

HSPA5 Antibody
Purified Mouse Monoclonal Antibody
Catalog # AO1381a**Specification**

HSPA5 Antibody - Product Information

Application	WB, IHC, E
Primary Accession	P11021
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Isotype	IgG1
Calculated MW	78kDa KDa

Description

When Chinese hamster K12 cells are starved of glucose, the synthesis of several proteins, called glucose-regulated proteins (GRPs), is markedly increased. Hendershot et al. (1994) (PubMed 8020977) pointed out that one of these, GRP78 (HSPA5), also referred to as 'immunoglobulin heavy chain-binding protein' (BiP), is a member of the heat-shock protein-70 (HSP70) family and is involved in the folding and assembly of proteins in the endoplasmic reticulum (ER). Because so many ER proteins interact transiently with GRP78, it may play a key role in monitoring protein transport through the cell. Probably plays a role in facilitating the assembly of multimeric protein complexes inside the ER. The HSP70 proteins are ubiquitous molecular chaperones that are found in all organisms and tissue types. Like other members of the HSP70 family, BiP is a peptide-binding ATPase that is able to differentiate native proteins from unfolded polypeptides. BiP does not bind to fully folded and assembled proteins, except in the presence of other co-chaperones. BiP is involved in a number of key mechanisms and pathways including polypeptide translocation across the endoplasmic reticulum, folding, assembly, transport of secreted or membrane proteins, and the regulation of calcium homeostasis. Although BiP is relatively abundant, marked increases in BiP occur where there is an accumulation of unfolded polypeptides. For this reason, BiP has been identified as a marker for various disease states that are associated with secretory and transmembrane protein misfolding.

Immunogen

Purified recombinant fragment of human HSPA5 expressed in E. Coli.

Formulation

Ascitic fluid containing 0.03% sodium azide.

HSPA5 Antibody - 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

Dilution

WB~~1/500 - 1/2000

IHC~~1/200 - 1/1000
E~~N/A

Storage

Maintain refrigerated at 2-8°C for up to 6 months. 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.

HSPA5 Antibody - 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)

HSPA5 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 Cytometry](#)
- [Cell Culture](#)

HSPA5 Antibody - Images

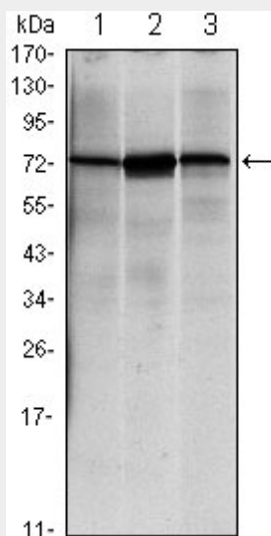


Figure 1: Western blot analysis using HSPA5 mouse mAb against NIH/3T3 (1), HeLa (2) and Jurkat (3) cell lysate.

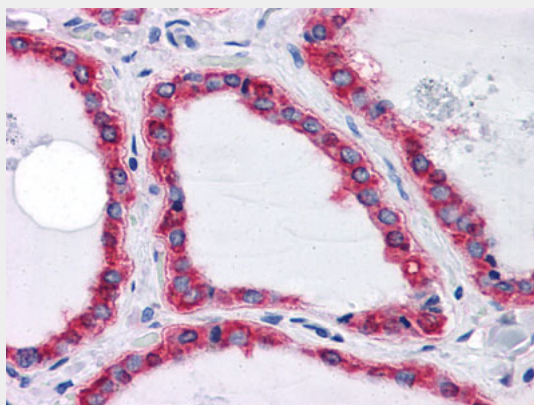


Figure 2: Immunohistochemical analysis of paraffin-embedded human Thyroid tissues using HSPA5 mouse mAb

HSPA5 Antibody - References

1. Int J Cancer. 2010 Apr 1;126(7):1562-9. 2. J Virol. 2009 Dec;83(23):12622-5. 3. Mod Pathol. 2010 Jan;23(1):45-53.