

# GrpE (E. coli), (recombinant)

Recombinant GrpE (E. coli) is a 24 kDa cochaperone that assists DnaK/Hsp70 in protein folding, transport, disaggregation, and activation of partially folded proteins.

GrpE is an acidic 24 kDa protein which is encoded by a monocistronic *Escherichia coli* gene (located at 56 min.) which is under the control of both *s32* and *s70* transcription factors. The GrpE protein is a so-called cochaperone because it is known to assist the DnaK (Hsp70) protein to effectively carry out DnaK-dependent chaperone activity (i.e. protein folding, protein transport, disaggregation of heat inactivated proteins, activation of mutant protein). This auxiliary role is critical to DnaK's chaperone biology since the *grpE* gene could not be deleted in a wild type background unless the host *E. coli* were previously adapted for deletions of the *DnaK* gene through the accumulation of extragenic suppressors. Also, *in vitro* these two proteins functionally interact; GrpE protein forms a salt resistant complex with DnaK protein, which is disrupted by ATP. It is suggested that DnaK and DnaJ assist protein folding by stabilizing an intermediate conformation; whereas the GrpE protein, in an ATP-dependent reaction release partially folded protein from the DnaK/J complex and transfer this immature protein to the GroEL/ES chaperone complex to finish the protein folding reaction. In some cases DnaK/GrpE could act independently of DnaJ chaperone protein: the "inactive" form of DnaA5 mutant protein is activated in the presence of the DnaK and GrpE proteins, and the presence of DnaJ inhibit this reaction. GrpE cochaperone protein assists DnaK chaperone during two crucial steps: binding to protein substrate and releasing DnaK chaperone from the complex with substrate.

Citations: 5

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## Ordering Information

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ADI-SPP-650-D	50µg
ADI-SPP-650-F	200µg

## Manuals, SDS & CofA

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## Handling & Storage

Long Term Storage -80°C

Shipping Dry Ice

**Regulatory Status** RUO - Research Use Only

## Product Details

**Alternative Name** HSP70 cofactor, Nucleotide exchange factor, HSP24, Heat shock protein 24

**Application Notes** Western blot control.

**Formulation** Liquid. In 25mM HEPES, pH 7.6, containing 50mM potassium chloride and 5.0% glycerol.

**MW** ~24kDa

**Purity** ≥90% (SDS-PAGE; Western blot)

**Purity Detail** Purified by multi-step chromatography.

**Source** Produced in *E. coli*.

**UniProt ID** P09372 (strain K12)

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