Saint Louis, Missouri 63103 USA
Telephone (800) 325-5832 (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

Anti-Heat Shock Protein 23
Produced in Rabbit, Affinity Isolated Antibody

Product Number **S 0821**

Product Description

Anti-Heat Shock Protein 23 (HSP23) is developed in rabbit using as immunogen a synthetic peptide corresponding to amino acids 171-186 located at the C-terminus of *Drosophila* HSP23, conjugated to KLH. This sequence is specific to *Drosophila* HSP23. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-Heat Shock Protein 23 (HSP23) recognizes *Drosophila* HSP23 (23 kDa). Applications include the detection of HSP23 by immunoblotting and immunofluorescence. Staining of the HSP23 band in immunoblotting is specifically inhibited with the HSP23 immunizing peptide (*Drosophila*, amino acids 171-186).

Heat shock proteins (HSPs) consist of a large family of proteins that are produced by all organisms and induced by various types of stress stimuli such as temperature shock, cytokines, hormones and chemicals. The small heat shock proteins (sHSPs) represent the least conserved subfamily of HSP as their number and size (12-40 kDa) vary among species. They are phylogenetically related to the α-crystallin proteins.[1] The sHSPs play different roles including molecular chaperone activity, cytoskeleton protection, and modulation of apoptosis. In addition to their induction following stress, sHSPs are also induced during development in a wide variety of organisms. In the fruitfly *Drosophila melanogaster*, there are four members of the sHSPs family, HSP22, HSP23, HSP26, and HSP27. They are coordinately induced in response to heat stress and by the molting hormone 20-hydroxyecdysone, and show a specific pattern of expression in diverse tissues and cells.[2-5] *Drosophila* HSP23 (also known as DmHSP23, 23 kDa) has been reported to be expressed during embryogenesis in a stage-specific manner by a restricted number of neuronal and glial lineages of the central nervous system, It has been recently shown to be down-regulated following the targeted expression of the glial "master" gene gcm.[6, 7] *Drosophila* HSP23, along with HSP26 and HSP27 are expressed in distinct cell types during the spermatogenic process.[8, 9] In *Drosophila* germ line tissues such as testes, HSP23 and HSP27 are both readily expressed in the absence of stress and cannot be further induced by heat shock.[2] In contrast to HSP27 that localizes mainly to the nucleus, HSP22 is localized to the mitochondrial matrix, whereas HSP23 and HSP26 are both localized to the cytosol where they can form large multimeric complexes.[9, 10]

Reagent

The antibody is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody Concentration: ~1.0 mg/mL

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 hazardous and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended.

Storage in “frost-free” freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

By immunoblotting, a working antibody concentration of 0.5-1 µg/mL is recommended using a whole cell extract of Schneider’s *Drosophila* Line 2 [D. Mel. (2)/SL2] treated by heat shock at 37 °C.

By indirect immunofluorescence, a working antibody concentration of 2-4 µg/mL is recommended using the D. Mel. (2)/SL2 cell line treated by heat shock at 37 °C.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

1. Arrigo, A.P., and Landry, J., in Heat shock Proteins: Structure, Function and Regulation, Morimoto, R.I., et al., ed. Cold Spring Harbor Lab., (Cold Spring Harbor, NY), pp. 355-373 (1994).
2. Michaud, S., et al., Cell. Mol. Life Sci., **53**, 104-113 (1997).
3. Petersen, N.S., et al., Genetics, **92**, 891-902 (1979).
4. Ayme, A., and Tissieres, A., EMBO J., **4**, 2949-2954 (1985).
5. Sirotkin, K., and Davidson, N., Dev. Biol., **89**, 196-210 (1982).
6. Haass, C., et al., J. Cell Sci., **96**, 413-418 (1990).
7. Egger, B., et al., Development, **129**, 3295-3309 (2002).
8. Glaser, R.L., et al., Mol. Cell. Biol., **10**, 131-137 (1996).
9. Michaud, S., et al., J. Cell Sci., **110**, 1989-1997 (1997).
10. Morrow, G., et al., J. Biol. Chem., **275**, 31204-31210 (2000).

KAA/ER 11/05