organ preservation. Cryosurgery can be used in cell culture technology and to extend the half-life of frozen food and dough. The new product has potential for commercial demand at the regional and international target market. This product (novel process) can be used to design the ultimate use of the product. Potential global marketers include pharmaceuticals companies, companies interested in preparation of cryopreservation solutions/media for medical use and other industries, biomedical and biotechnological companies and food and confectionery companies. Global bio-preservation market is expected to witness a lucrative growth rate over the forecast period owing to expansion of both bio-preservation media market and the bio-preservation equipment market. The major reason contributing to this booming industry is the rising new drug developments and therapies in biomedical research and biomedical industry diagnostic segments, biotech, medical devices, and pharmaceuticals. The rise in treatment of acute and chronic illnesses is leading a positive growth for this market.

NMR structure of antifreeze peptide

Peptide 1m: QRSNFHPLAASFIVRCAFEHSRRFT



■ α-helix
■ β-sheet
■ random

NMR structure of peptide 1m shows a perfectly helix structure, which correlates to the antifreeze activity of the peptide.

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