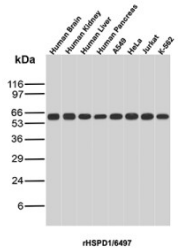
HSPD1 Antibody / Heat Shock Protein Family D Member 1 Antibody [clone rHSPD1/6497] (V9307)

Catalog No.	Formulation	Size
V9307-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V9307-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V9307SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

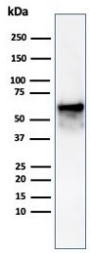
Recombinant MOUSE MONOCLONAL

Bulk quote request

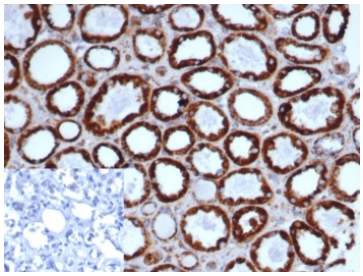
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Purified
Host	Mouse
Clonality	Recombinant Mouse Monoclonal
Isotype	Mouse IgG1, kappa
Clone Name	rHSPD1/6497
Purity	Protein A/G affinity
UniProt	P10809
Localization	Cytoplasm
Applications	Western blot: 1-2ug/ml Immunohistochemistry (FFPE): 1-2ug/ml
Limitations	This HSPD1 Antibody / Heat Shock Protein Family D Member 1 Antibody is available for research use only.



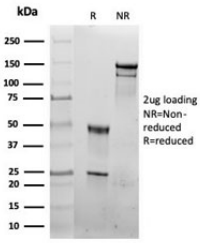
HSPD1 Antibody / Heat Shock Protein Family D Member 1 Antibody Multi-Species Tissue Expression WB. Western blot testing of brain, kidney and pancreas tissue lysates from human, mouse, rat, hamster, guinea pig and rabbit with HSPD1 Antibody clone rHSPD1/6497 shows a strong predominant band at approximately 60 kDa across all tested samples. The observed band is consistent with the expected molecular weight of HSP60 and demonstrates broad recognition of mammalian HSPD1 across multiple species and tissue types.



HSPD1 Antibody in Hep-2 Human Carcinoma Cells WB. Western blot testing of human Hep-2 carcinoma cell lysate with HSPD1 Antibody clone rHSPD1/6497 shows a strong predominant band at approximately 60 kDa, consistent with the predicted molecular weight of HSP60.



HSPD1 Antibody / Heat Shock Protein Family D Member 1 Antibody in Human Kidney IHC. Immunohistochemistry staining of FFPE human kidney tissue with HSPD1 Antibody clone rHSPD1/6497 shows strong granular cytoplasmic staining of renal tubular epithelial cells, consistent with the mitochondrial localization of HSP60. The negative control inset shows minimal background staining. Heat-induced epitope retrieval was performed by boiling sections in pH 9 10 mM Tris with 1 mM EDTA for 20 min followed by cooling before testing.



Purified HSPD1 Antibody rHSPD1/6497 SDS-PAGE. SDS-PAGE analysis of 2 ug purified, BSA-free HSPD1 Antibody clone rHSPD1/6497 under non-reduced (NR) and reduced (R) conditions demonstrates the integrity and purity of the recombinant mouse monoclonal antibody preparation. Reduction produces the expected immunoglobulin heavy- and light-chain bands at approximately 50 kDa and 25 kDa, while the non-reduced antibody migrates predominantly above 100 kDa.

Description

HSPD1 Antibody / Heat Shock Protein Family D Member 1 Antibody recognizes HSPD1, a highly conserved molecular chaperone that is a major component of the mitochondrial protein-folding machinery. The HSPD1 gene encodes heat shock protein 60 (HSP60), a member of the group I chaperonin family. Within the mitochondrial matrix, HSPD1 works closely with the co-chaperonin HSP10 to assist newly imported and stress-damaged proteins in attaining their proper functional conformations.

HSPD1 is synthesized in the cytosol as a precursor containing an N-terminal mitochondrial targeting sequence. Following transport into the mitochondrial matrix, this sequence is removed to produce mature HSP60. HSPD1 subunits assemble into oligomeric chaperonin complexes that undergo ATP-dependent conformational changes during successive cycles of protein folding. This process is important for mitochondrial proteostasis because most mitochondrial proteins are encoded by nuclear genes, synthesized in the cytosol, and subsequently imported into the organelle.

In addition to its essential role in mitochondrial protein folding, HSPD1 has been studied in cellular responses to physiological and environmental stress. Changes in HSP60 expression, localization, or activity have been associated with oxidative stress, mitochondrial dysfunction, inflammation, immune responses, neurodegeneration, and cancer. These diverse biological relationships make HSPD1 relevant to research involving mitochondrial homeostasis, protein quality control, cellular stress, and disease-associated processes.

HSPD1 is evolutionarily related to bacterial GroEL and other group I chaperonins. The substantial conservation among these proteins has generated interest in HSP60 biology in the context of immune recognition and host-pathogen interactions. Antibodies can differ in their ability to recognize mammalian HSPD1 and bacterial chaperonins, making target selectivity an important consideration when experiments involve microbial proteins or samples.

Clone rHSPD1/6497 recognizes mammalian HSP60 without recognizing bacterial HSP60, providing a useful distinction for studies requiring selective detection of the mammalian chaperonin. Its epitope is located within amino acids 383-447

of human HSP60. This specificity complements antibodies capable of broader cross-species or bacterial chaperonin recognition.

NSJ Bioreagents offers clone rHSPD1/6497 as a recombinant monoclonal reagent for investigating mitochondrial chaperone biology and protein homeostasis. An HSPD1 Antibody can support research into the molecular and cellular functions of Heat Shock Protein Family D Member 1.

For a recombinant, Protein Microarray Validated option with broad mammalian species validation, see our HSP60 Antibody / Heat Shock Protein 60 Antibody page.

Application Notes

Optimal dilution of the HSPD1 Antibody / Heat Shock Protein Family D Member 1 Antibody should be determined by the researcher.

Immunogen

Recombinant human full-length HSP60 protein was used as the immunogen for the HSPD1 Antibody. Its epitope is localized between amino acids 383-447 of human hsp60.

Storage

Aliquot the recombinant HSPD1 Antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Alternate Names

HSPD1 antibody, HSP60 antibody, Mitochondrial HSP60 antibody, Heat shock protein 60 antibody, 60 kDa heat shock protein mitochondrial antibody, Chaperonin 60 antibody, CPN60 antibody, HSP65 antibody

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