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HSPD1 Antibody (Center)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AW5147

Product Information

Application	IF, WB
Primary Accession	P10809
Other Accession	P63039, P63038, P18687, Q5ZL72, P31081
Reactivity	Mouse, Rat, Human
Predicted	Rat, Hamster, Bovine
Host	Rabbit
Clonality	Polyclonal
Calculated MW	61055
Isotype	Rabbit IgG
Antigen Source	HUMAN

Additional Information

Gene ID	3329
Antigen Region	187-215
Other Names	HSPD1; HSP60; 60 kDa heat shock protein, mitochondrial; 60 kDa chaperonin; Chaperonin 60; Heat shock protein 60; HuCHA60; Mitochondrial matrix protein P1; P60 lymphocyte protein
Dilution	IF~~1:10~50 WB~~1:1000
Target/Specificity	This HSPD1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 187-215 amino acids from the Central region of human HSPD1.
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	HSPD1 Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	HSPD1

Synonyms	HSP60
Function	Chaperonin implicated in mitochondrial protein import and macromolecular assembly. Together with Hsp10, facilitates the correct folding of imported proteins. May also prevent misfolding and promote the refolding and proper assembly of unfolded polypeptides generated under stress conditions in the mitochondrial matrix (PubMed:11422376, PubMed:1346131). The functional units of these chaperonins consist of heptameric rings of the large subunit Hsp60, which function as a back- to-back double ring. In a cyclic reaction, Hsp60 ring complexes bind one unfolded substrate protein per ring, followed by the binding of ATP and association with 2 heptameric rings of the co-chaperonin Hsp10. This leads to sequestration of the substrate protein in the inner cavity of Hsp60 where, for a certain period of time, it can fold undisturbed by other cell components. Synchronous hydrolysis of ATP in all Hsp60 subunits results in the dissociation of the chaperonin rings and the release of ADP and the folded substrate protein (Probable).
Cellular Location	Mitochondrion matrix.

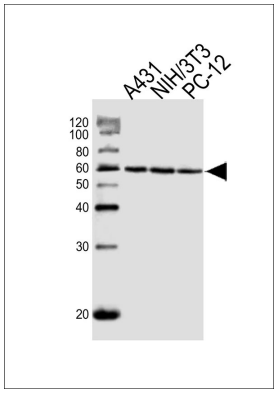
Background

HSPD1 is a member of the chaperonin family. This protein may function as a signaling molecule in the innate immune system. The protein is essential for the folding and assembly of newly imported proteins in the mitochondria. The protein is adjacent to a related family member and the region between the 2 genes functions as a bidirectional promoter.

References

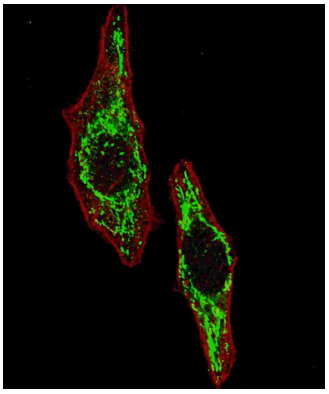
References for protein:
1.Venner T.J., Singh B., Gupta R.S.DNA Cell Biol. 9:545-552(1990)
2.Hansen J.J., Bross P., Westergaard M., Nielsen M.N., Eiberg H.,Hum. Genet. 112:71-77(2003)
3.Rasmussen R.K., Ji H., Eddes J.S., Moritz R.L.,Electrophoresis 18:588-598(1997)
4.Aboulaich N., Vainonen J.P., Stralfors P., Vener A.V.Biochem. J. 383:237-248(2004)
References for U251 cell line:
1. Westermark B.; Pontén J.; Hugosson R. (1973).” Determinants for the establishment of permanent tissue culture lines from human gliomas”. Acta Pathol Microbiol Scand A. 81:791-805. [PMID: 4359449].
2. Pontén, J.,Westermark B. (1978).” Properties of Human Malignant Glioma Cells in Vitro”. Medical Biology 56: 184-193.[PMID: 359950].

Images

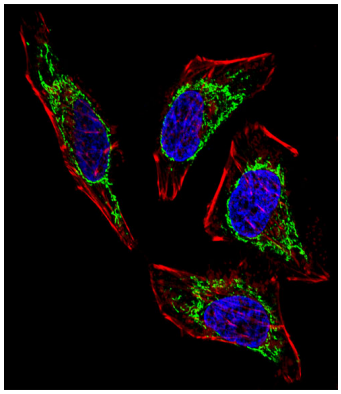


Western blot analysis of lysates from A431,mouse NIH/3T3,rat PC-12 cell line (from left to right), using HSPD1 Antibody (Center)(Cat. #AW5147). AW5147 was diluted at 1:1000 at each lane. A goat anti-rabbit IgG H&L(HRP) at 1:10000 dilution was used as the secondary antibody.Lysates at 20ug per lane.

Fluorescent image of U251 cells stained with HSPD1 (Center) antibody. U251 cells were fixed with 4% PFA (20



min), permeabilized with Triton X-100 (0.2%, 30 min). Cells were then incubated with AP2859C HSPD1 (Center) primary antibody (1:100, 2 h at room temperature). For secondary antibody, Alexa Fluor® 488 conjugated donkey anti-rabbit antibody (green) was used (1:1000, 1h). Cytoplasmic actin was counterstained with Alexa Fluor® 555 (red) conjugated Phalloidin (5.25 μM, 25 min). Pictures were taken on a Biorevo microscope (BZ-900, Keyence). Note the highly specific localization of the HSPD1 mainly to the mitochondria, supported by Human Protein Atlas Data (http://www.proteinatlas.org/ENSG00000144381).



Fluorescent confocal image of Hela cell stained with HSPD1 Antibody (Center)(Cat#AW5147). Hela cells were fixed with 4% PFA (20 min), permeabilized with Triton X-100 (0.1%, 10 min), then incubated with HSPD1 primary antibody (1:25, 1 h at 37℃). For secondary antibody, Alexa Fluor® 488 conjugated donkey anti-rabbit antibody (green) was used (1:400, 50 min at 37℃).Cytoplasmic actin was counterstained with Alexa Fluor® 555 (red) conjugated Phalloidin (7units/ml, 1 h at 37℃). Nuclei were counterstained with DAPI (blue) (10 μg/ml, 10 min). HSPD1 immunoreactivity is localized to Mitochondria significantly.