10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

HSPA5 Antibody

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP1335A

Product Information

Application	WB, IHC-P, IF, FC, E
Primary Accession	P11021
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	72333

Additional Information

Gene ID	3309
Other Names	78 kDa glucose-regulated protein, GRP-78, Endoplasmic reticulum lumenal Ca(2+)-binding protein grp78, Heat shock 70 kDa protein 5, Immunoglobulin heavy chain-binding protein, BiP, HSPA5, GRP78
Target/Specificity	This HSPA5 antibody is generated from rabbits immunized with a recombinant protein encoding full length human HSPA5.
Dilution	WB~~1:1000 IHC-P~~1:100~500 IF~~1:10~50 FC~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation 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	HSPA5 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	HSPA5 (HGNC:5238)
Function	Endoplasmic reticulum chaperone that plays a key role in protein folding and quality control in the endoplasmic reticulum lumen (PubMed:2294010, PubMed:23769672, PubMed:23990668, PubMed:28332555). Involved in the correct folding of proteins and degradation of misfolded proteins via its interaction with DNAJC10/ERdj5, probably to facilitate the release of DNAJC10/ERdj5 from its substrate (By similarity). Acts as a key repressor of

	the EIF2AK3/PERK and ERN1/IRE1- mediated unfolded protein response (UPR) (PubMed:11907036, PubMed:1550958, PubMed:19538957, PubMed:36739529). In the unstressed endoplasmic reticulum, recruited by DNAJB9/ERdj4 to the luminal region of ERN1/IRE1, leading to disrupt the dimerization of ERN1/IRE1, thereby inactivating ERN1/IRE1 (By similarity). Also binds and inactivates EIF2AK3/PERK in unstressed cells (PubMed:11907036). Accumulation of misfolded protein in the endoplasmic reticulum causes release of HSPA5/BiP from ERN1/IRE1 and EIF2AK3/PERK, allowing their homodimerization and subsequent activation (PubMed:11907036). Plays an auxiliary role in post-translational transport of small presecretory proteins across endoplasmic reticulum (ER). May function as an allosteric modulator for SEC61 channel-forming translocon complex, likely cooperating with SEC62 to enable the productive insertion of these precursors into SEC61 channel. Appears to specifically regulate translocation of precursors having inhibitory residues in their mature region that weaken channel gating. May also play a role in apoptosis and cell proliferation (PubMed:26045166).
Cellular Location	Endoplasmic reticulum lumen. Melanosome. Cytoplasm {ECO:0000250|UniProtKB:P20029}. Cell surface Note=Identified by mass spectrometry in melanosome fractions from stage I to stage IV (PubMed:12643545). Localizes to the cell surface of epithelial cells in response to high levels of free iron (PubMed:20484814, PubMed:24355926, PubMed:27159390)

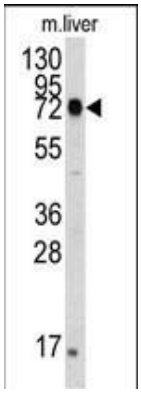
Background

In cooperation with other chaperones, HSP70s stabilize preexistent proteins against aggregation and mediate the folding of newly translated polypeptides in the cytosol as well as within organelles. The HSP70s in mitochondria and the endoplasmic reticulum play an additional role by providing a driving force for protein translocation. They are involved in signal transduction pathways in cooperation with HSP90. They participate in all these processes through their ability to recognize nonnative conformations of other proteins. They bind extended peptide segments with a net hydrophobic character exposed by polypeptides during translation and membrane translocation, or following stress-induced damage.

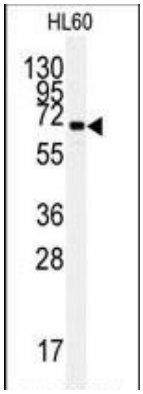
References

Strausberg, R.L., et al., Proc. Natl. Acad. Sci. U.S.A. 99(26):16899-16903 (2002). Milner, C.M., et al., Immunogenetics 32(4):242-251 (1990). Sargent, C.A., et al., Proc. Natl. Acad. Sci. U.S.A. 86(6):1968-1972 (1989). Drabent, B., et al., Nucleic Acids Res. 14(22):8933-8948 (1986). Hunt, C., et al., Proc. Natl. Acad. Sci. U.S.A. 82(19):6455-6459 (1985).

