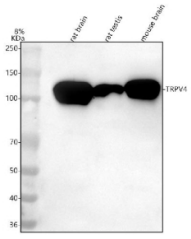
TRPV4 Antibody / Transient receptor potential cation channel subfamily V member 4 (FY12748)

Catalog No.	Formulation	Size
FY12748	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
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	Q9HBA0
Applications	Western Blot : 0.25-0.5ug/ml ELISA : 0.1-0.5ug/ml
Limitations	This TRPV4 antibody is available for research use only.



Western blot analysis of TRPV4 using anti-TRPV4 antibody. Lane 1: rat brain tissue lysates, Lane 2: rat testis tissue lysates, Lane 3: mouse brain 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-TRPV4 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. Expected molecular weight: 90-110 kDa depending on level of glycosylation.

Description

TRPV4 antibody detects Transient receptor potential cation channel subfamily V member 4, a calcium-permeable non-selective cation channel that responds to mechanical, osmotic, and thermal stimuli. Encoded by the TRPV4 gene on chromosome 12q24.11, this protein belongs to the vanilloid subfamily of transient receptor potential (TRP) channels and functions as a multimodal sensor integrating diverse physiological signals. TRPV4 channels are activated by moderate

heat (27-35oC), hypotonic cell swelling, shear stress, and endogenous lipids such as epoxyeicosatrienoic acids. These channels play central roles in osmoregulation, mechanotransduction, nociception, and vascular physiology.

TRPV4 forms tetrameric channel complexes at the plasma membrane, where calcium influx through the pore initiates downstream signaling cascades. It interacts with cytoskeletal and scaffolding proteins including PACSIN3, AKAP150, and actin-binding proteins to fine-tune mechanosensitivity. In epithelial tissues, TRPV4 regulates ciliary beating and barrier permeability. In sensory neurons, it mediates mechanical pain and contributes to thermal sensation. In vascular endothelial cells, TRPV4 activation triggers calcium-dependent vasodilation through nitric oxide release, influencing blood pressure regulation and flow adaptation.

The TRPV4 antibody is widely used in physiology, neuroscience, and cardiovascular research to detect TRPV4 expression and localization. Western blot analysis typically identifies a 98 kilodalton band corresponding to TRPV4, while immunofluorescence reveals membrane and cytoplasmic localization in epithelial and neuronal cells. This antibody allows detailed investigation into TRPV4-mediated calcium signaling and mechanical responsiveness across tissues. Dysregulation of TRPV4 function is associated with diseases such as neuropathic pain, pulmonary edema, skeletal dysplasias, and Charcot-Marie-Tooth neuropathy type 2C.

Mechanistically, TRPV4 operates as a polymodal integrator linking mechanical and chemical cues to calcium signaling and gene expression. Mutations that enhance or suppress TRPV4 channel activity disrupt normal ion homeostasis and cellular volume regulation. The TRPV4 antibody enables researchers to assess expression changes under osmotic, mechanical, or thermal stress, supporting mechanistic studies of signal transduction and cellular adaptation. NSJ Bioreagents provides this antibody validated for its applications, ensuring robust detection of TRPV4 in both native tissues and recombinant systems.

Application Notes

Optimal dilution of the TRPV4 antibody should be determined by the researcher.

Immunogen

E.coli-derived human TRPV4 recombinant protein (Position: R64-D408) was used as the immunogen for the TRPV4 antibody.

Storage

After reconstitution, the TRPV4 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.