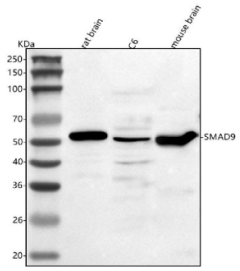
Smad9 Antibody / Mothers against decapentaplegic homolog 9 (FY12287)

Catalog No.	Formulation	Size
FY12287	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	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	Q9JIW5
Applications	Western Blot : 0.25-0.5ug/ml ELISA : 0.1-0.5ug/ml
Limitations	This Smad9 antibody is available for research use only.



Western blot analysis of Smad9 using anti-Smad9 antibody. Lane 1: rat brain tissue lysates, Lane 2: rat C6 whole cell 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-Smad9 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 expected molecular weight of Smad9 is ~49 kDa.

Description

Smad9 antibody detects Mothers against decapentaplegic homolog 9, encoded by the SMAD9 gene on chromosome 13q13.3. Smad9 antibody is widely used in developmental biology, bone biology, and signaling research. Smad9 is a member of the receptor-regulated Smad (R-Smad) family that transduces signals from bone morphogenetic proteins (BMPs), part of the TGF-beta superfamily. Upon BMP receptor activation, Smad9 is phosphorylated and forms complexes with Smad4, translocating to the nucleus to regulate gene transcription.

Structurally, Smad9 is a ~52 kDa protein with two conserved domains: the MH1 domain, which binds DNA and mediates interactions with transcription factors, and the MH2 domain, which interacts with BMP receptors and Smad4. Between these domains lies a linker region that contains regulatory phosphorylation sites. Smad9 is closely related to Smad1 and Smad5 but exhibits distinct target gene specificity and expression patterns.

Functionally, Smad9 acts as a transcriptional regulator of BMP-responsive genes involved in skeletal development, vascular biology, and tissue differentiation. It is essential for proper bone morphogenesis and vascular integrity. Researchers use Smad9 antibody to study BMP signaling, transcriptional control, and differentiation pathways in bone, cartilage, and endothelial cells.

Clinically, mutations in SMAD9 are associated with pulmonary arterial hypertension and skeletal abnormalities. Altered Smad9 signaling contributes to vascular remodeling, ossification disorders, and cancer. Because BMP signaling regulates stem cell differentiation, Smad9 is a key factor in regenerative medicine research. NSJ Bioreagents provides Smad9 antibody for developmental biology, signaling, and disease model studies.

Experimentally, Smad9 antibody is applied in western blotting to detect the ~52 kDa protein, in immunohistochemistry to study tissue-specific expression, and in immunofluorescence to monitor nuclear translocation after BMP stimulation. Chromatin immunoprecipitation using Smad9 antibody reveals DNA-binding sites of Smad9-regulated genes.

Application Notes

Optimal dilution of the Smad9 antibody should be determined by the researcher.

Immunogen

E.coli-derived mouse Smad9 recombinant protein (Position: Q153-H235) was used as the immunogen for the Smad9 antibody.

Storage

After reconstitution, the Smad9 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.