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EPRS Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7565a

Product Information

Application	IHC-P, WB, E
Primary Accession	P07814
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB14633
Calculated MW	170591
Antigen Region	285-314

Additional Information

Gene ID	2058
Other Names	Bifunctional glutamate/proline--tRNA ligase, Bifunctional aminoacyl-tRNA synthetase, Cell proliferation-inducing gene 32 protein, Glutamatyl-prolyl-tRNA synthetase, Glutamate--tRNA ligase, Glutamyl-tRNA synthetase, GluRS, Proline--tRNA ligase, Prolyl-tRNA synthetase, EPRS, GLNS, PARS, QARS, QPRS
Target/Specificity	This EPRS antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 285-314 amino acids from the N-terminal region of human EPRS.
Dilution	IHC-P~~1:100~500 WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	EPRS Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

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.

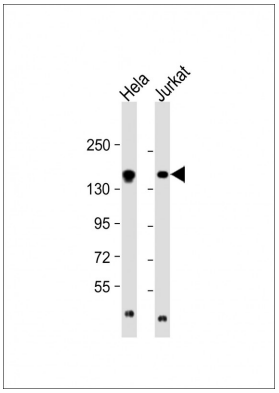
Background

Aminoacyl-tRNA synthetases are a class of enzymes that charge tRNAs with their cognate amino acids. EPRS is a multifunctional aminoacyl-tRNA synthetase that catalyzes the aminoacylation of glutamic acid and proline tRNA species.

References

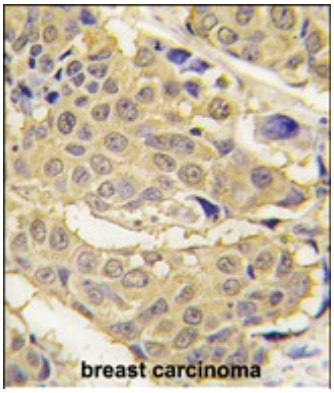
Jia,J., Mol. Cell 29 (6), 679-690 (2008)
Beausoleil,S.A., Nat. Biotechnol. 24 (10), 1285-1292 (2006)
Kato,T., Cancer Res. 65 (13), 5638-5646 (2005)
Sampath,P., Cell 119 (2), 195-208 (2004)

Images



All lanes : Anti-EPRS Antibody (N-term) at 1:8000 dilution Lane 1: Hela whole cell lysate Lane 2: Jurkat whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 171 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

Formalin-fixed and paraffin-embedded human breast carcinoma tissue reacted with EPRS antibody (N-term) (Cat.#AP7565a), which was peroxidase-conjugated to the



secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.

Citations

- Bi-allelic Mutations in EPRS, Encoding the Glutamyl-Prolyl-Aminoacyl-tRNA Synthetase, Cause a Hypomyelinating Leukodystrophy.

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