

Product Information

Monoclonal Anti-Heat Shock Protein 25 (HSP-25)

Clone IAP-9

Mouse Ascites Fluid

Product No. **H 0148**

Product Description

Monoclonal anti-Heat Shock Protein 25 (mouse IgG1 isotype) is derived from the IAP-9 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with partially purified Inhibitor of Actin Polymerization (IAP) protein from turkey gizzard smooth muscle.¹ The isotype is determined using the Sigma ImmunoType™ Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

Monoclonal anti-Heat Shock Protein (HSP) 25 reacts specifically with a 25 kDa protein which is constitutively expressed in smooth muscle, and is highly expressed in fibroblasts following heat shock. A major proteolytic fragment of 22 kDa may also be detected with the antibody. The product suppresses the inhibition of actin elongation induced by the 25 kDa IAP.¹ It stains HSP in frozen sections of chicken gizzard smooth muscle¹ and formalin-fixed, heat-shocked cultured chicken embryo fibroblasts using immunofluorescence.² The antibody displays a punctate or fine fibrillary pattern of staining throughout the cytoplasm in heat-shocked cells and colocalization with mitochondria. The antibody may be used in immunoblotting, ELISA, RIA, immunocytochemistry, and immunopurification. Cross-reactivity has been observed with HSP 25 in various organs of human, bovine, rabbit, guinea pig, chicken, turkey, rat, mouse, frog, and *Drosophila*.

Monoclonal anti-Heat Shock Protein 25 may be used in ELISA, immunoblot, RIA, immunocytochemistry, and immunopurification of HSP25.

A wide variety of environmental factors, such as a sudden increase in temperature, induce cells to rapidly synthesize a group of polypeptides known as the heat shock (stress) proteins.³⁻⁵ These proteins are produced by prokaryotic and eukaryotic cells, and HSPs are among the most conserved molecules in phylogeny.

The HSPs have been grouped into several classes on the basis of their size and sequence homology. Members of the class of small HSPs have molecular mass in the range 15-40 kD.⁶ Small HSPs aggregate to form characteristic ring-shaped structures called heat shock granules, which resemble prosome or proteosomes but are distinct entities. Under heat shock conditions, the small HSPs associate with the nucleus. Following heat shock, they slowly relocalize to the cytoplasm. It is not clear whether the small HSPs are actually transported into the nucleus at high temperatures or whether they are entrapped by the intermediate filaments, which, under heat shock conditions, collapse onto the nucleus.⁵

The amino acid sequences of the small HSPs are poorly conserved. However, striking sequence similarities exist between vertebrate α -crystallins and small HSPs.⁶ The small HSPs have also been implicated in phenomena of acquired thermotolerance and neoplasia.⁷

Reagents

The product is provided as ascites fluid with 0.1% sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Product Profile

A minimum titer of 1:500 was determined by immunoblotting of turkey gizzard extract. In order to obtain best results in different techniques or preparations, it is recommended that each individual user determine their optimal working dilutions by titration assay.

Storage

For continuous use, store at 2-8 °C. For extended storage, the solution may be frozen in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

References

1. Miron, T., et al., *Eur. J. Biochem.*, **178**, 553 (1988).
2. Miron, T., et al., *J. Cell Biol.*, **114**, 255 (1991).
3. Lindquist, S., and E.A. Craig, *Annu. Rev. Genet.*, **22**, 631 (1988).
4. Morimoto, R.I., et al., (eds.),: *Stress Proteins in Biology and Medicine*, Cold Spring Harbor Lab., Cold Spring Harbor, N.Y., pp. 1-36 (1990).
5. Welch, W.J.,: *Stress Proteins in Biology and Medicine*, Morimoto, R.I., et al., (eds), Cold Spring Harbor Lab., Cold Spring Harbor, N.Y., pp. 223-278 (1990).
6. Klemenz, R., et al., *PNAS (USA)*, **88**, 3652 (1991).
7. Kochevar, D.T., et al., *Toxicol. Lett.*, **56**, 243 (1991).

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