Creative Enzymes®

Bifunctional Chimeras of Glutamylcysteine Synthetase and Glutathione Synthetase (Crude Enzyme)

Cat. No. NATE-1859

Lot. No. (See product label)

Introduction

Description	GSH, and by extension GCL, is critical to cell survival. Nearly every eukaryotic cell, from plants to yeast to humans, expresses a form of the GCL protein for the purpose of synthesizing GSH. To further highlight the critical nature of this enzyme, genetic knockdown of GCL results in embryonic lethality. Furthermore, dysregulation of GCL enzymatic function and activity is known to be involved in the vast majority of human diseases, such as diabetes, Parkinson's disease, Alzheimers disease, COPD, HIV/AIDS, and cancer. This typically involves impaired function leading to decreased GSH biosynthesis, reduced cellular antioxidant capacity, and the induction of oxidative stress. However, in cancer, GCL expression and activity is enhanced, which serves to both support the high level of cell proliferation and confer resistance to many chemotherapeutic agents. Glutathione synthase belongs to the family of ligases, specifically those forming carbon-nitrogen bonds as acid-D-amino-acid ligases (peptide synthases). This product with the indicated enzyme activity was briefly purified from engineered E. coli.
Applications	agriculture; medicine; synthesis; biotechnology; pharmacology

Product Information

Source	E. coli
Appearance	Clear to translucent yellow solution
EC Number	EC 6.3.2.2/ 6.3.2.3
CAS No.	9023-64-7/9023-62-5
Activity	Undetermined
Reaction	L-glutamate + L-cysteine + ATP ⇌ γ-L-glutamyl-L-cysteine + ADP + phosphate ATP + γ-L-glutamyl-L-cysteine + glycine = ADP + phosphate + glutathione
Notes	Since this product needs to be freshly prepared, it will take about 2 weeks after you confirm the order. Each time of the freeze-thawing may cause partial inactivation. Therefore, it should be dispensed as required and stored at -20 ° C or lower. With the preservation of the extension of time, the enzyme activity will decline to a certain extent, so the product should be used as soon as possible. This product may have turbidity or precipitation in the production and preservation process, it can be mixed after melting and will not affect the normal use. This product is limited to scientific research use, shall not be used for clinical diagnosis or treatment, shall not be used for food or medicine, shall not be stored in ordinary residential. For your safety and health, please wear an experimental suit and wear disposable gloves.

Usage and Packaging

Package	100ml

Storage and Shipping Information

Storage	at -20 °C or lower, for at least 1 month.