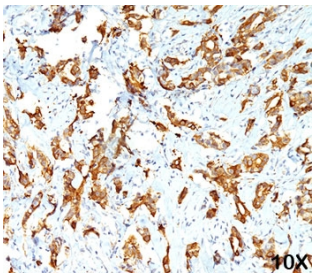
HSP27 Antibody G3.1 / Heat Shock Protein 27 Antibody [clone G3.1] (V2134)

Catalog No.	Formulation	Size
V2134-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	100 ug
V2134-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	20 ug
V2134SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug
V2134IHC-7ML	Prediluted in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide; *For IHC use only*	7 ml

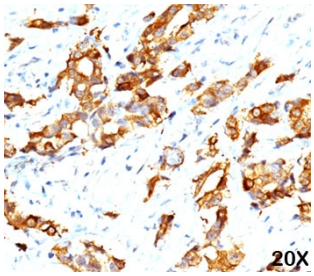
Citations (8)

Bulk quote request

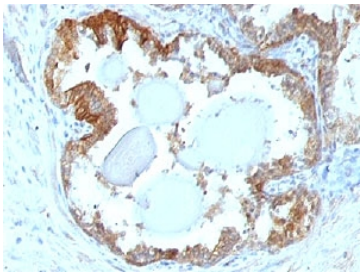
Species Reactivity	Human, Mouse, Rat
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG1, kappa
Clone Name	G3.1
Purity	Protein G affinity chromatography
Buffer	1X PBS, pH 7.4
UniProt	P04792
Localization	Predominantly cytoplasmic with some nuclear
Applications	Flow cytometry: 1-2ug/10^6 cells Immunofluorescence: 1-2ug/ml Western blot: 1-2ug/ml Immunohistochemistry (FFPE): 1-2ug/ml for 30 min at RT
Limitations	This HSP27 Antibody G3.1 / Heat Shock Protein 27 Antibody is available for research use only.



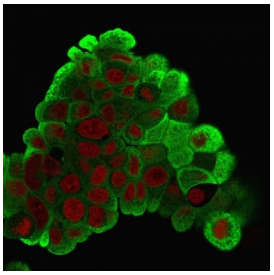
HSP27 Antibody G3.1 Staining of Human Breast Carcinoma IHC. Immunohistochemistry testing of FFPE human breast carcinoma tissue with HSP27 Antibody clone G3.1 shows strong brown immunoreactivity in tumor cells, with predominantly cytoplasmic staining. HIER was performed by boiling tissue sections in pH 9, 10 mM Tris with 1 mM EDTA for 10-20 min followed by cooling at RT for 20 min before antibody testing.



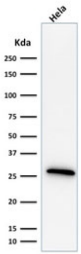
HSP27 Antibody G3.1 Staining of Human Breast Carcinoma at Higher Magnification IHC. Immunohistochemistry testing of FFPE human breast carcinoma tissue with HSP27 Antibody clone G3.1 at 20X magnification demonstrates prominent HSP27 immunoreactivity within the malignant epithelial cells, with predominantly cytoplasmic staining. HIER was performed by boiling tissue sections in pH 9, 10 mM Tris with 1 mM EDTA for 10-20 min followed by cooling at RT for 20 min before antibody testing.



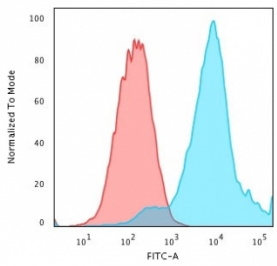
HSP27 Antibody G3.1 Staining of Human Prostate Carcinoma IHC. Immunohistochemistry testing of FFPE human prostate carcinoma tissue with HSP27 Antibody clone G3.1 shows brown immunoreactivity within the carcinoma cells, with a predominantly cytoplasmic staining pattern. HIER was performed by boiling tissue sections in pH 9, 10 mM Tris with 1 mM EDTA for 10-20 min followed by cooling at RT for 20 min before antibody testing.



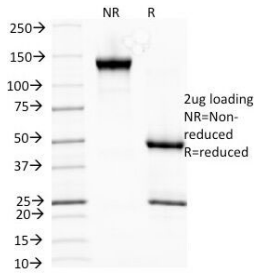
HSP27 Antibody G3.1 Staining of MCF7 Breast Cancer Cells IF. Immunofluorescence staining of PFA-fixed human MCF7 breast cancer cells with HSP27 Antibody clone G3.1 shows green HSP27 signal predominantly throughout the cytoplasm, surrounding nuclei labeled with red Reddot nuclear stain.



