GroEL (E. coli), (recombinant)

In its native form, GroEL exists as a 14-mer consisting of two stacked rings each composed of seven identical subunits of Mw ~57,250. Molecular chaperones, such as GroEL and GroES, are thought to function by interacting with transiently exposed interactive peptide surfaces during its nascent synthesis, folding, transport and oligomerization. The net effect of chaperone participation in these processes is a reduction in inappropriate protein-protein interactions that might produce a nonfunctional structure. The GroEL/GroES complex has a high affinity for peptides during ATP hydrolysis when protein substrates would undergo repeated cycles of assisted folding. The GroEL and GroES genes, constituting the GroE operon, are members of the heat shock regulon of*E. coli*. Synthesis of the GroE protein, which accounts for approximately 1% of the cellular protein at 37oC, increases to about 10% of the total protein content upon shifting the growth temperature to 46oC. In vivo and in vitro studies have demonstrated that the GroE system participates in facilitating protein folding/ renaturation, for example: 1) Both GroEL and GroES are required for in vivo assembly of the prokaryotic ribulose bisphosphatase carboxylases (RuBisCo's) in*E. coli*, 2) Mutations in the groE locus have been shown to interfere with the assembly of heads of bacteriophages lambda and T 2, 3) Chemically denatured citrate synthase refolds to an active, nonaggregated form in the presence of GroEL, GroES, and Mg-ATP, 4) The sigma-subunit of Streptomyces coelicolor RNA polymerase can be renatured in the presence of GroEL after elution from a SDS-polyacrylamide gel, 5) GroEL and GroES facilitated the in vitro refolding of the monomeric mitochondrial enzyme rhodanese, 6) The aggregation of the non-native states(s) of oat phytochrome can be suppressed by interaction with GroEL and a stable binary complex can form between the two proteins.

Citations: 7 View Online »

Ordering Information

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ADI-SPP-610-D	50µg
ADI-SPP-610-F	200µg

Manuals, SDS & CofA

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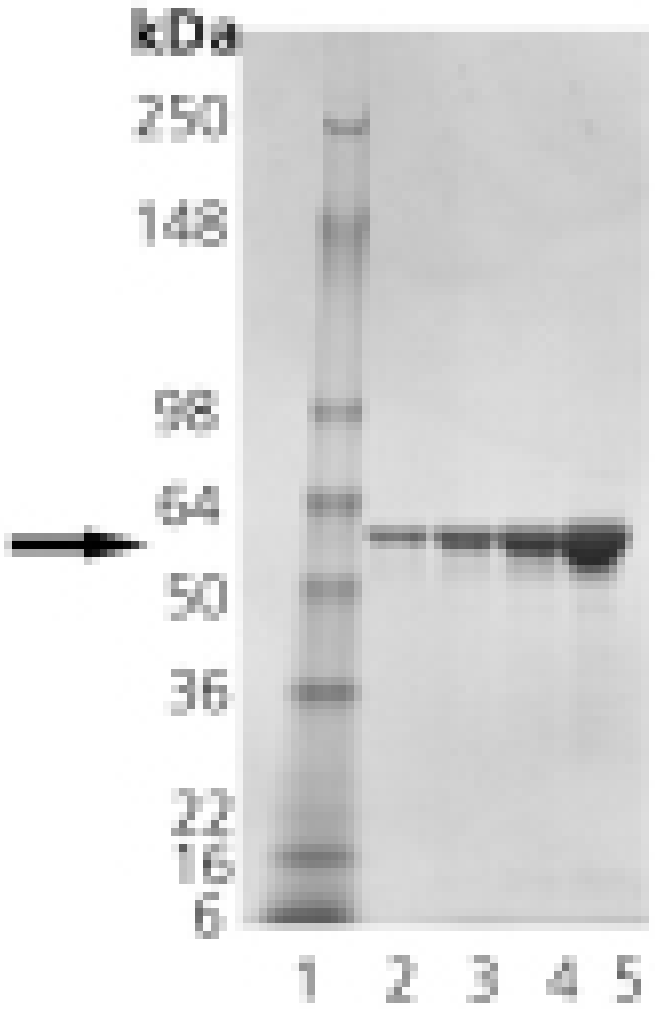

SDS-PAGE analysis: Lane 1: MWM, Lane 2: 0.5µg; Lane 3: 1µg; Lane 4: 2µg; Lane 5: 5µg of Prod. No. ADI-SPP-610 detected by Coomassie Stain.

Western Blot analysis: Lane 1: MW marker, Lane 2: 100 ng of Prod. No. ADI-SPP-610 probed with Prod. No. ADI-SPS-870.

Handling & Storage

Long Term Storage -80°C

Shipping Dry Ice

Regulatory Status RUO - Research Use Only

Product Details

Alternative Name Heat shock protein 60, 60kDa Chaperonin, Protein Cpn60 GroEL protein, HSP60

Application Notes ATPase activity assay (positive). Western blot control.

Formulation Liquid. In 50mM TRIS-HCl, pH 7.5, containing 100 mM sodium chloride, 10mM magnesium chloride, 5mM DTT, and 0.05% sodium azide.

MW ~60kDa

Purity ≥90% (SDS-PAGE; Western blot)

Purity Detail Purified by multi-step chromatography.

Source Produced in *E. coli*.

UniProt ID P0A6F5 (strain K12)

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