

# Aminoacylase-1 (C-18): sc-55056

## 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. 2001. 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 ACY, 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. 2007. 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.

## SOURCE

Aminoacylase-1 (C-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Aminoacylase-1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-55056 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

Aminoacylase-1 (C-18) is recommended for detection of Aminoacylase-1 of human and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

Aminoacylase-1 (C-18) is also recommended for detection of Aminoacylase-1 in additional species, including equine, canine, bovine and porcine.

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

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

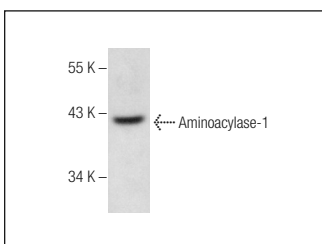
Molecular Weight (observed) of Aminoacylase-1: 42 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, Caki-1 cell lysate: sc-2224 or human kidney tissue extract.

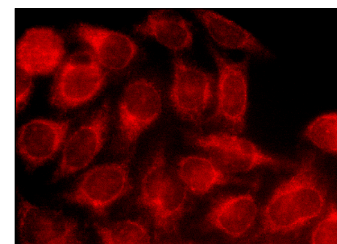
## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



Aminoacylase-1 (C-18): sc-55056. Western blot analysis of Aminoacylase-1 expression in human kidney tissue extract.



Aminoacylase-1 (C-18): sc-55056. Immunofluorescence staining of methanol-fixed HeLa 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.