HSP27 Antibody G3.1 Detection in HeLa Cervical Cancer Cells WB. Western blot testing of human HeLa cervical cancer cell lysate with HSP27 Antibody clone G3.1 shows a prominent band within the expected 24-29 kDa molecular weight range of HSPB1/HSP27.



HSP27 Antibody G3.1 Detection in MCF7 Breast Cancer Cells FACS. Flow cytometry testing of PFA-fixed human MCF7 breast cancer cells with HSP27 Antibody clone G3.1 shows a rightward fluorescence shift of the antibody-stained population (blue) relative to the isotype control (red), demonstrating detection of intracellular HSP27.



Purified HSP27 Antibody G3.1 SDS-PAGE. SDS-PAGE analysis of purified, BSA-free HSP27 Antibody clone G3.1 under non-reducing and reducing conditions demonstrates the expected electrophoretic profile of purified mouse IgG, with reduction producing the characteristic immunoglobulin heavy and light chain bands at approximately 50 and 25 kDa, respectively.

Description

HSP27 Antibody G3.1 / Heat Shock Protein 27 Antibody recognizes HSPB1, a small heat shock protein widely known as HSP27. HSP27 is an ATP-independent molecular chaperone involved in maintaining protein homeostasis and protecting cells from environmental and physiological stress. Through interactions with destabilized proteins, HSP27 can limit inappropriate protein aggregation and contribute to cellular mechanisms responsible for preserving proteome integrity.

HSP27 contains a conserved alpha-crystallin domain characteristic of the small heat shock protein family. Unlike ATP-dependent molecular chaperones, HSP27 can associate with partially unfolded client proteins without requiring ATP hydrolysis. These interactions help maintain vulnerable proteins in states that permit subsequent refolding or degradation by other components of the cellular protein quality-control machinery. HSP27 also forms dynamic oligomeric complexes whose size and organization can change in response to phosphorylation and cellular conditions.

Heat Shock Protein 27 participates in cellular responses to heat shock, oxidative stress and other challenges that disrupt normal protein stability. Its biological activities extend beyond molecular chaperoning and include regulation of cytoskeletal organization, apoptosis and cell survival. Phosphorylation-dependent changes in HSP27 organization and interactions allow the protein to respond dynamically to stress signaling and alterations in the intracellular environment.

HSP27 has been extensively investigated in cancer biology. Increased HSPB1 expression has been reported in numerous tumor types and has been studied in relation to cellular survival, metastatic behavior, resistance to apoptosis and responses to anticancer treatments. HSP27 is also relevant to neurological research, as pathogenic variants in HSPB1 are associated with inherited peripheral neuropathies. These diverse functions have made HSPB1/HSP27 an important target in studies of proteostasis, stress biology and disease mechanisms.

NSJ Bioreagents offers this mouse monoclonal HSP27 Antibody as clone G3.1. This established clone has been used extensively in published research investigating HSP27/HSPB1 expression and biology. An HSP27 Antibody provides a research tool for investigating small heat shock protein function, molecular chaperone activity, cellular stress responses and HSPB1-associated disease biology.

For an additional monoclonal antibody to HSPB1 with Protein Microarray Validated specificity data, see our HSPB1 Antibody / Heat Shock Protein Beta-1 Antibody page.

Application Notes

The concentration stated for each application is a general starting point. Variations in protocols, secondaries and substrates may require the HSP27 Antibody G3.1 / Heat Shock Protein 27 Antibody to be titered up or down for optimal performance.

1. Staining of formalin-fixed tissues is enhanced by boiling tissue sections in pH 9 10mM Tris with 1mM EDTA for 10-20 min followed by cooling at RT for 20 minutes.
2. The prediluted format is supplied in a dropper bottle and is optimized for use in IHC. After epitope retrieval step (if required), drip mAb solution onto the tissue section and incubate at RT for 30 min.

Immunogen

Partially purified human HSP27 (earlier called 24K) from breast cancer MCF-7 cells was used as the immunogen for this antibody.

Storage

Store the HSP27 antibody at 2-8oC (with azide) or aliquot and store at -20oC or colder (without azide).

Alternate Names

HSPB1 antibody, Heat shock protein beta-1 antibody, Heat shock 27 kDa protein antibody, HSP28 antibody, HSP25 antibody, Stress-responsive protein 27 antibody, SRP27 antibody

References (1)

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