SANTA CRUZ BIOTECHNOLOGY, INC.

Serine racemase (A-17): sc-5751

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Known to be prominent in bacteria, D amino acids were generally thought to be absent in mammals. D-serine has since been found in high levels in the mammalian brain and in various mammalian fluids. D-serine activates N-methyl-D-aspartate (NMDA) receptors—molecules with important roles in learning, brain growth and brain cell death. Serine racemase is the enzyme catalyzing the formation of D-serine from L-serine. Serine racemase is a member of the family of pyridoxal-5' phosphate-dependent enzymes and is localized to glial cells in rat brain.

REFERENCES

1. Hashimoto, A., et al. 1993. Free D-serine, D-aspartate and D-alanine in central nervous system and serum in mutant mice lacking D-amino acid oxidase. Neurosci. Lett. 152: 33-36.
2. Kumashiro, S., et al. 1995. Free D-serine in post-mortem brains and spinal cords of individuals with and without neuropsychiatric diseases. Brain Res. 681: 117-125.
3. Schell, M.J., et al. 1995. D-serine, an endogenous synaptic modulator: localization to astrocytes and glutamate-stimulated release. Proc. Natl. Acad. Sci. USA 92: 3948-3952.
4. Wolosker, H., et al. 1999. Purification of serine racemase: biosynthesis of the neuromodulator D-serine. Proc. Natl. Acad. Sci. USA 96: 721-725.
5. Wolosker, H., et al. 1999. Serine racemase: a glial enzyme synthesizing D-serine to regulate glutamate-N-methyl-D-aspartate neurotransmission. Proc. Natl. Acad. Sci. USA 96: 13409-13414.

CHROMOSOMAL LOCATION

Genetic locus: SRR (human) mapping to 17p13.3; Srr (mouse) mapping to 11 B5.

SOURCE

Serine racemase (A-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Serine racemase of mouse 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-5751 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

PROTOCOLS

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

APPLICATIONS

Serine racemase (A-17) is recommended for detection of Serine racemase 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)], 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).

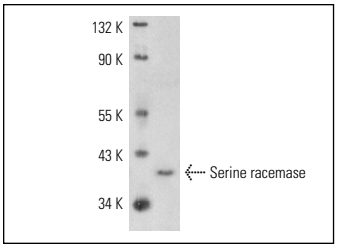
Serine racemase (A-17) is also recommended for detection of Serine racemase in additional species, including canine and bovine.

Suitable for use as control antibody for Serine racemase siRNA (h): sc-42221, Serine racemase siRNA (m): sc-42222, Serine racemase shRNA Plasmid (h): sc-42221-SH, Serine racemase shRNA Plasmid (m): sc-42222-SH, Serine racemase shRNA (h) Lentiviral Particles: sc-42221-V and Serine racemase shRNA (m) Lentiviral Particles: sc-42222-V.

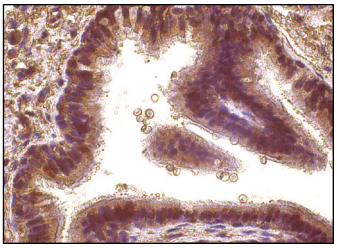
Molecular Weight of Serine racemase: 37 kDa.

Positive Controls: mouse brain extract: sc-2253 or rat brain extract: sc-2392.

DATA



Serine racemase (A-17): sc-5751. Western blot analysis of Serine racemase expression in mouse brain tissue extract.



Serine racemase (A-17): sc-5751. Immunoperoxidase staining of formalin fixed, paraffin-embedded human lung tissue showing nuclear and cytoplasmic staining of respiratory epithelial cells.

SELECT PRODUCT CITATIONS

1. Panatier, A., et al. 2006. Glia-derived D-serine controls NMDA receptor activity and synaptic memory. Cell 125: 775-784.
2. Miya, K., et al. 2008. Serine racemase is predominantly localized in neurons in mouse brain. J. Comp. Neurol. 510: 641-654.
3. Thompson, M., et al. 2012. Paradoxical roles of serine racemase and D-serine in the G93A mSOD1 mouse model of amyotrophic lateral sclerosis. J. Neurochem. 120: 598-610.
4. Esposito, S., et al. 2012. Contribution of serine racemase/d-serine pathway to neuronal apoptosis. Aging Cell 11: 588-598.

RESEARCH USE

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