

Aminoacylase-1 (A-5): sc-271705

BACKGROUND

Aminoacylase-1, also designated N-acyl-L-amino-acid amidohydrolase or ACY-1, is a member of the largest metallopeptidase family called M20A. Aminoacylase-1 is a zinc-binding homodimeric enzyme expressed in kidney, brain, placenta and spleen. It is the most abundant of the aminoacylases. Aminoacylase-1 localizes to the cytoplasm and catalyzes the hydrolysis of N-acylated or N-acetylated amino acids. In addition, Aminoacylase-1 is a sphingosine kinase 1 (SphK1)-interacting protein and may also play a role in regulating responses of the cell to oxidative stress. The gene encoding Aminoacylase-1 is evolutionarily conserved in fish, frog, mouse, rat and human. Deficiency in the Aminoacylase-1 protein may result in defects of brain metabolism and function.

REFERENCES

1. Cook, R.M., et al. 1993. Human Aminoacylase-1. Cloning, sequence, and expression analysis of a chromosome 3p21 gene inactivated in small cell lung cancer. *J. Biol. Chem.* 268: 17010-17017.
2. Lindner, H., et al. 2000. Mutational analysis of two PWV sequence motifs in human Aminoacylase-1. *Biol. Chem.* 381: 1055-1061.
3. Lindner, H.A., et al. 2003. Essential roles of zinc ligation and enzyme dimerization for catalysis in the Aminoacylase-1/M20 family. *J. Biol. Chem.* 278: 44496-44504.
4. Maceyka, M., et al. 2004. Aminoacylase-1 is a sphingosine kinase 1-interacting protein. *FEBS Lett.* 568: 30-34.
5. Lindner, H.A., et al. 2005. Roles of dimerization domain residues in binding and catalysis by Aminoacylase-1. *Biochemistry* 44: 15645-15651.
6. Liu, Z., et al. 2006. Probing the catalytic center of porcine Aminoacylase-1 by site-directed mutagenesis, homology modeling and substrate docking. *J. Biochem.* 139: 421-430.
7. Sass, J.O., et al. 2006. Mutations in ACY1, the gene encoding Aminoacylase-1, cause a novel inborn error of metabolism. *Am. J. Hum. Genet.* 78: 401-409.
8. Engelke, U.F., et al. 2008. NMR spectroscopy of Aminoacylase-1 deficiency, a novel inborn error of metabolism. *NMR Biomed.* 21: 138-147.

CHROMOSOMAL LOCATION

Genetic locus: ACY1 (human) mapping to 3p21.2; Acy1 (mouse) mapping to 9 F1.

SOURCE

Aminoacylase-1 (A-5) is a mouse monoclonal antibody raised against amino acids 265-408 mapping at the C-terminus of Aminoacylase-1 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.

APPLICATIONS

Aminoacylase-1 (A-5) is recommended for detection of Aminoacylase-1 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Aminoacylase-1 siRNA (h): sc-61966, Aminoacylase-1 siRNA (m): sc-61967, Aminoacylase-1 shRNA Plasmid (h): sc-61966-SH, Aminoacylase-1 shRNA Plasmid (m): sc-61967-SH, Aminoacylase-1 shRNA (h) Lentiviral Particles: sc-61966-V and Aminoacylase-1 shRNA (m) Lentiviral Particles: sc-61967-V.

Molecular Weight (predicted) of Aminoacylase-1: 45 kDa.

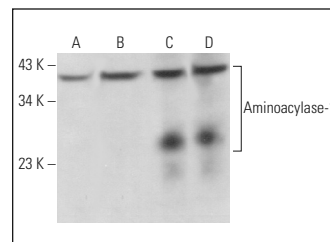
Molecular Weight (observed) of Aminoacylase-1: 42 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, mouse brain extract: sc-2253 or human kidney extract: sc-363764.

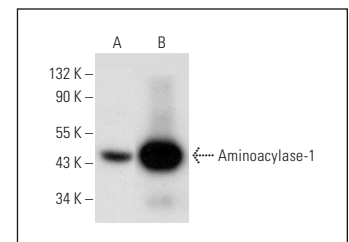
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



Aminoacylase-1 (A-5): sc-271705. Western blot analysis of Aminoacylase-1 expression in K-562 (A) and HL-60 (B) whole cell lysates and mouse brain (C) and rat hippocampus (D) tissue extracts.



Aminoacylase-1 (A-5): sc-271705. Western blot analysis of Aminoacylase-1 expression in Hep G2 whole cell lysate (A) and human kidney tissue extract (B).

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.