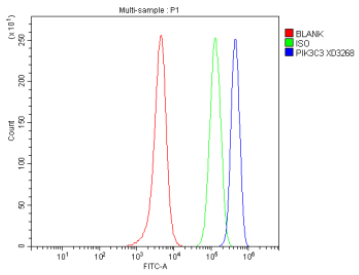
PIK3C3 Antibody / VPS34 / Phosphatidylinositol 3-kinase catalytic subunit type 3 (FY13075)

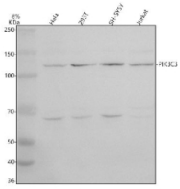
Catalog No.	Formulation	Size
FY13075	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

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	Q8NEB9
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells
Limitations	This PIK3C3 antibody is available for research use only.



Flow Cytometry analysis of SH-SY5Y cells using anti-PIK3C3 antibody. Overlay histogram showing SH-SY5Y 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-PIK3C3 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.



Western blot analysis of VPS34/PIK3C3 using anti-PIK3C3 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: human SH-SY5Y whole cell lysates, Lane 4: human Jurkat 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-PIK3C3 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 ~110-120 kDa, running above the calculated ~102 kDa, consistent with the known migration of Vps34 within class III PI3K complexes and possible phosphorylation-dependent mobility. A lighter band at ~65 kDa is also observed and likely represents a proteolytic fragment of Vps34 that can appear in stressed samples or with incomplete protease inhibition.

Description

PIK3C3 antibody detects Phosphatidylinositol 3-kinase catalytic subunit type 3, a lipid kinase that generates phosphatidylinositol 3-phosphate (PI3P) to control autophagy and endosomal trafficking. The UniProt recommended name is Phosphatidylinositol 3-kinase catalytic subunit type 3 (PIK3C3), also known as Vacuolar protein sorting-associated protein 34 (VPS34). This enzyme is the only class III PI3K in mammalian cells and plays a pivotal role in autophagosome formation and lysosomal function.

Functionally, PIK3C3 antibody recognizes a 887-amino-acid cytoplasmic protein that catalyzes the phosphorylation of phosphatidylinositol to generate PI3P, recruiting downstream effectors such as WIPI and DFCP1. PIK3C3 forms multiprotein complexes with Beclin 1, UVRAG, ATG14, and VPS15 to regulate membrane nucleation during autophagy and endosome maturation. Its lipid kinase activity is crucial for endocytic trafficking, nutrient sensing, and organelle biogenesis.

The PIK3C3 gene, located on chromosome 18q12.3, is ubiquitously expressed and evolutionarily conserved from yeast to humans. It governs autophagic flux by mediating vesicle formation and fusion with lysosomes. Through its interaction with Beclin 1, PIK3C3 serves as a core regulator of cellular homeostasis under nutrient stress and is involved in tumor suppression and neuroprotection.

Pathologically, dysregulation of PIK3C3/VPS34 contributes to cancer, neurodegeneration, and infectious disease. Inhibition of VPS34 impairs autophagy, leading to protein aggregation and metabolic imbalance. Conversely, enhanced PIK3C3 activity supports tumor cell survival under nutrient deprivation. The enzyme is also hijacked by viruses to generate replication compartments. Research using PIK3C3 antibody advances understanding of autophagic control, endosomal transport, and signaling adaptation to stress.

PIK3C3 antibody is suitable for western blotting, immunofluorescence, and immunoprecipitation to detect VPS34 and its complexes. It supports studies in autophagy, intracellular trafficking, and lipid signaling. NSJ Bioreagents provides validated PIK3C3 antibody reagents optimized for autophagy and vesicle biogenesis research.

Structurally, PIK3C3 consists of a helical domain, a C2 domain for membrane association, and a lipid kinase catalytic domain. Its activity depends on interactions with VPS15 and Beclin 1 for stabilization and subcellular localization. This antibody facilitates analysis of PIK3C3/VPS34's central role in autophagy initiation and endolysosomal trafficking.

Application Notes

Optimal dilution of the PIK3C3 antibody should be determined by the researcher.

Immunogen

A synthetic peptide corresponding to a sequence at the C-terminus of human VPS34/PIK3C3 was used as the immunogen for the PIK3C3 antibody.

Storage

After reconstitution, the PIK3C3 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.