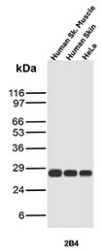
HSPB1 Antibody / Heat shock protein beta 1 [clone r2B4] (V5913)

Catalog No.	Formulation	Size
V5913-100UG	0.2 mg/ml in 1X PBS with 0.05% BSA, 0.05% sodium azide	100 ug
V5913-20UG	0.2 mg/ml in 1X PBS with 0.05% BSA, 0.05% sodium azide	20 ug
V5913SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

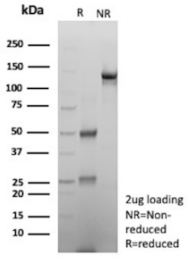
Recombinant MOUSE MONOCLONAL

Bulk quote request

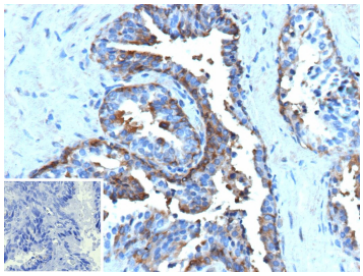
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Recombinant Mouse Monoclonal
Isotype	Mouse IgG2a, kappa
Clone Name	r2B4
UniProt	P04792
Localization	Cytoplasm, Nucleus
Applications	Immunohistochemistry (FFPE) : 1-2ug/ml Western Blot : 2-4ug/ml
Limitations	This HSPB1/Heat shock protein beta 1 antibody is available for research use only.



Western blot analysis of human skeletal muscle tissue lysate, human skin tissue lysate, and human HeLa cell lysate probed with recombinant HSPB1/Heat shock protein beta 1 antibody (clone r2B4). A single band is detected at the predicted molecular weight of approximately 27 kDa, consistent with Heat shock protein beta 1 expression across muscle, epithelial tissue, and cultured cells. The observed band pattern supports specific detection of HSPB1 in multiple human sample types.



SDS-PAGE Analysis of purified recombinant HSPB1/Heat shock protein beta 1 antibody (clone r2B4). Confirmation of Purity and Integrity of Antibody.



Formalin-fixed, paraffin-embedded human prostate stained with recombinant HSPB1/Heat shock protein beta 1 antibody (clone r2B4). Prostatic epithelial cells show cytoplasmic brown chromogenic staining consistent with HSPB1 expression, while surrounding stromal cells display minimal signal. Nuclei are counterstained blue. Inset shows a PBS-only negative control processed without primary antibody, demonstrating minimal non-specific background staining.

Description

HSPB1 antibody targets Heat shock protein beta 1, a small heat shock protein encoded by the HSPB1 gene that functions as a molecular chaperone involved in cellular stress responses. Heat shock protein beta 1 is primarily localized in the cytoplasm but can dynamically redistribute to the nucleus or associate with cytoskeletal structures depending on cellular conditions. It plays a critical role in protecting cells from stress-induced damage by preventing protein aggregation, stabilizing unfolded proteins, and supporting protein refolding processes. As a result, an HSPB1 antibody is widely used in studies of cellular stress, apoptosis, and proteostasis.

Heat shock protein beta 1 is also commonly referred to as Hsp27 and is a member of the small heat shock protein family. These proteins share a conserved alpha-crystallin domain that mediates oligomerization and chaperone activity. HSPB1 forms dynamic oligomeric complexes whose size and function are regulated by phosphorylation at multiple serine residues. These phosphorylation-dependent changes influence its interactions with client proteins, cytoskeletal elements, and signaling molecules. Use of an HSPB1 antibody enables investigation of stress-induced signaling pathways and chaperone-mediated protein regulation.

Beyond its role in protein quality control, Heat shock protein beta 1 contributes to regulation of apoptosis, actin cytoskeleton dynamics, and cellular motility. HSPB1 interacts with actin filaments and intermediate filaments, helping maintain cytoskeletal integrity during stress conditions such as heat shock, oxidative stress, and inflammation. By modulating apoptotic signaling cascades, HSPB1 can promote cell survival under adverse conditions. An HSPB1 antibody is therefore valuable for studies examining cell survival mechanisms and stress adaptation.

Altered expression of Heat shock protein beta 1 has been reported in numerous diseases, including cancer, neurodegenerative disorders, and cardiovascular disease. In many tumor types, elevated HSPB1 expression correlates with increased resistance to apoptosis, enhanced metastatic potential, and reduced sensitivity to chemotherapy. Conversely, dysregulation of HSPB1 in neurons has been linked to impaired protein homeostasis and neurodegeneration. Antibody-based detection of HSPB1 supports research into disease mechanisms, biomarker discovery, and therapeutic resistance.

Heat shock protein beta 1 is broadly expressed across tissues, with expression levels increasing in response to cellular stress. Because HSPB1 integrates stress signaling, cytoskeletal regulation, and cell survival pathways, it serves as a key indicator of cellular stress status. Clone r2B4 is designed to recognize Heat shock protein beta 1 and supports detection of HSPB1 expression in research applications. NSJ Bioreagents offers this HSPB1 antibody to support investigations into stress response pathways, cancer biology, and cell survival mechanisms.

Application Notes

1. Optimal dilution of the HSPB1/Heat shock protein beta 1 antibody should be determined by the researcher.

2. This HSPB1/Heat shock protein beta 1 antibody is recombinantly produced by expression in CHO cells.

Immunogen

Prokaryotic recombinant protein corresponding to the full length human heat shock protein 27 molecule was used as the

immunogen for the HSPB1/Heat shock protein beta 1 antibody.

Storage

HSPB1/Heat shock protein beta 1 antibody with sodium azide - store at 2 to 8oC; antibody without sodium azide - store at -20 to -80oC.