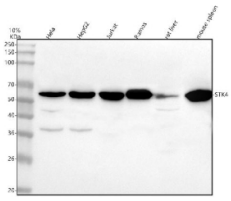
MST1 Antibody / Mammalian STE20-like protein kinase 1 / STK4 (FY12975)

Catalog No.	Formulation	Size
FY12975	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q13043
Applications	Western Blot : 0.25-0.5ug/ml ELISA : 0.1-0.5ug/ml
Limitations	This MST1 antibody is available for research use only.



Western blot analysis of MST1/STK4 using anti-MST1 antibody. Lane 1: human Hela whole cell lysates, Lane 2: human HepG2 whole cell lysates, Lane 3: human Jurkat whole cell lysates, Lane 4: human Ramos whole cell lysates, Lane 5: rat liver tissue lysates, Lane 6: mouse spleen tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-MST1 antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using enhanced chemiluminescent. The predicted molecular weight of MST1/STK4 is at ~56 kDa and ~52 kDa (two isoforms).

Description

MST1 antibody detects Mammalian STE20-like protein kinase 1, a serine/threonine kinase that functions as a central regulator of apoptosis, stress signaling, and organ size control. The UniProt recommended name is Serine/threonine-protein kinase 4 (STK4), commonly referred to as MST1. This kinase belongs to the Hippo signaling pathway, a conserved network that restricts cell proliferation and promotes programmed cell death to maintain tissue homeostasis.

Functionally, MST1 antibody identifies a 487-amino-acid cytoplasmic kinase that becomes activated in response to oxidative stress, DNA damage, or cell detachment. Upon activation, MST1 autophosphorylates and phosphorylates downstream kinases such as LATS1/2, initiating a signaling cascade that culminates in the phosphorylation and inactivation of the transcriptional co-activators YAP and TAZ. This process suppresses genes promoting cell proliferation and survival. Additionally, MST1 can translocate to the nucleus, where it phosphorylates histone H2B and FOXO transcription factors to promote apoptosis and DNA repair.

The MST1 gene is located on chromosome 20q13.12 and encodes a key component of the mammalian Hippo pathway. MST1 activity is tightly regulated through interactions with adaptor proteins including SAV1 and MOB1, which enhance its kinase activity and substrate recognition. The pathway acts as a molecular brake on organ growth and tumorigenesis by balancing proliferation and cell death. Loss or mutation of MST1 disrupts Hippo signaling, leading to uncontrolled tissue growth and increased cancer risk.

In addition to its role in growth control, MST1 regulates immune function by modulating T-cell migration and survival. It promotes lymphocyte trafficking by controlling actin cytoskeleton organization and integrin-mediated adhesion. MST1 deficiency in humans results in primary immunodeficiency characterized by recurrent infections and defective T-cell activation. In neurons, MST1 contributes to axonal degeneration under oxidative stress, linking it to neurodegenerative disease mechanisms.

MST1 antibody is widely used in research on apoptosis, signal transduction, and cancer biology. It is suitable for immunoblotting, immunoprecipitation, and fluorescence microscopy to monitor MST1 activation, phosphorylation, and subcellular localization. In cancer research, MST1 serves as a tumor suppressor marker, while in neuroscience, it is investigated for its role in neuronal apoptosis. The antibody supports studies on kinase cascades that control organ size, cytoskeletal remodeling, and oxidative stress response.

Structurally, MST1 contains an N-terminal kinase domain and a C-terminal SARAH domain responsible for dimerization and interaction with Hippo pathway components. Post-translational modifications including autophosphorylation, caspase-mediated cleavage, and ubiquitination regulate its activity and localization. NSJ Bioreagents provides MST1 antibody reagents validated for use in apoptosis, Hippo signaling, and kinase pathway research.

Application Notes

Optimal dilution of the MST1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human MST1/STK4 recombinant protein (Position: E324-D452) was used as the immunogen for the MST1 antibody.

Storage

After reconstitution, the MST1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.