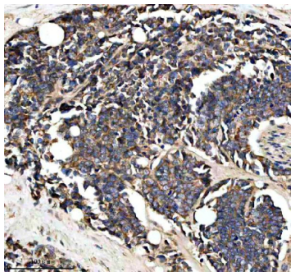
# PTCD3 Antibody / Pentatricopeptide repeat domain-containing protein 3 (FY12177)

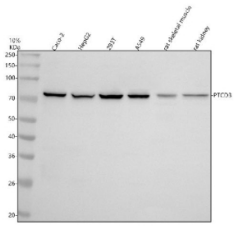
| Catalog No. | Formulation | Size |
|---|---|---|
| FY12177 | Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml | 100 ug |

**Bulk quote request**

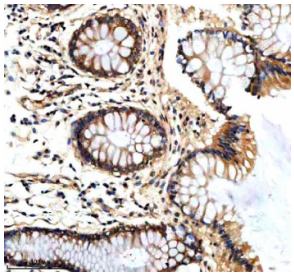
| | |
|---|---|
| **Availability** | 1-2 days |
| **Species Reactivity** | Human, Mouse, Rat |
| **Format** | Lyophilized |
| **Host** | Rabbit |
| **Clonality** | Polyclonal (rabbit origin) |
| **Isotype** | Rabbit IgG |
| **Purity** | Immunogen affinity purified |
| **Buffer** | Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4. |
| **UniProt** | Q96EY7 |
| **Applications** | Western Blot : 0.25-0.5ug/ml<br>Immunohistochemistry : 2-5ug/ml<br>Flow Cytometry : 1-3ug/million cells<br>ELISA : 0.1-0.5ug/ml |
| **Limitations** | This PTCD3 antibody is available for research use only. |



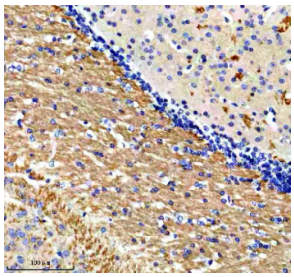
Immunohistochemical staining of PTCD3 using anti-PTCD3 antibody. PTCD3 was detected in a paraffin-embedded section of human colon cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-PTCD3 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



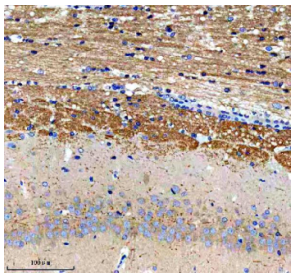
Western blot analysis of PTCD3 using anti-PTCD3 antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human Caco-2 whole cell lysates, Lane 2: human HepG2 whole cell lysates, Lane 3: human 293T whole cell lysates, Lane 4: human whole cell lysates, Lane 5: rat skeletal muscle tissue lysates, Lane 6: rat 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-PTCD3 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 specific band was detected for PTCD3 at approximately 79 kDa. The expected band size for PTCD3 is at 79 kDa.



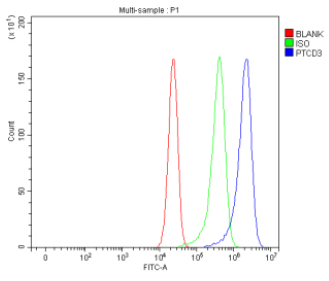
Immunohistochemical staining of PTCD3 using anti-PTCD3 antibody. PTCD3 was detected in a paraffin-embedded section of human colon tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-PTCD3 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Immunohistochemical staining of PTCD3 using anti-PTCD3 antibody. PTCD3 was detected in a paraffin-embedded section of mouse brain tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-PTCD3 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Immunohistochemical staining of PTCD3 using anti-PTCD3 antibody. PTCD3 was detected in a paraffin-embedded section of rat brain tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-PTCD3 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.




Flow Cytometry analysis of cells using anti-PTCD3 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-PTCD3 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.

## Description

PTCD3 antibody detects Pentatricopeptide repeat domain-containing protein 3, encoded by the PTCD3 gene on chromosome 2p11.2. PTCD3 antibody is used to study this mitochondrial RNA-binding protein required for mitochondrial

translation and respiratory function. PTCD3 belongs to the large pentatricopeptide repeat (PPR) protein family, which regulates RNA metabolism in organelles. It is localized to the mitochondrial matrix, where it participates in ribosome assembly and translation initiation for mitochondrial-encoded genes. Expression is ubiquitous but highest in tissues with high metabolic demand such as heart, brain, and muscle.

Structurally, PTCD3 contains multiple PPR motifs that form helix-turn-helix repeats mediating RNA binding. These motifs allow PTCD3 to recognize specific RNA sequences, stabilizing ribosome-mRNA complexes and supporting efficient translation. PTCD3 associates with the small subunit of the mitochondrial ribosome (28S subunit), acting as a structural and functional component of the translation machinery.

Functionally, PTCD3 ensures proper mitochondrial protein synthesis by stabilizing ribosomal complexes and supporting initiation of translation. Knockdown or mutation disrupts translation of mitochondrial mRNAs, leading to impaired oxidative phosphorylation complex assembly and respiratory chain dysfunction. PTCD3 is also thought to regulate specific RNA processing events, although its exact targets remain under investigation. Researchers use PTCD3 antibody to investigate mitochondrial translation, ribosome biology, and energy metabolism.

Clinically, mutations in PTCD3 have been associated with mitochondrial encephalopathy, a disorder characterized by neurological dysfunction, muscle weakness, and lactic acidosis. PTCD3 deficiency results in combined oxidative phosphorylation defects, underscoring its essential role in mitochondrial function. Beyond inherited disorders, PTCD3 expression changes have been reported in cancers, reflecting the importance of mitochondrial activity in tumor metabolism. NSJ Bioreagents offers PTCD3 antibody for studies in mitochondrial biology, disease pathogenesis, and metabolic regulation.

Experimentally, PTCD3 antibody is applied in western blotting to detect the ~79 kDa protein, in immunofluorescence microscopy to confirm mitochondrial localization, and in immunohistochemistry to study tissue-specific expression. Immunoprecipitation with PTCD3 antibody allows isolation of mitochondrial ribosome complexes for functional analysis.

## Application Notes

Optimal dilution of the PTCD3 antibody should be determined by the researcher.

## Immunogen

E.coli-derived human PTCD3 recombinant protein (Position: D66-R648) was used as the immunogen for the PTCD3 antibody.

## Storage

After reconstitution, the PTCD3 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.