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Anti-EPRS1/PARS Antibody Picoband™ (monoclonal, 12B5B3)

Catalog # ABO15114

Specification

Anti-EPRS1/PARS Antibody Picoband™ (monoclonal, 12B5B3) - Product Information

Application	**WB, IHC, IF, ICC, FC**
Primary Accession	P07814
Host	**Mouse**
Isotype	**Mouse IgG2b**
Reactivity	**Human**
Clonality	**Monoclonal**
Format	**Lyophilized**

Description
Anti-EPRS1/PARS Antibody Picoband™ (monoclonal, 12B5B3) . Tested in Flow Cytometry, IF, IHC, ICC, WB applications. This antibody reacts with Human.

Reconstitution
Adding 0.2 ml of distilled water will yield a concentration of 500 µg/ml.

Anti-EPRS1/PARS Antibody Picoband™ (monoclonal, 12B5B3) - Additional Information

Gene ID 2058

Other Names
Bifunctional glutamate/proline--tRNA ligase, Bifunctional aminoacyl-tRNA synthetase, Cell proliferation-inducing gene 32 protein {ECO:0000312|EMBL:AAS72877.1}, Glutamatyl-prolyl-tRNA synthetase {ECO:0000312|HGNC:HGNC:3418}, Glutamate--tRNA ligase, 6.1.1.17, Glutamyl-tRNA synthetase, GluRS, Proline--tRNA ligase, 6.1.1.15, Prolyl-tRNA synthetase, EPRS1 (HGNC:3418)

Calculated MW
170-180 kDa KDa

Application Details
Western blot, 0.25-0.5 µg/ml, Human
 Immunohistochemistry(Paraffin-embedded Section), 2-5 µg/ml, Human
 Immunocytochemistry/Immunofluorescence, 5 µg/ml, Human
 Flow Cytometry, 1-3 µg/1x10^6 cells, Human

Contents
Each vial contains 4 mg Trehalose, 0.9 mg NaCl and 0.2 mg Na2HPO4.

Immunogen
E.coli-derived human EPRS1/PARS recombinant protein (Position: R1298-Y1512).

Purification
Immunogen affinity purified.

Storage	**At -20°C for one year from date of receipt.**

After reconstitution, at 4°C for one month. It can also be aliquotted and stored frozen at -20°C for six months. Avoid repeated freezing and thawing.

Anti-EPRS1/PARS Antibody Picoband™ (monoclonal, 12B5B3) - Protein Information

Name EPRS1 (HGNC:3418)

Function
Multifunctional protein which primarily functions within the aminoacyl-tRNA synthetase multienzyme complex, also known as multisynthetase complex. Within the complex it catalyzes the attachment of both L-glutamate and L-proline to their cognate tRNAs in a two-step reaction where the amino acid is first activated by ATP to form a covalent intermediate with AMP. Subsequently, the activated amino acid is transferred to the acceptor end of the cognate tRNA to form L- glutamyl-tRNA(Glu) and L-prolyl-tRNA(Pro) (PubMed:23263184, PubMed:24100331, PubMed:29576217, PubMed:3290852, PubMed:37212275). Upon interferon-gamma stimulation, EPRS1 undergoes phosphorylation, causing its dissociation from the aminoacyl-tRNA synthetase multienzyme complex. It is recruited to form the GAIT complex, which binds to stem loop-containing GAIT elements found in the 3'-UTR of various inflammatory mRNAs, such as ceruloplasmin. The GAIT complex inhibits the translation of these mRNAs, allowing interferon-gamma to redirect the function of EPRS1 from protein synthesis to translation inhibition in specific cell contexts (PubMed:15479637, PubMed:23071094). Furthermore, it can function as a downstream effector in the mTORC1 signaling pathway, by promoting the translocation of SLC27A1 from the cytoplasm to the plasma membrane where it mediates the uptake of long- chain fatty acid by adipocytes. Thereby, EPRS1 also plays a role in fat metabolism and more indirectly influences lifespan (PubMed:28178239).

Cellular Location
Cytoplasm, cytosol. Membrane; Peripheral membrane protein Note=Translocates from cytosol to membranes upon phosphorylation at Ser-999.

Anti-EPRS1/PARS Antibody Picoband™ (monoclonal, 12B5B3) - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

Anti-EPRS1/PARS Antibody Picoband™ (monoclonal, 12B5B3) - Images

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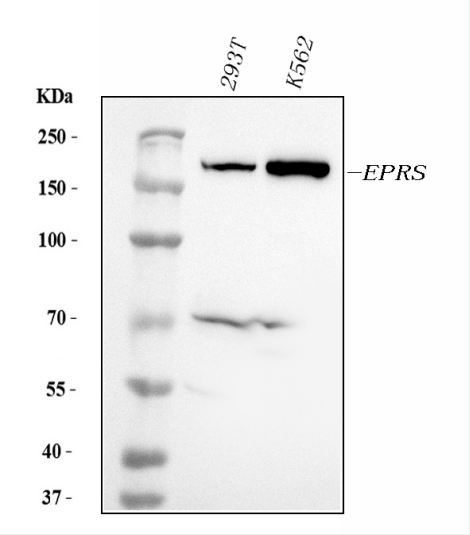

