

ARALAR (B-2): sc-271056

BACKGROUND

Calcium signaling in mitochondria is important in order for it to function in response to a variety of extracellular stimuli. Signaling begins with Ca²⁺ entry in mitochondria via the Ca²⁺ uniporter followed by Ca²⁺ activation of three dehydrogenases in the mitochondrial matrix. ARALAR, the neuronal Ca²⁺-binding mitochondrial aspartate-glutamate carrier, has Ca²⁺ binding domains facing the extramitochondrial space and functions in the malate-aspartate NADH shuttle (MAS). ARALAR is encoded by the SLC25A12 gene and is expressed in brain and skeletal muscle. ARALAR is required for the synthesis of brain aspartate and N-acetylaspartatemy and plays a role in myelin formation. It is also essential for the transmission of small Ca²⁺ signals to mitochondria via an increase in mitochondrial NADH. In addition, ARALAR is implicated in conferring susceptibility to schizophrenia.

CHROMOSOMAL LOCATION

Genetic locus: SLC25A12 (human) mapping to 2q31.1; Slc25a12 (mouse) mapping to 2 C2.

SOURCE

ARALAR (B-2) is a mouse monoclonal antibody raised against amino acids 1-67 mapping at the N-terminus of ARALAR1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ARALAR (B-2) is available conjugated to agarose (sc-271056 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271056 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271056 PE), fluorescein (sc-271056 FITC), Alexa Fluor[®] 488 (sc-271056 AF488), Alexa Fluor[®] 546 (sc-271056 AF546), Alexa Fluor[®] 594 (sc-271056 AF594) or Alexa Fluor[®] 647 (sc-271056 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-271056 AF680) or Alexa Fluor[®] 790 (sc-271056 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

ARALAR (B-2) is recommended for detection of ARALAR of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for ARALAR siRNA (h): sc-94426, ARALAR siRNA (m): sc-141183, ARALAR shRNA Plasmid (h): sc-94426-SH, ARALAR shRNA Plasmid (m): sc-141183-SH, ARALAR shRNA (h) Lentiviral Particles: sc-94426-V and ARALAR shRNA (m) Lentiviral Particles: sc-141183-V.

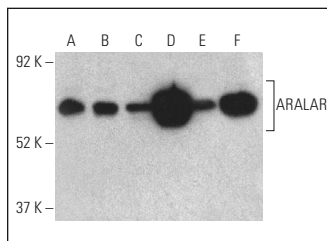
Molecular Weight of ARALAR: 70 kDa.

Positive Controls: BJAB whole cell lysate: sc-2207, Jurkat whole cell lysate: sc-2204 or Ramos cell lysate: sc-2216.

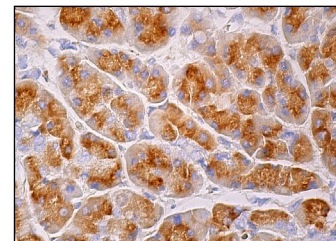
STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



ARALAR (B-2) HRP: sc-271056 HRP. Direct western blot analysis of ARALAR expression in Jurkat (A), Ramos (B), NIH/3T3 (C), A-431 (D), KNRK (E) and BJAB (F) whole cell lysates.



ARALAR (B-2): sc-271056. Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

- Li, B., et al. 2012. ARALAR mRNA and protein levels in neurons and astrocytes freshly isolated from young and adult mouse brain and in maturing cultured astrocytes. *Neurochem. Int.* 61: 1325-1332.
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- Falk, M.J., et al. 2014. AGC1 deficiency causes infantile epilepsy, abnormal myelination, and reduced N-acetylaspartate. *JIMD Rep.* 14: 77-85.
- Menga, A., et al. 2015. The mitochondrial aspartate/glutamate carrier isoform 1 gene expression is regulated by CREB in neuronal cells. *Int. J. Biochem. Cell Biol.* 60: 157-166.
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- Alkan, H.F., et al. 2018. Cytosolic aspartate availability determines cell survival when glutamine is limiting. *Cell Metab.* 28: 706-720.e6.
- Infantino, V., et al. 2019. Epigenetic upregulation and functional role of the mitochondrial aspartate/glutamate carrier isoform 1 in hepatocellular carcinoma. *Biochim. Biophys. Acta Mol. Basis Dis.* 1865: 38-47.
- Petralla, S., et al. 2019. Deficiency of mitochondrial aspartate-glutamate carrier 1 leads to oligodendrocyte precursor cell proliferation defects both *in vitro* and *in vivo*. *Int. J. Mol. Sci.* 20: 4486.
- Carli, S., et al. 2021. *In vivo* magnetic resonance spectroscopy in the brain of Cdk5 null mice reveals a metabolic profile indicative of mitochondrial dysfunctions. *J. Neurochem.* 157: 1253-1269.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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