Product No. H 4149
Lot 057H4834

Monoclonal Anti-Heat Shock Protein 60 (HSP60)
Mouse Ascites Fluid
Clone LK1

Monoclonal Anti-Heat Shock Protein 60 (mouse IgG1 isotype) is derived from the LK1 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with recombinant human heat shock protein 60 (HSP60).[1] The isotype is determined using Sigma ImmunoType™ Kit (Sigma Stock No. ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Sigma Stock No. ISO-2). The product is provided as ascites fluid with 0.1% sodium azide (see MSDS)* as a preservative.

Specificity

Monoclonal Anti-Heat Shock Protein 60 (HSP60), clone LK1, recognizes an epitope located between amino acid residues 383-447 of the human HSP60.[1] It has a unique specificity for mammalian HSP60 (e.g., human, rat) and avian HSP60 (e.g. chicken), but does not cross react with the bacterial counterpart (e.g., *E. coli*), or with helminths and spinach. In immunoblotting, the antibody may label additional bands at approx. 22, 38 and 97 kD. The antibody is reactive with both the constitutive and the inducible HSP60. It shows a raised level of staining in immunohistochemistry of formalin-fixed, paraffin-embedded synovial membranes taken from patients with juvenile chronic arthritis.[1] Upon examination by immunoelectron microscopy, the staining by the antibody was observed exclusively in the mitochondria of human hepatoma cell line.[1]

Description

A wide variety of environmental perturbations, such as a sudden increase in temperature, induce cells to rapidly synthesize a group of polypeptides known as the heat shock (stress) proteins.[2-4] These proteins are produced by prokaryotic and eukaryotic cells, and are among the most conserved molecules in phylogeny. The HSPs have been grouped into several classes based on their size and sequence homology.

The 60 kD HSP family, which retained a uniquely high level of sequence conservation, is a focus of interest as a potential antigen in a number of autoimmune diseases.[1] Abnormal immune reactivity involving HSP60 has also been implicated in the pathogenesis of schizophrenia.[5] In human arthritis and in experimentally induced arthritis in animals, disease development was seen to coincide with development of immune reactivity directed against not only bacterial HSP60, but also against its mammalian homologue. A human mitochondrial protein, originally designated P1 has been described as the human homologue of the mycobacterial HSP60, and >45% of the protein has sequence identity with its bacterial homologue. Studies using anti-mycobacterial HSP60 antibodies that are cross reactive with human HSP60 have shown increased expression of HSP60 in inflamed tissue. However, because of this cross reactivity, it was impossible to distinguish between the expression of HSP60 from bacterial origin (e.g., after a bacterial infection) or endogenous HSP60. The availability of monoclonal antibodies with specificity for mammalian HSP60 enable the differentiation between the HSP60 of mammalian and bacterial origin.

Uses

Monoclonal Anti-Heat Shock Protein 60 may be used in ELISA, immunoblotting, immunocytochemistry and immunoelectron microscopy.

Titer: 1:400

The antibody titer was determined by immunoblotting using cultured human foreskin fibroblast extract.

In order to obtain best results, in different techniques and preparations, it is recommended that each individual user determine their optimum working dilution 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.

* 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 hazardous and safe handling practices.

References

1. Boog, C., et al., J. Exp. Med., **175**, 1805-1810 (1992).
2. Lindquist, S., and Craig, E., Annu. Rev. Genet., **22**, 631-677 (1988).
3. Morimoto, R.I., et al., (eds.), in: Stress Proteins in Biology and Medicine, Cold Spring Harbor Lab., N.Y., pp. 1-36 (1990).
4. Welch, W., in: Stress Proteins in Biology and Medicine, Morimoto, R.I., et al., (eds), Cold Spring Harbor Lab., N.Y., pp. 223-278 (1990).
5. Kilidireas, K., et al., Lancet, **340**, 569-572 (1992).