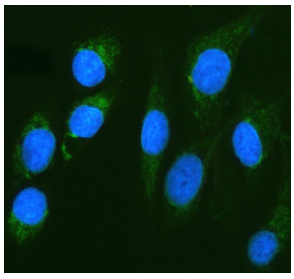
CAPN6 Antibody / Calpain 6 (FY12322)

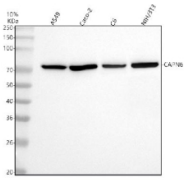
Catalog No.	Formulation	Size
FY12322	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

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	Q9Y6Q1
Localization	Cytoplasm, perinuclear
Applications	Western Blot : 0.25-0.5ug/ml Immunocytochemistry/Immunofluorescence : 5ug/ml ELISA : 0.1-0.5ug/ml
Limitations	This CAPN6 antibody is available for research use only.



Immunofluorescent staining of CAPN6 using anti-CAPN6 antibody (green). CAPN6 was detected in an immunocytochemical section of U2OS 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-CAPN6 antibody overnight at 4oC. DyLight 488 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 CAPN6 using anti-CAPN6 antibody. Lane 1: human whole cell lysates, Lane 2: human Caco-2 whole cell lysates, Lane 3: rat C6 whole cell lysates, Lane 4: mouse NIH/3T3 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-CAPN6 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 CAPN6 is ~75 kDa.

Description

CAPN6 antibody, also referred to as Calpain 6 antibody, targets a non-proteolytic member of the calpain family of calcium-regulated proteins. Unlike most calpains that act as cysteine proteases, Calpain 6 is catalytically inactive due to divergence in its protease domain. Instead, it exerts regulatory functions that shape cytoskeletal organization, cell migration, and tissue remodeling. CAPN6 is strongly expressed in embryonic and placental tissues, where it supports morphogenesis and vascular development, and it continues to play roles in disease contexts such as cancer and bone biology.

One of the primary functions of Calpain 6 is to stabilize microtubules by directly binding to tubulin. Through this interaction, CAPN6 regulates lamellipodia formation and enhances the ability of cells to migrate. This cytoskeletal remodeling is essential for embryonic tissue development, wound healing, and angiogenesis. In endothelial cells, CAPN6 supports vessel formation and vascular integrity, while in osteoclasts it influences bone resorption. Researchers investigating structural dynamics of the cytoskeleton use CAPN6 antibody to trace its expression and monitor its interactions with microtubule networks.

The absence of proteolytic activity makes Calpain 6 unique among calpains, highlighting the functional diversity of this protein family. Instead of cleaving substrates, CAPN6 serves as a structural regulator, linking calcium signaling with cytoskeletal architecture. This distinction is particularly important in oncology, where abnormal expression of CAPN6 has been reported in hepatocellular carcinoma, uterine leiomyosarcoma, and endometrial cancer. Overexpression may enhance invasiveness by promoting cytoskeletal plasticity, while downregulation may disrupt normal development and tissue repair. The dual roles of CAPN6 underscore its importance as both a developmental regulator and a potential biomarker of malignancy.

CAPN6 antibody is versatile in laboratory applications. Western blotting can be used to detect protein levels under conditions that affect cytoskeletal dynamics, such as drug treatments or genetic manipulation. Immunofluorescence allows visualization of CAPN6 co-localization with tubulin, offering insight into how it modulates microtubule stability. Immunohistochemistry with CAPN6 antibody reveals distribution patterns in tumors and placental tissues, enabling researchers to evaluate associations between CAPN6 expression and disease progression. In developmental biology, CAPN6 antibody helps clarify the role of non-proteolytic calpains in tissue morphogenesis and angiogenesis.

The CAPN6 antibody provided by NSJ Bioreagents is a dependable reagent for researchers investigating cytoskeletal remodeling, placental biology, or tumor progression. By delivering reliable specificity, NSJ Bioreagents ensures that scientists can apply CAPN6 antibody across diverse workflows, from basic mechanistic studies to translational cancer research. Whether the goal is to understand embryonic development or to identify molecular drivers of malignancy, CAPN6 antibody supports a broad spectrum of experimental approaches.

As the only calpain family member lacking enzymatic activity, Calpain 6 occupies a unique position in protein biology. Its ability to regulate cell migration and cytoskeletal remodeling without protease function has expanded understanding of how calpains contribute to physiology and disease. By employing CAPN6 antibody, researchers can investigate how this protein influences endothelial biology, osteoclast activity, tumor invasion, and placental function. These insights not only

clarify the role of CAPN6 in normal development but also suggest therapeutic relevance in oncology and regenerative medicine. For laboratories studying the intersection of cytoskeletal dynamics and cellular signaling, CAPN6 antibody remains an essential resource, supported by the consistent quality of NSJ Bioreagents.

Application Notes

Optimal dilution of the CAPN6 antibody should be determined by the researcher.

Immunogen

E.coli-derived human Calpain 6/CAPN6 recombinant protein (Position: M1-L641) was used as the immunogen for the CAPN6 antibody.

Storage

After reconstitution, the CAPN6 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.