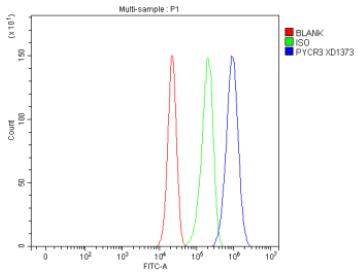
PYCR3 Antibody / Pyrroline-5-carboxylate reductase 3 (FY12659)

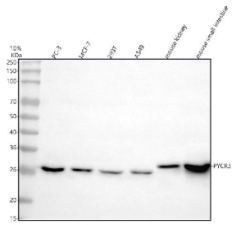
Catalog No.	Formulation	Size
FY12659	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse
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	Q53H96
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This PYCR3 antibody is available for research use only.



Flow Cytometry analysis of cells using anti-PYCR3 antibody. Overlay histogram showing 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-PYCR3 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 PYCRL/PYCR3 using anti-PYCR3 antibody. Lane 1: human PC-3 whole cell lysates, Lane 2: human MCF-7 whole cell lysates, Lane 3: human 293T whole cell lysates, Lane 4: human whole cell lysates, Lane 5: mouse kidney tissue lysates, Lane 6: mouse small intestine 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-PYCR3 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. A specific band was detected for PYCRL/PYCR3 at approximately 29 kDa. The expected molecular weight of PYCRL/PYCR3 is at 29 kDa.

Description

PYCR3 antibody detects Pyrroline-5-carboxylate reductase 3, a mitochondrial enzyme that catalyzes the NADH-dependent reduction of pyrroline-5-carboxylate to proline, completing the final step of proline biosynthesis. PYCR3 plays a key role in amino acid metabolism, redox regulation, and cell growth. The PYCR3 antibody is widely used in cancer metabolism, mitochondrial biology, and redox signaling research to study proline synthesis and metabolic adaptation.

PYCR3 is encoded by the PYCR3 gene located on human chromosome 8q24.3. The protein is approximately 319 amino acids long and localizes to the mitochondrial matrix, functioning alongside PYCR1 and PYCR2 in the proline biosynthetic pathway. PYCR3 preferentially uses NADH as a cofactor and contributes to redox homeostasis by balancing NAD+/NADH ratios within mitochondria.

The PYCR3 antibody detects a 33 kilodalton band by western blot and shows punctate mitochondrial localization under fluorescence microscopy. Through its regulation of proline metabolism, PYCR3 supports anabolic growth, oxidative stress resistance, and survival under nutrient deprivation. It also influences collagen synthesis and extracellular matrix remodeling by controlling intracellular proline availability.

PYCR3 expression is upregulated in several cancers, including colorectal, lung, and prostate carcinoma, where it promotes tumor cell proliferation and metastasis by maintaining mitochondrial NADH pools. Knockdown of PYCR3 reduces ATP production, increases reactive oxygen species, and triggers apoptosis, demonstrating its role in metabolic flexibility. Outside of cancer, PYCR3 supports fibroblast function and tissue repair by providing proline for collagen biosynthesis.

As a regulator of both amino acid metabolism and mitochondrial redox balance, PYCR3 represents a metabolic control point linking biosynthesis and energy maintenance. NSJ Bioreagents provides a validated PYCR3 antibody optimized for western blot, immunofluorescence, and mitochondrial assays, supporting research into amino acid metabolism, redox biology, and cancer bioenergetics.

Application Notes

Optimal dilution of the PYCR3 antibody should be determined by the researcher.

Immunogen

E.coli-derived human PYCRL/PYCR3 recombinant protein (Position: M1-D233) was used as the immunogen for the PYCR3 antibody.

Storage

After reconstitution, the PYCR3 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.