

Product Information



Hsp70 (Hsc70) Monoclonal Antibody (Clone BB70)

Item No. 10011425

Contents:	This vial contains protein G affinity-purified mouse IgG at a concentration of 1 mg/ml in PBS, pH. 7.2, containing 50% glycerol and 0.09% sodium azide.
Synonym:	Heat Shock Protein 70
Antigen:	Chicken Hsp70/Hsp90 complex ¹
Host:	Mouse, clone BB70
Isotype:	IgG _{2a}
Cross Reactivity:	(+) Human, mouse, rat, ovine, canine, beluga, bovine, fish (carp, rainbow trout, and chinook/chum/coho salmon), pacific oyster, guinea pig, scallop, pig, hamster, rabbit, chicken, <i>Artemia</i> , <i>Xenopus</i> , <i>Drosophila</i> , and yeast Hsp70. Detects 72 and 73 kDa proteins corresponding to the molecular mass of inducible Hsp70 and Hsc70 on SDS PAGE immunoblots.
Stability:	≥1 year at -20°C
Applications:	Western blot (WB), immunoprecipitation, and immunohistochemistry. ²⁻⁴ The recommended starting concentration for WB is 1 µg/ml, which was shown to be sufficient for detection of Hsp/Hsc 70 in 20 µg of HeLa lysate. Other applications were not attempted and therefore optimal working dilutions should be determined empirically.

Hsp70 genes encode abundant heat-inducible 70 kDa Hsps (Hsp70s). In most eukaryotes, Hsp70 genes exist as part of a multigene family. They are found in most cellular compartments of eukaryotes including nuclei, mitochondria, chloroplasts, the endoplasmic reticulum and the cytosol, as well as in bacteria. The genes show a high degree of conservation, having at least 50% identity.⁵ The N-terminal two thirds of Hsp70s are more conserved than the C-terminal third. Hsp70 binds ATP with high affinity and possesses a weak ATPase activity which can be stimulated by binding to unfolded proteins and synthetic peptides.⁶ When Hsc70 (constitutively expressed) present in mammalian cells was truncated, ATP binding activity was found to reside in an N-terminal fragment of 44 kDa which lacked peptide binding capacity. Polypeptide binding ability therefore resided within the C-terminal half.⁷ The structure of this ATP binding domain displays multiple features of nucleotide binding proteins.⁸

All Hsp70s, regardless of location, bind proteins, particularly unfolded ones. The molecular chaperones of the Hsp70 family recognize and bind to nascent polypeptide chains as well as partially folded intermediates of proteins preventing their aggregation and misfolding. The binding of ATP triggers a critical conformational change leading to the release of the bound substrate protein.⁹ The universal ability of Hsp70s to undergo cycles of binding to and release from hydrophobic stretches of partially unfolded proteins determines their role in a great variety of vital intracellular functions such as protein synthesis, protein folding, oligomerization, and protein transport.

References

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