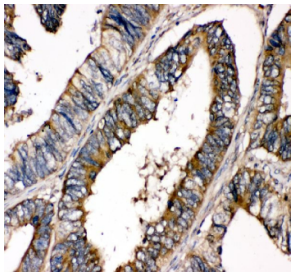
SHP-2 Antibody / PTPN11 (R32193)

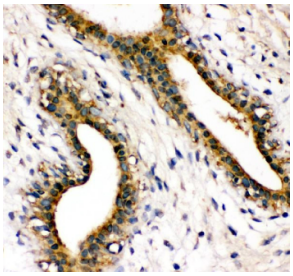
Catalog No.	Formulation	Size
R32193	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

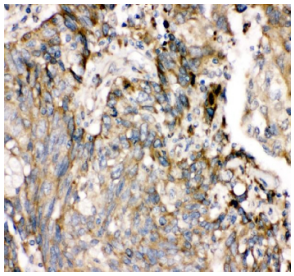
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2.5% BSA and 0.025% sodium azide
UniProt	Q06124
Localization	Cytoplasm, Nucleus
Applications	Western Blot : 0.5-1ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml
Limitations	This SHP-2 antibody is available for research use only.



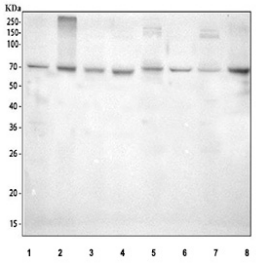
Immunohistochemical staining of FFPE human colon cancer tissue with SHP-2 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Immunohistochemical staining of FFPE human breast cancer tissue with SHP-2 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Immunohistochemical staining of FFPE human lung cancer tissue with SHP-2 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Western blot testing of 1) human Jurkat, 2) human CCRF-CEM, 3) human Raji, 4) human PC-3, 5) rat brain, 6) rat C6, 7) mouse brain and 8) mouse 3T3-L1 lysate with SHP-2 antibody. Expected/observed molecular weight: ~68 kDa.

Description

SHP-2 antibody detects the Src homology region 2 domain-containing phosphatase-2, encoded by the PTPN11 gene, a ubiquitously expressed cytoplasmic tyrosine phosphatase that regulates signal transduction downstream of multiple growth factor, cytokine, and hormone receptors. The UniProt recommended name is Tyrosine-protein phosphatase non-receptor type 11 (PTPN11). SHP-2 is characterized by two SH2 domains and a catalytic phosphatase domain, which together control its autoinhibition and substrate specificity.

Functionally, SHP-2 antibody identifies a 593-amino-acid enzyme that mediates dephosphorylation of specific phosphotyrosine residues, facilitating activation of the RAS-MAPK signaling cascade. In its inactive state, the N-terminal SH2 domain blocks the catalytic site, maintaining SHP-2 in an autoinhibited conformation. Upon binding to phosphorylated adaptor proteins such as GAB1, SHC, or IRS1, the enzyme undergoes a conformational change that exposes its active site, enabling precise regulation of cell growth, differentiation, migration, and survival. This mechanism positions SHP-2 as an essential mediator of receptor tyrosine kinase signaling and developmental pathways.

The PTPN11 gene is located on chromosome 12q24.13 and is expressed in most tissues, including brain, heart, liver, and hematopoietic cells. During embryogenesis, SHP-2 contributes to mesodermal patterning, cardiac development, and neural crest formation. In adult tissues, it supports homeostatic signaling through growth factors such as EGF, PDGF, and insulin, and modulates cytokine responses through the JAK/STAT pathway. In immune cells, SHP-2 functions as a key checkpoint regulator, fine-tuning T-cell receptor and cytokine receptor signaling to maintain immune balance.

Pathologically, mutations in PTPN11 are associated with several developmental and neoplastic disorders. Germline activating mutations cause Noonan syndrome and LEOPARD syndrome, characterized by congenital heart defects, facial dysmorphia, and skeletal abnormalities. Somatic mutations leading to hyperactivation of SHP-2 are found in leukemias and various solid tumors, including lung and breast cancers, where they promote aberrant MAPK signaling and oncogenic transformation. Conversely, loss of SHP-2 activity can impair cell differentiation and immune regulation, contributing to inflammation and autoimmunity. Because of its central role in signaling, SHP-2 has become a therapeutic target in precision oncology, with small-molecule inhibitors currently in clinical trials for SHP-2-driven cancers.

SHP-2 antibody is validated for use in relevant research applications to detect PTPN11 expression and study phosphatase-mediated signal transduction and oncogenic pathways. NSJ Bioreagents provides SHP-2 antibody reagents optimized for studies in cancer biology, immunology, and developmental signaling.

Application Notes

Optimal dilution of the SHP-2 antibody should be determined by the researcher.

Immunogen

Amino acids EKFATLAELVQYYMEHHGQLKEKNGDVIELK of human SHP2/PTPN11 were used as the immunogen for the SHP-2 antibody.

Storage

After reconstitution, the SHP-2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.