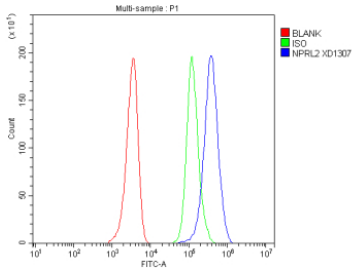
NPRL2 Antibody / Nitrogen permease regulator-like 2 (FY12588)

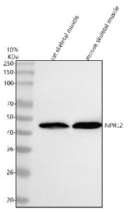
Catalog No.	Formulation	Size
FY12588	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Mouse, Rat
Format	Lyophilized
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	Q8WTW4
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This NPRL2 antibody is available for research use only.



Flow Cytometry analysis of HEL cells using anti-NPRL2 antibody. Overlay histogram showing HEL 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-NPRL2 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 NPRL2 using anti-NPRL2 antibody. Lane 1: rat skeletal muscle tissue lysates, Lane 2: mouse skeletal muscle 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-NPRL2 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 NPRL2 is ~44 kDa.

Description

NPRL2 antibody detects Nitrogen permease regulator-like 2, a component of the GATOR1 complex that inhibits mTORC1 signaling in response to amino acid deprivation. NPRL2 functions as a tumor suppressor and metabolic checkpoint regulator, linking nutrient sensing to cell growth and autophagy. The NPRL2 antibody is widely used in metabolism, oncology, and signal transduction research to study mTOR regulation, nutrient signaling, and tumor suppression.

NPRL2 is encoded by the NPRL2 gene located on human chromosome 3p21.3, a region frequently deleted in several cancers. The protein is approximately 380 amino acids long and forms a complex with NPRL3 and DEPDC5 to constitute the GATOR1 inhibitory module. NPRL2 localizes to both cytoplasm and lysosomes, where it acts upstream of Rag GTPases to suppress mTORC1 activity under nutrient-limiting conditions.

The NPRL2 antibody detects a 45 kilodalton band by western blot and reveals punctate cytoplasmic staining consistent with lysosomal localization. NPRL2 is required for proper cellular adaptation to nutrient stress, promoting autophagy and metabolic reprogramming. Loss of NPRL2 results in constitutive mTORC1 activation, uncontrolled cell proliferation, and impaired stress response.

As a tumor suppressor, NPRL2 modulates DNA damage repair and enhances sensitivity to chemotherapeutic agents such as cisplatin. Reduced NPRL2 expression has been documented in lung, colorectal, and breast cancers, correlating with poor prognosis and therapy resistance. Restoring NPRL2 expression reactivates nutrient stress signaling and suppresses tumor growth through mTOR inhibition and apoptosis induction.

Through its dual role in nutrient sensing and cancer suppression, NPRL2 serves as a key regulator of cellular homeostasis. NSJ Bioreagents provides a validated NPRL2 antibody optimized for its applications, supporting research into mTOR signaling, autophagy regulation, and tumor suppression mechanisms.

Application Notes

Optimal dilution of the NPRL2 antibody should be determined by the researcher.

Immunogen

E.coli-derived human NPRL2 recombinant protein (Position: D90-K380) was used as the immunogen for the NPRL2 antibody.

Storage

After reconstitution, the NPRL2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.