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Product Information

Chaperonin 10 from *Escherichia coli*
recombinant, expressed in *E. coli* overproducing strain

Product Number **C7438**
Storage Temperature 2–8 °C

Synonym: GroES

Product Description
The chaperonin proteins GroES (Chaperonin 10) and GroEL (Chaperonin 60) are heat shock proteins that assist the folding of nascent and heat-destabilized proteins.[1] GroES (Chaperonin 10) is a complex of 6-8 units of a 10 kDa monomer, with a multimer molecular mass of 60-80 kDa. Aggregation studies on chaperonin 10 monomer from different species have been reported.[2] GroEL (Chaperonin 60) is a tetradecamer of a 58 kDa monomer, with a multimer molecular mass of ~800 kDa.

GroEL and GroES can be used to stabilized labile proteins and reactivate denatured proteins. Refolding and reactivation of denatured enzymes such as the photosynthetic enzyme RuBisCO,[3] mitochondrial rhodanese,[4] and glutamine synthase[5] have been reported.

Folding of proteins by these chaperonins requires GroEL, Mg-ATP (GroEL has ATPase activity), and in most cases GroES as well. The completion of the folding process and dissociation of the complex requires Mg-ATP and GroES. GroEL forms a stable complex with the urea or guanidine denatured protein. GroES inhibits the ATPase activity of GroEL.

This product is a recombinant protein expressed in an overproducing strain of *Escherichia coli*. It is supplied as a lyophilized powder containing Trizma® buffer salts, potassium chloride, dithiothreitol, and trehalose.

The folding activity of a 1:1 molar mixture of GroEL and GroES is determined using urea-denatured rhodanese. At least a 2-fold increase in reactivation of rhodanese is observed compared to spontaneous reactivation.

The inhibition of the ATPase activity of GroEL by GroES at a molar ratio of 2:1 (GroES:GroEL) is determined to be 40-60%.

Purity: ≥ 95% (SDS-PAGE)

Precautions and Disclaimer
For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions
The product is soluble in water (0.5 mg/mL).

Storage/Stability
It is recommended to store the product desiccated at 2–8 °C. The product as supplied is stable for 2 years when stored properly.

References
1. Roberts, M.M. *et al*., *J. Bacteriol.*, **185(14)**, 4172-4185 (2003).
2. Fossati, G. *et al.*, *J. Biol. Chem.*, **270(44)**, 26159-26167 (1995).
3. Mendoza, J.A. et al., *J. Biol. Chem*., **266(20)**, 13044-13049 (1991).
4. Goloubinoff,, P. *et al.*, Nature, **342(6252)**, 884-889 (1989).
5. Fisher, M.T., *Biochemistry*, **31(16)**, 3955-3963 (1992).

SS,TA,GY,NDH,GCY,MAM 08/19-1