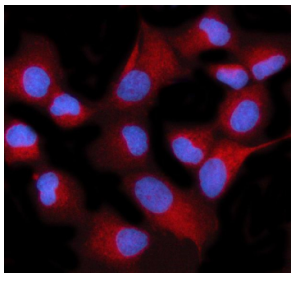
STIM2 Antibody / Stromal interaction molecule 2 (FY13386)

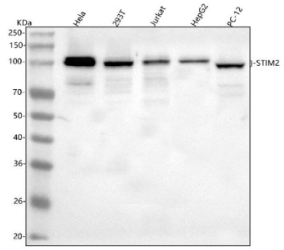
Catalog No.	Formulation	Size
FY13386	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Rat
Format	Lyophilized
Host	Rabbit
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	Q9P246
Localization	Cytoplasm (ER)
Applications	ELISA : 0.1-0.5ug/ml Immunofluorescence : 5ug/ml Immunocytochemistry : 5ug/ml Western Blot : 0.25-0.5ug/ml
Limitations	This STIM2 antibody is available for research use only.



Immunofluorescent staining of STIM2 using anti-STIM2 antibody (red). STIM2 was detected in an immunocytochemical section of human HeLa cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-STIM2 antibody overnight at 4oC. Cy3 Conjugated Goat Anti-Rabbit IgG was used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. The section was counterstained with DAPI nuclear stain (blue). Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Western blot analysis of STIM2 using anti-STIM2 antibody. Lane 1: human Hela whole cell lysates, Lane 2: human 293T whole cell lysates, Lane 3: human Jurkat whole cell lysates, Lane 4: human HepG2 whole cell lysates, Lane 5: rat PC-12 whole cell 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-STIM2 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. STIM2 antibody detects a predominant band at approximately 100 kDa in human HeLa, 293T, Jurkat, and HepG2 lysates, slightly above the 84 kDa theoretical mass but consistent with the 100-115 kDa phosphorylated and glycosylated STIM2 isoforms described in the literature. Rat PC-12 lysate shows a modestly faster migrating band within the same range, in line with species- and phosphorylation-dependent mobility differences.

Description

STIM2 antibody detects Stromal interaction molecule 2, a calcium sensor encoded by the STIM2 gene located on chromosome 4p15.2. STIM2 is an endoplasmic reticulum (ER) transmembrane protein that regulates store-operated calcium entry (SOCE) by sensing ER luminal calcium levels and activating plasma membrane Orai calcium channels. It belongs to the STIM family along with STIM1 but plays a more subtle role in maintaining basal calcium levels and preventing cytosolic calcium depletion. STIM2 is expressed widely, with high levels in brain, skeletal muscle, and immune cells, where calcium signaling is crucial for cellular function.

Structurally, STIM2 consists of an N-terminal luminal EF-hand domain that binds calcium, a sterile alpha motif (SAM) that senses ER calcium depletion, a single transmembrane region, and a cytoplasmic coiled-coil domain that interacts with Orai and TRPC channels. It belongs to the stromal interaction molecule family of calcium sensors. Co-localization studies show STIM2 distributed in the ER membrane, clustering near plasma membrane regions during calcium signaling activation.

Functionally, STIM2 modulates calcium entry by maintaining the readiness of Orai1 channels for activation. It operates at lower calcium threshold levels than STIM1, allowing fine-tuned regulation of basal calcium homeostasis. In neurons, STIM2 regulates synaptic activity and plasticity by modulating calcium-dependent gene transcription. In T lymphocytes, it supports sustained calcium signaling required for cytokine production. Known interaction partners include Orai1, TRPC1, and STIM1, forming calcium entry complexes at ER-plasma membrane junctions.

STIM2 plays a critical role in various physiological processes including muscle contraction, neuronal signaling, and immune cell activation. Dysregulation of STIM2 has been linked to neurodegenerative diseases, immunodeficiency, and cardiac hypertrophy. Reduced STIM2 expression impairs calcium-dependent transcription, while overexpression disrupts calcium oscillations. Pathway associations include calcium signaling, ER stress response, and MAPK pathway activation. During development, STIM2 expression supports neuronal differentiation and synaptic maturation.

The STIM2 antibody from NSJ Bioreagents is a valuable reagent for research into calcium signaling, ER function, and neuronal activity regulation.

Application Notes

Optimal dilution of the STIM2 antibody should be determined by the researcher.

Immunogen

E.coli-derived human STIM2 recombinant protein (Position: L458-H726) was used as the immunogen for the STIM2 antibody.

Storage

After reconstitution, the STIM2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.