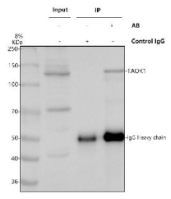
TAOK1 Antibody / TAO kinase 1 (FY12950)

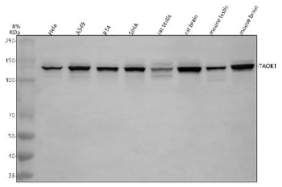
Catalog No.	Formulation	Size
FY12950	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

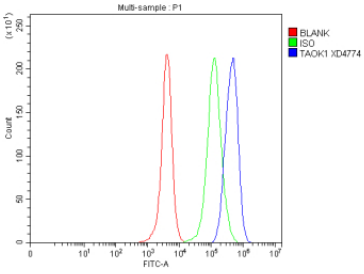
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q7L7X3
Applications	Western Blot : 0.25-0.5ug/ml Immunoprecipitation : 2-4ug/500ug of lysate Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This TAOK1 antibody is available for research use only.



Immunoprecipitating TAOK1 in Hela whole cell lysate. Western blot analysis of TAOK1 using anti-TAOK1 antibody. Lane 1: Hela whole cell lysates (30ug), Lane 2: Rabbit control IgG instead of anti-TAOK1 antibody in Hela whole cell lysate, Lane 3: anti-TAOK1 antibody (2ug) + Hela whole cell lysate (500ug). After electrophoresis, proteins were transferred to a membrane. Then the membrane was incubated with rabbit anti-TAOK1 antibody at a dilution of 0.5 ug/ml and probed with a goat anti-rabbit IgG-HRP secondary antibody. The signal is developed using ECL Plus Western Blotting Substrate. A predominant band is detected at ~130 kDa, higher than the ~116 kDa prediction. The upward shift is consistent with hyperphosphorylated TAOK1, which migrates slower on SDS-PAGE.



Western blot analysis of TAOK1 using anti-TAOK1 antibody. Electrophoresis was performed on a 8% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human Hela whole cell lysates, Lane 2: human whole cell lysates, Lane 3: human RT4 whole cell lysates, Lane 4: human SIHA whole cell lysates, Lane 5: rat testis tissue lysates, Lane 6: rat brain tissue lysates, Lane 7: mouse testis tissue lysates, Lane 8: 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-TAOK1 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 an ECL Plus Western Blotting Substrate. A predominant band is detected at ~130 kDa, higher than the ~116 kDa prediction. The upward shift is consistent with hyperphosphorylated TAOK1, which migrates slower on SDS-PAGE.



Flow Cytometry analysis of HeLa cells using anti-TAOK1 antibody. Overlay histogram showing HeLa cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-TAOK1 antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.

Description

TAOK1 antibody detects TAO kinase 1, a serine/threonine-protein kinase involved in stress signaling, cytoskeletal dynamics, and neuronal development. The UniProt recommended name is Serine/threonine-protein kinase TAO1 (TAOK1), also known as MAP3K16 or thousand and one amino acid kinase 1. This kinase functions upstream of mitogen-activated protein kinase (MAPK) cascades, including the p38 and JNK pathways, which regulate apoptosis, microtubule stability, and cellular stress responses.

Functionally, TAOK1 antibody identifies a 100 kDa enzyme that phosphorylates and activates MAP2Ks such as MKK3 and MKK6, leading to downstream activation of p38 MAPK. TAOK1 also modulates the cytoskeleton by interacting with microtubule-associated proteins, including MARK kinases. This regulation is critical for neuronal polarity, axon specification, and dendrite formation. During mitosis, TAOK1 contributes to spindle orientation and chromosome alignment, linking stress signaling with cell-cycle progression.

The TAOK1 gene is located on chromosome 17q11.2 and encodes a multi-domain kinase composed of an N-terminal catalytic domain and a C-terminal regulatory region. It functions as both a signaling hub and structural organizer by localizing to centrosomes, Golgi membranes, and the cytoplasmic microtubule network. Autophosphorylation and stress-induced activation enhance TAOK1 activity, enabling rapid response to environmental and mechanical stimuli.

TAOK1 has gained prominence for its role in neurodevelopment. Mutations or dysregulation of TAOK1 are associated with neurodevelopmental disorders, including autism spectrum disorder and intellectual disability. Experimental evidence shows that TAOK1 depletion impairs axonal growth, disrupts neuronal morphology, and alters synaptic signaling. In non-neuronal cells, TAOK1 mediates apoptotic signaling through activation of p38 and JNK under oxidative or osmotic stress conditions.

TAOK1 antibody is a versatile reagent for analyzing kinase signaling, cytoskeletal organization, and stress-induced apoptosis. It is commonly used in immunoblotting, immunofluorescence, and kinase activity assays to evaluate TAOK1 expression and activation. In cancer research, TAOK1 contributes to epithelial-to-mesenchymal transition (EMT) and

metastasis, while in neurons, it supports differentiation and network connectivity. NSJ Bioreagents offers TAOK1 antibody reagents validated for research applications in signal transduction, neurobiology, and cellular stress regulation.

Application Notes

Optimal dilution of the TAOK1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human TAOK1 recombinant protein (Position: Q424-R884) was used as the immunogen for the TAOK1 antibody.

Storage

After reconstitution, the TAOK1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.