SANTA CRUZ BIOTECHNOLOGY, INC.

ARALAR (8): sc-135840

BACKGROUND

Calcium signaling in mitochondria is important in order for it to function in response to a variety of extracellular stimuli. Signaling begins with Ca^{2+} entry in mitochondria via the Ca^{++} uniporter followed by Ca^{2+} activation of three dehydrogenases in the mitochondrial matrix. ARALAR, the neuronal Ca^{2+}-binding mitochondrial aspartate-glutamate carrier, has Ca^{2+} 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-acetylaspartatemay and plays a role in myelin formation. It is also essential for the transmission of small Ca^{2+} signals to mitochondria via an increase in mitochondrial NADH. In addition, ARALAR is implicated in conferring susceptibility to schizophrenia.

REFERENCES

1. Jalil, M.A., et al. 2005. Reduced N-acetylaspartate levels in mice lacking ARALAR, a brain- and muscle-type mitochondrial aspartate-glutamate carrier. J. Biol. Chem. 280: 31333-31339.
2. Pardo, B., et al. 2006. Essential role of ARALAR in the transduction of small Ca^{2+} signals to neuronal mitochondria. J. Biol. Chem. 281: 1039-1047.
3. Contreras, L., et al. 2007. Ca^{2+} Activation kinetics of the two aspartate-glutamate mitochondrial carriers, ARALAR and citrin: role in the heart malate-aspartate NADH shuttle. J. Biol. Chem. 282: 7098-7106.
4. Satrústegui, J., et al. 2007. Role of ARALAR, the mitochondrial transporter of aspartate-glutamate, in brain N-acetylaspartate formation and Ca^{2+} signaling in neuronal mitochondria. J. Neurosci. Res. 85: 3359-3366.
5. Satrústegui, J., et al. 2007. Mitochondrial transporters as novel targets for intracellular calcium signaling. Physiol. Rev. 87: 29-67.
6. Hong, C.J., et al. 2007. Association study of polymorphisms in the mitochondrial aspartate/glutamate carrier SLC25A12 (ARALAR) gene with schizophrenia. Prog. Neuropsychopharmacol. Biol. Psychiatry 31: 1510-1513.
7. Mármol, P., et al. 2009. Requirement for ARALAR and its Ca^{2+}-binding sites in Ca^{2+} signal transduction in mitochondria from INS-1 clonal β-cells. J. Biol. Chem. 284: 515-524.

CHROMOSOMAL LOCATION

Genetic locus: SLC25A12 (human) mapping to 2q31.1; Catsper3 (mouse) mapping to 13 B1.

SOURCE

ARALAR (8) is a mouse monoclonal antibody raised against amino acids 1-119 of ARALAR of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

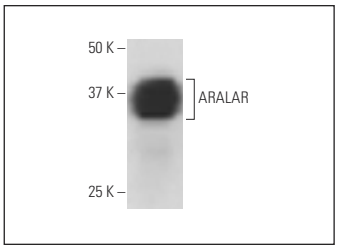
ARALAR (8) is recommended for detection of ARALAR of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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.

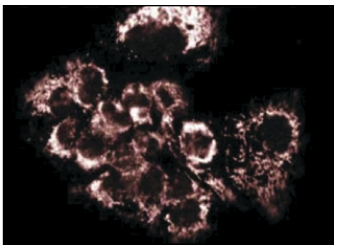
Molecular Weight of ARALAR: 70 kDa.

Positive Controls: SW-13 cell lysate: sc-24778, Jurkat whole cell lysate: sc-2204 or A-431 whole cell lysate: sc-2201.

DATA



ARALAR (8): sc-135840. Western blot analysis of ARALAR expression in SW-13 whole cell lysate.



ARALAR (8): sc-135840. Immunofluorescence staining of A-431 cells showing cytoplasmic localization.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.