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# Product Information

**Anti-GroES**
produced in rabbit, IgG fraction of antiserum

Catalog Number **G8909**

## Product Description

Anti-GroES is produced in rabbit using repeated injections of recombinant GroES (chaperonin 10) conjugated to KLH as the immunogen. Whole antiserum is fractionated and then further purified by ion exchange chromatography to provide the IgG fraction of antiserum. This fraction is essentially free of other rabbit serum proteins.

Rabbit Anti-GroES is specific for GroES by immunoblotting using a heat shocked *E. coli* extract and dot blot immunoassay using recombinant GroES.

GroES, also known as chaperonin 10 (cpn10), is a highly characterized member of a class of ubiquitous and conserved *E. coli* proteins known as chaperonins. The chaperonins are a ubiquitous and indispensable family of proteins which facilitate protein folding in an ATP-dependent manner enhancing the yield of properly folded substrate proteins under conditions where spontaneous folding does not occur. GroES is a homo-heptamer protein composed of 10 kDa subunits forming a ring[1]. It cooperates with another member of the chaperonin family, GroEL, which is a tetradecamer (14-subunit) protein of 58 kDa subunits with a $K^+$ dependent ATPase activity. The active GroEL protein consists of two stacked rings of seven subunits each[2]. One ring of GroES binds to two rings of GroEL. This occurs only in the presence of adenine nucleotides and creates an asymmetric complex of $GroES_7$*$ADP_7$ *$GroEL_7$-$GroEL_7$.[3] Symmetric structures consisting of two rings each of GroEL and GroES have been identified as well.[4] Formation of symmetric complexes follows the binding of ATP, whereas the dissociation of one ring of GroES follows ATP hydrolysis. The current model suggests that the folding reaction by GroEL is driven by cycles of binding and release of the co-chaperone GroES.[5] These alternate with binding and release of unfolded protein substrate. The cycles result from the opposite effects of GroES and unfolded protein on the GroEL complex. The former stabilizes the ADP-bound state of GroEL, whereas the latter stimulates ADP-ATP exchange. The substrate protein goes through multiple cycles of binding and release, and is released into the cavity of the GroEL complex where it can undergo folding without interacting with the nearby folding intermediates.

## Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, with 15mM sodium azide as a preservative.

## Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

## Storage/Stability

Store at –20 °C. After use, the remainder of the product may be stored as aliquots at –20 °C. Prolonged storage and repeated freezing and thawing is not recommended.

## Product Profile

Dot Blot: a working dilution of 1:5,000 was determined in an indirect chemiluminescence assay using 100 ng recombinant GroES/dot

Indirect Immunoblotting: a working dilution of 1:5,000 was determined using a heat shocked *E. coli* cell extract.

Indirect ELISA: a working dilution of 1:15,000 was determined using recombinant GroES protein.

**Note**: In order to obtain optimum results, it is recommended that each individual user determine their working dilutions by titration assay.

**References**


1. Chandrasekhar, G.N., et al., *J. Biol. Chem*., **261**, 12414 (1986).
2. Hendrix, R. W., *J. Mol. Biol*., **129**, 375 (1979).
3. Todd, M.J., et al., *Biochemistry*, **32**, 8560 (1993).
4. Schmidt, M., et al., *Science*, **265**, 656 (1994).
5. Martin, J., et al., *Nature*, **366**, 228 (1993).


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