Figure 1. Western blot analysis of EPRS1/PARS using anti-EPRS1/PARS antibody (M02967).
Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 30 ug of sample under reducing conditions.
Lane 1: human 293T whole cell lysates,
Lane 2: human K562 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 mouse anti-EPRS1/PARS antigen affinity purified monoclonal antibody (Catalog # M02967) at 0.5 µg/mL overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-mouse IgG-HRP secondary antibody at a dilution of 1:10000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1001) with Tanon 5200 system. A specific band was detected for EPRS1/PARS at approximately 170-180 kDa. The expected band size for EPRS1/PARS is at 171 kDa.

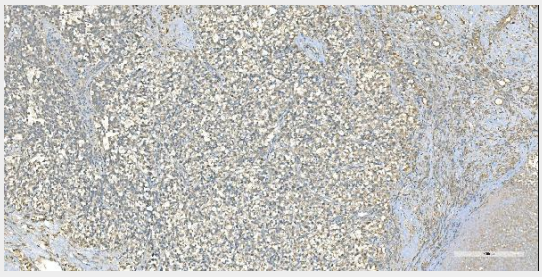

Figure 2. IHC analysis of EPRS1/PARS using anti-EPRS1/PARS antibody (M02967).
EPRS1/PARS was detected in a paraffin-embedded section of human testis cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 µg/ml mouse anti-EPRS1/PARS Antibody (M02967) overnight at 4°C. Biotinylated goat anti-mouse IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) (Catalog # SA1021) with DAB as the chromogen.

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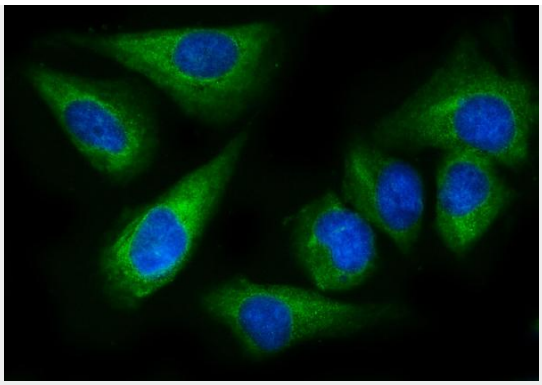

Figure 3. IF analysis of EPRS1/PARS using anti-EPRS1/PARS antibody (M02967).
EPRS1/PARS was detected in an immunocytochemical section of U20S cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent (AR0022) for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 µg/mL mouse anti-EPRS1/PARS Antibody (M02967) overnight at 4°C. DyLight®488 Conjugated Goat Anti-Mouse IgG (BA1126) was used as secondary antibody at 1:100 dilution and incubated for 30 minutes at 37°C. The section was counterstained with DAPI. Visualize using a fluorescence microscope and filter sets appropriate for the label used.

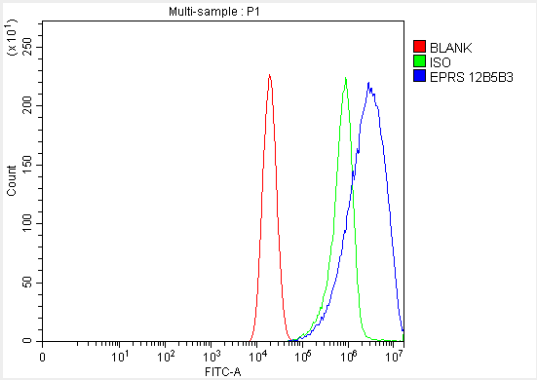

Figure 4. Flow Cytometry analysis of CACO-2 cells using anti-EPRS1/PARS antibody (M02967).
Overlay histogram showing CACO-2 cells stained with M02967 (Blue line). The cells were blocked with 10% normal goat serum. And then incubated with mouse anti-EPRS1/PARS Antibody (M02967, 1 µg/1x10^6 cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-mouse IgG (BA1126, 5-10 µg/1x10^6 cells) was used as secondary antibody for 30 minutes at 20°C. Isotype control antibody (Green line) was mouse IgG (1 µg/1x10^6) used under the same conditions. Unlabelled sample (Red line) was also used as a control.

Anti-EPRS1/PARS Antibody Picoband™ (monoclonal, 12B5B3) - Background

Bifunctional aminoacyl-tRNA synthetase is an enzyme that in humans is encoded by the EPRS gene. Aminoacyl-tRNA synthetases are a class of enzymes that charge tRNAs with their cognate amino acids. The protein encoded by this gene is a multifunctional aminoacyl-tRNA synthetase that catalyzes the aminoacylation of glutamic acid and proline tRNA species. Alternative splicing has been observed for this gene, but the full-length nature and biological validity of the variant have not been determined.