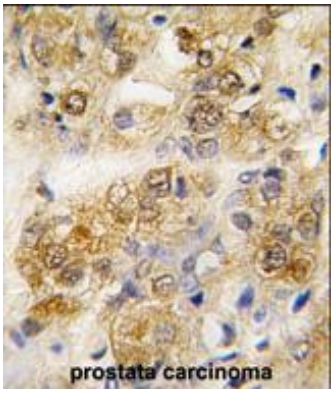
Images



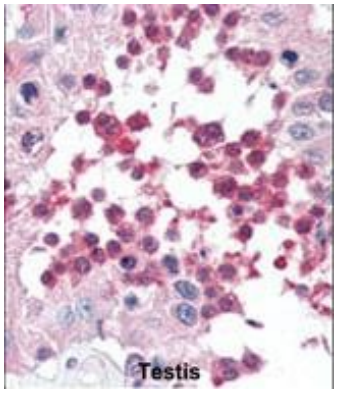
The anti-HSPA5 Pab (Cat. #AP1335a) is used in Western blot to detect HSPA5 in mouse liver tissue lysate. HSPA5 (arrow) was detected using the purified Pab.



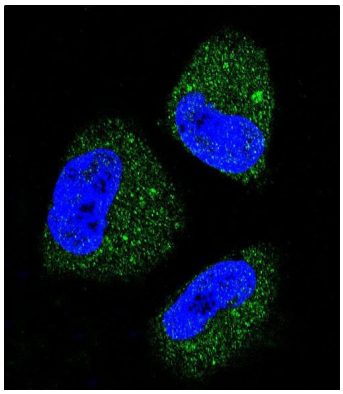
Western blot analysis of anti-HSPA5 Pab (Cat. #AP1335a) in HL60 cell line lysates (35ug/lane).HSPA5(arrow) was detected using the purified Pab.



Formalin-fixed and paraffin-embedded human prostata carcinoma tissue reacted with HSPA5 antibody (Cat.#AP1335a), which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.

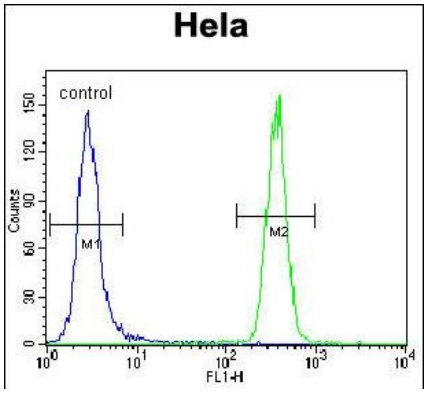


Formalin-fixed and paraffin-embedded human Testis tissue reacted with HSPA5 antibody (Cat.#AP1335a), which was peroxidase-conjugated to the secondary antibody, followed by AEC staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.



Confocal immunofluorescent analysis of HSPA5 Antibody(Cat#AP1335a) with NCI-H460 cell followed by Alexa Fluor 488-conjugated goat anti-rabbit lgG (green). DAPI was used to stain the cell nuclear (blue).

HSPA5 Antibody (Cat. #AP1335a) flow cytometric analysis of Hela cells (right histogram) compared to a negative control cell (left histogram).FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.



Citations

- Atorvastatin ameliorates early brain injury through inhibition of apoptosis and ER stress in a rat model of subarachnoid hemorrhage.
- GRP78 enabled micelle-based glioma targeted drug delivery.
- The endoplasmic reticulum chaperone BiP/GRP78 is important in the structure and function of the human cytomegalovirus assembly compartment.