

Serine racemase (T-16): sc-5752

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 B4.

SOURCE

Serine racemase (T-16) 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-5752 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.

RESEARCH USE

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

APPLICATIONS

Serine racemase (T-16) 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Serine racemase (T-16) is also recommended for detection of serine racemase in additional species, including 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.

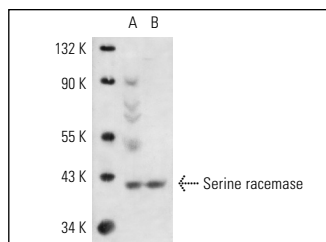
Molecular Weight of Serine racemase: 37 kDa.

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

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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



Serine racemase (A-17): sc-5752. Western blot analysis of Serine racemase expression in rat brain (A) and mouse brain (B) tissue extracts.

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. Puyal, J., et al. 2006. Changes in D-serine levels and localization during postnatal development of the rat vestibular nuclei. *J. Comp. Neurol.* 497: 610-621.