

HSP 70/HSC 70 (BRM-22): sc-59572

BACKGROUND

The HSP 70 family is composed of four highly conserved proteins: HSP 70, HSC 70, GRP 75 and GRP 78. These proteins serve a variety of roles: they act as molecular chaperones facilitating the assembly of multi-protein complexes, participate in the translocation of polypeptides across cell membranes and to the nucleus, and aid in the proper folding of nascent polypeptide chains. All members of the family, except HSP 70, are constitutively expressed in primate cells. HSP 70 expression is strongly induced in response to heat stress. HSP 70 and HSC 70 play key roles in the cytosolic endoplasmic reticulum and mitochondrial import machinery, and are found in both the cytosol and nucleus of mammalian cells. Both HSP 70 and HSC 70 are involved in the chaperoning of nascent polypeptide chains and in protecting cells against the accumulation of improperly folded proteins. GRP 78 is localized in the endoplasmic reticulum, where it receives imported secretory proteins and is involved in the folding and translocation of nascent peptide chains. GRP 75 expression is restricted to the mitochondrial matrix and aids in the translocation and folding of nascent polypeptide chains of both nuclear and mitochondrial origin. GRP 75 and GRP 78 are unresponsive to heat stress and are induced by glucose deprivation. It has been postulated that members of the HSP 70 family act as force-generating motors, relying on the hydrolysis of ATP for their activity.

CHROMOSOMAL LOCATION

Genetic locus: HSPA1A/HSPA1B (human) mapping to 6p21.33, HSPA8 (human) mapping to 11q24.1; Hspa1a (mouse) mapping to 17 B1, Hspa8 (mouse) mapping to 9 A5.1.

SOURCE

HSP 70/HSC 70 (BRM-22) is a mouse monoclonal antibody raised against purified full length native HSP 70/HSC 70 of bovine origin.

PRODUCT

Each vial contains 100 μ l ascites containing IgG₁ with < 0.1% sodium azide.

APPLICATIONS

HSP 70/HSC 70 (BRM-22) is recommended for detection of HSP 70 and HSC 70 of mouse, rat, human, *Drosophila* and *C. elegans* origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000), immunoprecipitation [1-2 μ l per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution to be determined by researcher, dilution range 1:100-1:200) and solid phase ELISA (starting dilution to be determined by researcher, dilution range 1:30-1:3000).

HSP 70/HSC 70 (BRM-22) is also recommended for detection of HSP 70 and HSC 70 in additional species, including bovine.

Molecular Weight of HSP 70/HSC 70: 70 kDa.

Positive Controls: HUV-EC-C whole cell lysate: sc-364180, HeLa whole cell lysate: sc-2200 or HeLa + heat shock cell lysate: sc-2272.

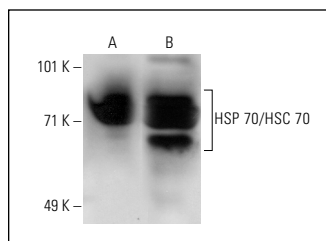
RESEARCH USE

For research use only, not for use in diagnostic procedures.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

DATA



HSP 70/HSC 70 (BRM-22): sc-59572. Western blot analysis of HSP 70/HSC 70 expression in 293 (A) and HeLa (B) whole cell lysates.

SELECT PRODUCT CITATIONS

- Iwasaki, S., et al. 2010. HSP 70/HSP 90 chaperone machinery mediates ATP-dependent RISC loading of small RNA duplexes. *Mol. Cell* 39: 292-299.
- Guillemin, N., et al. 2011. Functional analysis of beef tenderness. *J. Proteomics* 75: 352-365.
- Park, S.R., et al. 2012. Preferential cytotoxic effect of genistein on G361 melanoma cells via inhibition of the expression of focal adhesion kinase. *Int. J. Oral Biol.* 37: 189-195.
- Picard, B., et al. 2014. Inverse relationships between biomarkers and beef tenderness according to contractile and metabolic properties of the muscle. *J. Agric. Food Chem.* 62: 9808-9818.
- Gagaoua, M., et al. 2015. Coherent correlation networks among protein biomarkers of beef tenderness: what they reveal. *J. Proteomics* 128: 365-374.
- Gagaoua, M., et al. 2017. The study of protein biomarkers to understand the biochemical processes underlying beef color development in young bulls. *Meat Sci.* 134: 18-27.
- Gagaoua, M., et al. 2018. Reverse phase protein arrays for the identification/validation of biomarkers of beef texture and their use for early classification of carcasses. *Food Chem.* 250: 245-252.
- Gagaoua, M., et al. 2018. Reverse phase protein array for the quantification and validation of protein biomarkers of beef qualities: the case of meat color from Charolais breed. *Meat Sci.* 145: 308-319.
- Hellerschmied, D., et al. 2019. Molecular features of the UNC-45 chaperone critical for binding and folding muscle Myosin. *Nat. Commun.* 10: 4781.

CONJUGATES

See **HSP 70/HSC 70 (W27): sc-24** for HSP 70/HSC 70 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor[®] 488, 546, 594, 647, 680 and 790.