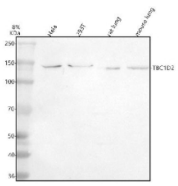
TBC1D1 Antibody / TBC1 domain family member 1 (FY12441)

Catalog No.	Formulation	Size
FY12441	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	Q86TI0
Applications	Western Blot : 0.25-0.5ug/ml ELISA : 0.1-0.5ug/ml
Limitations	This TBC1D1 antibody is available for research use only.



Western blot analysis of TBC1D1 using anti-TBC1D1 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 293T whole cell lysates, Lane 3: rat lung tissue lysates, Lane 4: mouse lung 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-TBC1D1 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. TBC1D1 (~130-135 kDa predicted) was detected primarily at ~150-160 kDa, frequently as a doublet, consistent with phosphorylation-dependent mobility shifts reported for TBC1D1 in response to insulin, AICAR, and contraction.

Description

TBC1D1 antibody targets TBC1 domain family member 1, a Rab GTPase-activating protein that plays a pivotal role in

regulating intracellular trafficking and glucose metabolism. TBC1D1 belongs to a family of proteins that contain Tre-2/Bub2/Cdc16 (TBC) domains, which act as GAPs for Rab small GTPases. The protein is particularly abundant in skeletal muscle and is closely related to TBC1D4 (AS160), both of which regulate the translocation of glucose transporter GLUT4 to the plasma membrane in response to insulin or muscle contraction. The TBC1D1 antibody is widely utilized to study mechanisms of glucose uptake, insulin resistance, and energy balance in metabolic research.

TBC1D1 is encoded by the TBC1D1 gene on human chromosome 4p15.1. It is a large cytoplasmic protein characterized by two phosphotyrosine-binding (PTB) domains, a TBC domain that mediates Rab-GTPase activity, and multiple phosphorylation sites that respond to AMPK and AKT signaling. Phosphorylation at key serine and threonine residues alters its ability to regulate GLUT4 trafficking, making it a central integrator of insulin and exercise-stimulated glucose uptake pathways. Mutations and polymorphisms in TBC1D1 have been associated with obesity, metabolic syndrome, and altered muscle fiber composition, underscoring its physiological relevance.

Using TBC1D1 antibody reagents, researchers can detect both total and phosphorylated forms of the protein, enabling investigation of its activation state under various metabolic conditions. Western blot analysis typically reveals bands near 120Ã¯Â¿Â½140 kDa. Immunofluorescence and confocal microscopy show localization at the cytoplasm and near vesicular membranes associated with GLUT4 vesicle compartments. In animal models, deletion or mutation of Tbc1d1 results in altered energy expenditure, reduced muscle glucose uptake, and increased fatty acid oxidation. These findings have made TBC1D1 a key focus of metabolic physiology and exercise biology.

Beyond metabolism, TBC1D1 is implicated in mitochondrial dynamics, vesicular transport, and regulation of endosomal sorting. Its function overlaps with other Rab GAPs involved in endocytosis and trafficking, such as TBC1D4 and TBC1D15. By studying the distribution and expression of TBC1D1 with high-quality antibodies, scientists can better delineate the molecular networks linking nutrient sensing, insulin signaling, and muscle energy metabolism. NSJ Bioreagents offers validated TBC1D1 antibodies optimized for western blot, immunoprecipitation, and immunofluorescence, supporting broad use across metabolic and signaling research fields.

Application Notes

Optimal dilution of the TBC1D1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human TBC1D1 recombinant protein (Position: K119-R1149) was used as the immunogen for the TBC1D1 antibody.

Storage

After reconstitution, the TBC1D1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.