

Chaperonin 60

Human, Recombinant (rHuGroES)

Expressed in *E. coli*

Cat. No. CRP0843

Lot. No. (See product label)

PRODUCT INFORMATION

Description: Chaperonin 60(GroEL) and chaperonin 10 (GroES) belong to the ubiquitous family of heat-shock molecular chaperones found in prokaryotes and in eukaryotic organelles. The chaperonins assist the folding of nascent, organelle-imported or stress-destabilized polypeptides. In vitro, purified GroEL together with purified GroES in the presence of Mg-ATP facilitate refolding and reactivation of denatured proteins. Chaperonin 60(GroEL) is expressed in *E. coli*.

Background: Chaperonins undergo large conformational changes during a folding reaction as a function of the enzymatic hydrolysis of ATP as well as binding of substrate proteins and cochaperonins, such as GroES. These conformational changes allow the chaperonin to bind an unfolded or misfolded protein, encapsulate that protein within one of the cavities formed by the two rings, and release the protein back into solution. Upon release, the substrate protein will either be folded or will require further rounds of folding, in which case it can again be bound by a chaperonin.

M. W. : 60,000 Da

Recombinant: Expressed in *E. coli*

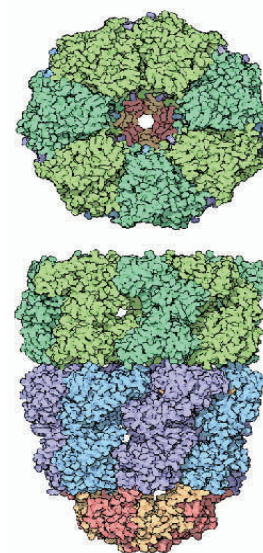
Purity: >95% as determined by SDS-PAGE.

Storage buffer: Liquid. In Tris-HCl Buffer (pH 7.4).

REFERENCES

- 1.Fenton WA, Horwich AL. Chaperonin-mediated protein folding: fate of substrate polypeptide. *Q. Rev. Biophys.* 2003; 36 (2): 229–256.
- 2.Goloubinoff, P., et al. Reconstitution of active dimeric ribulose biphosphate carboxylase from an unfolded state depends on two chaperonin proteins and Mg-ATP. *Nature*; 1989; 342: 884–889.
- 3.Mendoza, J. A., et al.,Chaperonins facilitate the in vitro folding of monomeric mitochondrial rhodanese. *J. Biol. Chem.* 1991; 266: 13044-13049.

FOR RESEARCH USE ONLY



A chaperonin called GroEL-GroES complex (from *Escherichia coli*) (PDB code=1aon). Two rings of 7x2GroEL proteins (shown in blue and green) with a cap (just on one side) of GroES proteins (red and yellow). Unfolded proteins enter that cavity (which is protein sized) to be protected during folding.

GENE INFORMATION

Gene Name: [HSPD1](#)

Synonyms: CPN60; GROEL; HSP-60; HSP60; HSP65; Hsp60; HuCHA60; SPG13; chaperonin; 60 kDa chaperonin; 60 kDa heat shock protein; mitochondrial precursor; Heat shock protein 60; Mitochondrial matrix protein P1; P60 lymphocyte protein; heat shock 60kD protein 1 (chaperonin); heat shock protein 65; short heat shock protein 60 Hsp60s1; spastic paraplegia 13 (autosomal dominant)

mRNA Refseq: [NM_002156.4](#)

Protein Refseq: [NP_002147.2](#)

MIM: [118190](#)

GeneID: [3329](#)

Unitprot ID: [P10809](#)

Chromosome Location: 2q33.1

Pathway: Prion disease, Type I diabetes mellitus

Function: ATP binding, chaperone binding, unfold protein binding

Process: caspase activation, protein folding, response to unfolded protein

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