

Product Data Sheet

□ Cat # RP-613

Recombinant (E.Coli) GroEL (HSP60)

Size: □ 20 ug

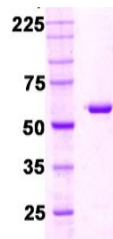
GroEL belongs to the chaperonin family of molecular chaperones, and is found in a large number of bacteria. It is required for the proper folding of many proteins. To function properly, GroEL requires the lid-like cochaperonin protein complex GroES. In eukaryotes the proteins Hsp60 and Hsp10 are structurally and functionally nearly identical to GroEL and GroES, respectively.

Within the cell, the process of GroEL/ES mediated protein folding involves multiple rounds of binding, encapsulation, and release of substrate protein. Unfolded substrate proteins bind to a hydrophobic binding patch on the interior rim of the open cavity of GroEL, forming a binary complex with the chaperonin. Binding of substrate protein in this manner, in addition to binding of ATP, induces a conformational change that allows association of the binary complex with a separate lid structure, GroES. Binding of GroES to the open cavity of the chaperonin induces the individual subunits of the chaperonin to rotate such that the hydrophobic substrate binding site is removed from the interior of the cavity, causing the substrate protein to be ejected from the rim into the now largely hydrophilic chamber. The hydrophilic environment of the chamber favors the burying of hydrophobic residues of the substrate, inducing substrate folding. Hydrolysis of ATP and binding of a new substrate protein to the opposite cavity sends an allosteric signal causing GroES and the encapsulated protein to be released into the cytosol. A given protein will undergo multiple rounds of folding, returning each time to its original unfolded state, until the native conformation or an intermediate structure committed to reaching the native state is achieved.

Source of protein

GroEL protein prevents misfolding of proteins and promotes the refolding and proper assembly of unfolded polypeptides generated

under stress condition. GroEL gene was amplified by PCR from E. coli and cloned into an expression vector. This protein was overexpressed in E. coli and was purified by using conventional chromatography techniques.



Recombinant GroEL produced in E. coli is a single, non-glycosylated polypeptide chain containing 548 amino acids and having a molecular mass of 57.3kDa. The groEL protein (1mg/ml) is supplied in 25mM Tris-HCl buffer (pH 7.5), 100mM NaCl, 1mM DTT and 10% Glycerol.

Form & Storage

Store at 4°C if entire vial will be used within 2-4 weeks. Store, frozen at -20°C for longer periods of time. Avoid multiple freeze-thaw cycles. For long term storage, it is recommended to add a carrier protein (0.1% HSA or BSA). If supplied in powder, then reconstitute it in 100ul water for 1 mg/mL stock and store in liquid at 4°C for ~ 1 week or aliquots in suitable size and store at -20°C for long term storage.

APPLICATION AND SUGGESTED DILUTIONS:

Each laboratory should determine an optimum working titer for use in its application. Protein is >90% pure as determined by 10% PAGE (coomassie staining). Users must optimize the appropriate concentration and conditions for each assay.

This item is for LABORATORY RESEARCH USE ONLY.

References: Tabibzadeh S (1999). Infect Dis Obstet Gynecol. 7 (1-2): 5-9; Schäfer C (2000). J. Gastroenterol. 35 (1): 1-9; Moseley P (2000). Immunopharmacology. 48 (3): 299-302; Liu Y (2001). Front. Biosci. 6: D12-25. doi:10.2741/Liu. PMID 11145923.

RP-613-GroEL-Hsp60

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