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HSPA1A Antibody
Mouse Monoclonal Antibody (Mab)
Catalog # AM1877b

Specification

HSPA1A Antibody - Product Information

Application	**WB, IF,E**
Primary Accession	P0DMV8
Other Accession	Q6S4N2, Q27965, P34930, Q27975, NP_005336.3, P0DMV8, P0DMV9
Reactivity	**Human**
Predicted	**Bovine, Pig**
Host	**Mouse**
Clonality	**Monoclonal**
Isotype	**IgG1,K**
Antigen Region	**574-600**

HSPA1A Antibody - Additional Information

Gene ID 3303;3304

Other Names
Heat shock 70 kDa protein 1A/1B, Heat shock 70 kDa protein 1/2, HSP70-1/HSP70-2, HSP701/HSP702, HSPA1A, HSPA1, HSX70

Target/Specificity
This HSPA1A antibody is generated from mice immunized with a KLH conjugated synthetic peptide between 574-600 amino acids from human HSPA1A.

Dilution
WB~~1:100~2000
IF~~1:10~50
E~~Use at an assay dependent concentration.

Format
Purified monoclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein G column, followed by dialysis against PBS.

Storage
Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions
HSPA1A Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

HSPA1A Antibody - Protein Information

Name HSPA1A

Synonyms HSP72 {ECO:0000303|PubMed:24318877}, HSP

Function Molecular chaperone implicated in a wide variety of cellular processes, including protection of the proteome from stress, folding and transport of newly synthesized polypeptides, activation of proteolysis of misfolded proteins and the formation and dissociation of protein complexes. Plays a pivotal role in the protein quality control system, ensuring the correct folding of proteins, the re-folding of misfolded proteins and controlling the targeting of proteins for subsequent degradation. This is achieved through cycles of ATP binding, ATP hydrolysis and ADP release, mediated by co-chaperones. The co- chaperones have been shown to not only regulate different steps of the ATPase cycle, but they also have an individual specificity such that one co-chaperone may promote folding of a substrate while another may promote degradation. The affinity for polypeptides is regulated by its nucleotide bound state. In the ATP-bound form, it has a low affinity for substrate proteins. However, upon hydrolysis of the ATP to ADP, it undergoes a conformational change that increases its affinity for substrate proteins. It goes through repeated cycles of ATP hydrolysis and nucleotide exchange, which permits cycles of substrate binding and release. The co-chaperones are of three types: J-domain co-chaperones such as HSP40s (stimulate ATPase hydrolysis by HSP70), the nucleotide exchange factors (NEF) such as BAG1/2/3 (facilitate conversion of HSP70 from the ADP-bound to the ATP-bound state thereby promoting substrate release), and the TPR domain chaperones such as HOPX and STUB1 (PubMed:24012426, PubMed:24318877, PubMed:26865365). Maintains protein homeostasis during cellular stress through two opposing mechanisms: protein refolding and degradation. Its acetylation/deacetylation state determines whether it functions in protein refolding or protein degradation by controlling the competitive binding of co-chaperones HOPX and STUB1. During the early stress response, the acetylated form binds to HOPX which assists in chaperone-mediated protein refolding, thereafter, it is deacetylated and binds to ubiquitin ligase STUB1 that promotes ubiquitin-mediated protein degradation (PubMed:27708256). Regulates centrosome integrity during mitosis, and is required for the maintenance of a functional mitotic centrosome that supports the assembly of a bipolar mitotic spindle (PubMed:27137183). Enhances STUB1-mediated SMAD3 ubiquitination and degradation and facilitates STUB1-mediated inhibition of TGF-beta signaling (PubMed:24613385). Essential for STUB1-mediated ubiquitination and degradation of FOXP3 in regulatory T-cells (Treg) during inflammation (PubMed:23973223). Required as a co-chaperone for optimal STUB1/CHIP ubiquitination of NFATC3 (By similarity). Negatively regulates heat shock-induced HSF1 transcriptional activity during the attenuation and recovery phase period of the heat shock response (PubMed:9499401). Involved in the clearance of misfolded PRDM1/Blimp-1 proteins. Sequesters them in the cytoplasm and promotes their association with SYNV1/HRD1, leading to proteasomal degradation (PubMed:28842558).

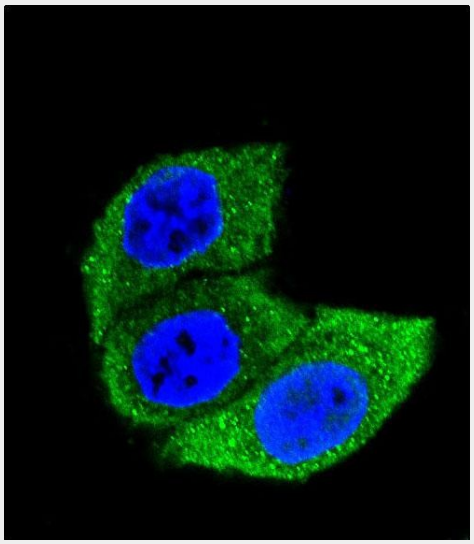
Cellular Location
Cytoplasm. Nucleus. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Secreted {ECO:0000250|UniProtKB:Q61696}. Note=Localized in cytoplasmic mRNP granules containing untranslated mRNAs

HSPA1A Antibody - Protocols

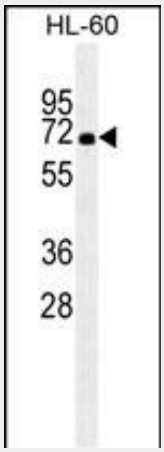
Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

HSPA1A Antibody - Images



Confocal immunofluorescent analysis of HSPA1A Antibody (Cat#AM1877b) with Hela cell followed by Alexa Fluor® 488-conjugated goat anti-mouse IgG (green). DAPI was used to stain the cell nuclear (blue).



HSPA1A antibody (Cat. #AM1877b) western blot analysis in HL-60 cell line lysates (35µg/lane).This demonstrates the HSPA1A antibody detected the HSPA1A protein (arrow).

HSPA1A Antibody - Background

This intronless gene encodes a 70kDa heat shock protein which is a member of the heat shock protein 70 family. In conjuction with other heat shock proteins, this protein stabilizes existing proteins against aggregation and mediates the folding of newly translated proteins in the cytosol and in organelles. It is also involved in the ubiquitin-proteasome pathway through interaction with the AU-rich element RNA-binding protein 1. The gene is located in the major histocompatibility complex class III region, in a cluster with two closely related genes which encode similar proteins.

HSPA1A Antibody - References

Wang, Y., et al. Clin. Chem. Lab. Med. 48(11):1657-1663(2010)
Eisenberg, D.P., et al. Surgery 148(2):325-334(2010)

Rusai, K., et al. Transplant. Proc. 42(6):2309-2311(2010)
Ebrahimi, M., et al. Mol. Vis. 16, 1680-1688 (2010) :
Lanneau, D., et al. ScientificWorldJournal 10, 1543-1552 (2010) :