SANTA CRUZ BIOTECHNOLOGY, INC.

p-DARPP-32 (Thr 34): sc-135687

BACKGROUND

Dopaminergic signaling pathways, which are essential for multiple brain functions, are abnormal in several neurological disorders, such as schizophrenia, Parkinson's disease and drug abuse. DARPP-32 is abundant in neurons that receive dopaminergic input. Activation of PKA and the consequent phosphorylation of DARPP-32 on Thr 34 occurs in response to dopamine acting upon D1-like receptors. Dopamine interaction with D2-like receptors results in the inhibition of PKA activation, the activation of protein phosphatase 2B and the consequent dephosphorylation of DARPP-32 at Thr 34. Phosphorylated DARPP-32 at Thr 34 is a potent inhibitor of PP-1. Phosphorylation of DARPP-32 on Ser 137 by casein kinase inhibits the dephosphorylation of Thr 34 by calcineurin. Phosphorylation of DARPP-32 on Thr 75 by CdK5 inhibits PKA by a competitive mechanism *in vitro*. Decreasing the phosphorylaton of DARPP-32 Thr 75 increases the dopamine-induced phosphorylation of PKA substrates.

REFERENCES

1. Walaas, S.I., et al. 1984. DARPP-32, a dopamine- and adenosine 3':5'-monophosphate-regulated phosphoprotein enriched in dopamine-innervated brain regions. I. Regional and cellular distribution in the rat brain. J. Neurosci. 4: 84-98.
2. Hemmings, H.C., Jr., et al. 1984. DARPP-32, a dopamine- and adenosine 3':5'-monophosphate-regulated neuronal phosphoprotein I. Amino acid sequence around the phosphorylated threonine. J. Biol. Chem. 259: 14486-14490.
3. Hemmings, H.C., Jr., et al. 1984. DARPP-32, a dopamine-regulated neuronal phosphoprotein, is a potent inhibitor of protein phosphatase-1. Nature 310: 503-505.
4. Desdouits, F., et al. 1995. Dopamine- and cAMP-regulated phosphoprotein DARPP-32: phosphorylation of Ser 137 by casein kinase I inhibits dephosphorylation of Thr 34 by calcineurin. Proc. Natl. Acad. Sci. USA 92: 2682-2685.
5. Nishi, A., et al. 1997. Bidirectional regulation of DARPP-32 phosphorylation by dopamine. J. Neurosci. 17: 8147-8155.
6. Fienberg, A.A., et al. 1998. DARPP-32: regulator of the efficacy of dopaminergic neuro-transmission. Science 281: 838-842.

CHROMOSOMAL LOCATION

Genetic locus: PPP1R1B (human) mapping to 17q12; Ppp1r1b (mouse) mapping to 11 D.

SOURCE

p-DARPP-32 (Thr 34) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Thr 34 of DARPP-32 of rat origin.

PRODUCT

Each vial contains IgG in 100 µl of 10 mM HEPES with 150 mM NaCl, 50% glycerol and < 0.1% BSA.

APPLICATIONS

p-DARPP-32 (Thr 34) is recommended for detection of Thr 34 phosphorylated DARPP-32 of mouse, rat and human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000) and immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for DARPP-32 siRNA (h): sc-35173, DARPP-32 siRNA (m): sc-35174, DARPP-32 shRNA Plasmid (h): sc-35173-SH, DARPP-32 shRNA Plasmid (m): sc-35174-SH, DARPP-32 shRNA (h) Lentiviral Particles: sc-35173-V and DARPP-32 shRNA (m) Lentiviral Particles: sc-35174-V.

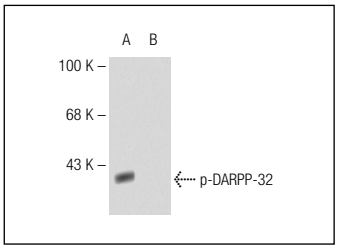
Molecular Weight of p-DARPP-32: 32 kDa.

Positive Controls: rat caudate nucleus extract.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



p-DARPP-32 (Thr 34): sc-135687. Western blot analysis of DARPP-32 phosphorylation in untreated (**A**) and lambda protein (sc-200312A) phosphatase-treated (**B**) rat caudate nucleus tissue extracts.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

RESEARCH USE

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

PROTOCOLS

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