

Osmolyte Mixture for Protein Stabilization

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Technology description

The invention entails solution conditions that can prolong the recovery and foldability of proteins under non-denaturing conditions in the presence of the tetradecameric GroEL chaperonin.

Overview

Understanding cellular folding is extremely important. Valid estimates gleaned from molecular genetic databases indicate that between 30 to 50% of human diseases are caused by protein folding defects. Among the most well-known folding diseases are Alzheimer' s disease, Parkinson' s disease, Huntington' s, ALS, and Cystic Fibrosis. We are now also aware that other diseases caused by protein misfolding result in Emphysema, Liver damage, various Cancers, Diabetes, Polycystic Kidney Diseases, cardiomyopathies, and neuropathies as well as an incredibly wide range of metabolic disorders.

How it works

The osmolyte mixture can maintain a protein in its chaperonin foldable state for long periods of time even when the chaperonin is absent. Additionally the invention details a method to search for other possible stabilizing osmolyte mixtures using a screening array. These additional osmolyte mixtures may complement or augment the one identified in this invention.

Application area

The invention is useful to biotech companies and researchers for refolding proteins resistant to other refolding methods.

Advantages

The screening method will reduce costs for scientists looking for folding conditions in their protein of interest. KU researchers have successfully used this procedure for 15 different proteins and have achieved positive results in each case tested thus far.

Institution

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