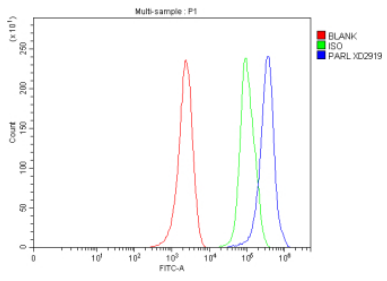
PARL Antibody / Presenilins-associated rhomboid-like protein (FY13274)

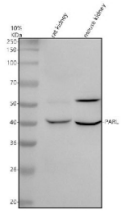
Catalog No.	Formulation	Size
FY13274	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

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	Q9H300
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells
Limitations	This PARL antibody is available for research use only.



Flow Cytometry analysis of MCF-7 cells using anti-PARL antibody. Overlay histogram showing MCF-7 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-PARL 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 PARL using anti-PARL antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: rat kidney tissue lysates, Lane 2: mouse kidney 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-PARL 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 an approximately 40 kDa in both species, consistent with the processed forms of the mitochondrial rhomboid protease PARL, which are reported to migrate between ~36 and 42 kDa. The kidney samples additionally show a band in the low 50 kDa range, likely representing a less processed or differently modified PARL species rather than a distinct isoform.

Description

PARL antibody detects Presenilins-associated rhomboid-like protein, a mitochondrial intramembrane protease involved in regulating mitochondrial dynamics, apoptosis, and mitophagy. The UniProt recommended name is Presenilins-associated rhomboid-like protein (PARL). This serine protease participates in the regulated intramembrane proteolysis of substrates that control mitochondrial morphology and quality control.

Functionally, PARL antibody identifies a 379-amino-acid protein localized to the inner mitochondrial membrane. PARL cleaves and activates key mitochondrial substrates such as PINK1 and PGAM5, initiating mitophagy and apoptosis signaling pathways. Through these actions, PARL maintains mitochondrial homeostasis and protects cells from oxidative stress. It also participates in remodeling the inner membrane during stress conditions, influencing cristae organization and mitochondrial fission-fusion balance.

The PARL gene is located on chromosome 3q27.1 and is expressed in metabolically active tissues including brain, heart, and skeletal muscle. Expression levels fluctuate with energy demand and stress, with upregulation observed during mitochondrial biogenesis and differentiation. PARL is evolutionarily conserved across eukaryotes, emphasizing its fundamental role in organelle maintenance.

Pathologically, mutations in PARL have been associated with mitochondrial dysfunction, Parkinson's disease, and metabolic disorders. Impaired PARL activity disrupts PINK1 processing, leading to defective mitophagy and accumulation of damaged mitochondria. In contrast, overexpression may alter apoptotic sensitivity by influencing cytochrome c release. Research using PARL antibody supports studies in mitochondrial biology, apoptosis regulation, and neurodegenerative disease.

PARL antibody can be validated for western blotting, immunofluorescence, and immunohistochemistry to detect mitochondrial proteases. NSJ Bioreagents provides PARL antibody reagents optimized for research in mitophagy, proteolytic signaling, and mitochondrial quality control.

Structurally, Presenilins-associated rhomboid-like protein contains seven transmembrane domains forming a proteolytic chamber within the inner mitochondrial membrane. Its catalytic serine and histidine residues form the rhomboid protease active site. The protein's C-terminal region undergoes regulated processing, modulating its activity in stress conditions. This antibody enables investigation of PARL's role in mitochondrial proteostasis and apoptosis signaling.

Application Notes

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

Immunogen

A synthetic peptide corresponding to a sequence in the middle region of human PARL was used as the immunogen for the PARL antibody.

Storage

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