10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Anti-EPRS1/PARS Antibody Picoband™ (monoclonal, 8G9C7)

Catalog # ABO15115

Product Information

Application	WB, IHC, IF, ICC, FC
Primary Accession	P07814
Host	Mouse
Isotype	Mouse IgG2a
Reactivity	Human
Clonality	Monoclonal
Format	Lyophilized
Description	Anti-EPRS1/PARS Antibody Picoband™ (monoclonal, 8G9C7) . 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 □g/ml.

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	170591
Application Details	Western blot, 0.25-0.5 □g/ml, Human Immunohistochemistry(Paraffin-embedded Section), 2-5 □g/ml, Human Immunocytochemistry/Immunofluorescence, 5 □g/ml, Human Flow Cytometry, 1-3 □g/1x10^6 cells, Human
Source	Eukaryota
Contents	Each vial contains 4 mg Trehalose, 0.9 mg NaCl and 0.2 mg Na2HPO4.
Clone Names	Clone: 8G9C7
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.

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.

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.

Images

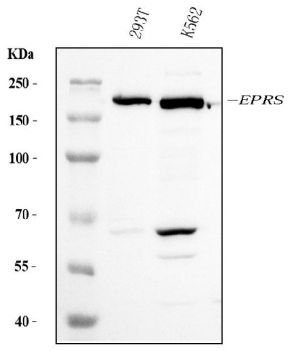


Figure 1. Western blot analysis of EPRS1/PARS using anti-EPRS1/PARS antibody (M02967-1).
Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours.
The sample well of each lane was loaded with 30 ug of sample under reducing conditions.
Lane 1: human 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 # M02967-1) 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.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.