SANTA CRUZ BIOTECHNOLOGY, INC.

Serine racemase (A-4): sc-365217

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.

CHROMOSOMAL LOCATION

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

SOURCE

Serine racemase (A-4) is a mouse monoclonal antibody raised against amino acids 191-340 mapping at the C-terminus of Serine racemase of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Serine racemase (A-4) is available conjugated to agarose (sc-365217 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365217 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365217 PE), fluorescein (sc-365217 FITC), Alexa Fluor® 488 (sc-365217 AF488), Alexa Fluor® 546 (sc-365217 AF546), Alexa Fluor® 594 (sc-365217 AF594) or Alexa Fluor® 647 (sc-365217 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365217 AF680) or Alexa Fluor® 790 (sc-365217 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

Serine racemase (A-4) 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-4) is also recommended for detection of Serine racemase in additional species, including equine, canine, bovine and porcine.

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.

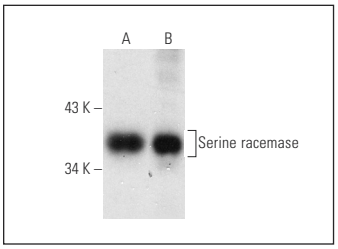
Molecular Weight of Serine racemase: 37 kDa.

Positive Controls: rat brain extract: sc-2392, HEK293 whole cell lysate: sc-45136 or mouse brain extract: sc-2253.

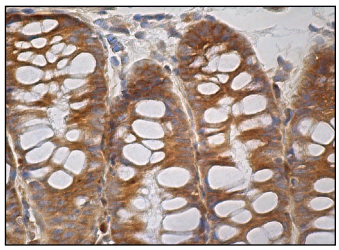
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Serine racemase (A-4): sc-365217. Western blot analysis of Serine racemase expression in HEK293 whole cell lysate (**A**) and mouse brain tissue extract (**B**).



Serine racemase (A-4): sc-365217. Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Moon, J.Y., et al. 2015. Spinal σ-1 receptor activation increases the production of D-serine in astrocytes which contributes to the development of mechanical allodynia in a mouse model of neuropathic pain. Pharmacol. Res. 100: 353-364.
2. Wang, R., et al. 2019. Role of astrocytes-derived D-serine in PFOS-induced neurotoxicity through NMDARs in the rat primary hippocampal neurons. Toxicology 422: 14-24.
3. Tapanes, S.A., et al. 2022. Inhibition of glial D-serine release rescues synaptic damage after brain injury. Glia 70: 1133-1152.
4. Park, D.K., et al. 2022. Reduced D-serine levels drive enhanced non-ionotropic NMDA receptor signaling and destabilization of dendritic spines in a mouse model for studying schizophrenia. Neurobiol. Dis. 170: 105772.
5. Folorunso, O.O., et al. 2022. The D-serine biosynthetic enzyme serine racemase is expressed by reactive astrocytes in the amygdala of human and a mouse model of Alzheimer's disease. Neurosci. Lett. 792: 136958.

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.