SANTA CRUZ BIOTECHNOLOGY, INC.

PTPS (AT2B2): sc-517423

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The tetrahydrobiopterin (BH4) cofactor is essential for hepatic hydroxylase, which is involved in phenylalanine degradation and catecholamine and serotonin biosynthesis. BH4 is also an essential and limiting cofactor for all types of nitric oxide synthase. BH4 deficiency results in hyperphenylalaninemia and monoamine neurotransmitter depletion and is most commonly due to autosomal recessive mutation in 6-pyruvoyltetrahydropterin synthase (PTPS), the second enzyme for BH4 biosynthesis. The active site of PTPS consists of the pterin-anchoring Glu A107 neighbored by two catalytic motifs: a Zn(II) binding site and an intersubunit catalytic triad formed by Cys A42, Asp B88 and His B89. The active site of PTPS undergoes a Zn and Mg-dependent reaction that includes a triphosphate elimination, a stereospecific reduction and the oxidation of both side hydroxyl groups. The catalytic triad of PTPS is involved in the deprotonation of the side-chain carbons of substrates. In addition, Ser 19 of human PTPS may be a substrate for cGMP-dependent protein kinase type II phosphorylation *in vivo,* which is essential for normal activity of PTPS.

REFERENCES

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5. Linscheid, P., Schaffner, A., Blau, N. and Schoedon, G. 1998. Regulation of 6-pyruvoyltertrahydropterin synthase activity and messenger RNA abundance in human vascular endothelial cells. Circulation 98: 1703-1706.
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CHROMOSOMAL LOCATION

Genetic locus: PTS (human) mapping to 11q23.1; Pts (mouse) mapping to 9 A5.3.

RESEARCH USE

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

SOURCE

PTPS (AT2B2) is a mouse monoclonal antibody raised against a recombinant protein corresponding to amino acids 1-145 of PTPS of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PTPS (AT2B2) is recommended for detection of PTPS of mouse, rat and human 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), flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PTPS siRNA (h): sc-106734, PTPS siRNA (m): sc-155952, PTPS shRNA Plasmid (h): sc-106734-SH, PTPS shRNA Plasmid (m): sc-155952-SH, PTPS shRNA (h) Lentiviral Particles: sc-106734-V and PTPS shRNA (m) Lentiviral Particles: sc-155952-V.

Molecular Weight (predicted) of PTPS: 16 kDa.

Molecular Weight (observed) of PTPS: 20 kDa.

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, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) 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.

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 for detailed protocols and support products.