

HSPA5 Antibody

Purified Mouse Monoclonal Antibody Catalog # AO1381a

Product Information

Application WB, IHC, E **Primary Accession** P11021 Reactivity Human Host Mouse Clonality Monoclonal

Clone Names 4E3 Isotype IgG1 72333 **Calculated MW**

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 chaparones 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-chaparones. 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.

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.

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

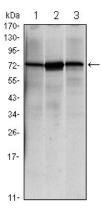
Endoplasmic reticulum lumen. Melanosome. Cytoplasm {ECO:0000250 | UniProtKB:P20029}. Cell surface Note=Identified by mass spectrometry in melanosome fractions from stage I to stage IV (PubMed:12643545). Localizes to the cell surface of epithelial cells in response to high levels of free iron (PubMed:20484814, PubMed:24355926, PubMed:27159390)

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.

Images

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



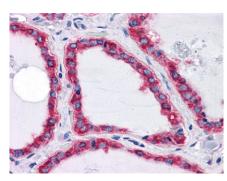


Figure 2: Immunohistochemical analysis of paraffin-embedded human Thyroid tissues using HSPA5 mouse mAb

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