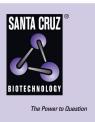
SANTA CRUZ BIOTECHNOLOGY, INC.

DARPP-32 (134-195): sc-4511 WB



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 (for dopamine and adenosine 3',5'-monophosphate-regulated phosphoprotein of 32 kDa) is abundant in neurons that receive dopaminergic input. Activation of PKA and the consequent phosphorylation of DARPP-32 on threonine 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. Neurotransmitters other than dopamine may also be able to stimulate the phosphorylation or dephosphorylation of DARPP-32. Phosphorylated DARPP-32 is a potent inhibitor of PP-1.

REFERENCES

- Walaas, S.I. and Greengard, P. 1984. DARPP-32, a dopamine- and adenosine 3':5'-monophosphate-regulated phosphoprotein enriched in dopamineinnervated brain regions. I. Regional and cellular distribution in the rat brain. J. Neurosci. 4: 84-98.
- Hemmings, H.C. Jr., Greengard, P., Tung, H.Y., and Cohen, P. 1984. DARPP-32, a dopamine-regulated neuronal phosphoprotein, is a potent inhibitor of protein phosphatase-1. Nature 310: 503-505.
- Hemmings, H.C. Jr., Williams, K.R., Konigsberg, W.H., and Greengard P. 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.
- Nishi, A., Snyder, G.L., and Greengard, P. 1997. Bidirectional regulation of DARPP-32 phosphorylation by dopamine. J. Neurosci. 17: 8147-8155.
- Fienberg, A.A., Hiroi, N., Mermelstein, P.G., Song, W., Snyder, G.L., Nishi, A., Cheramy, A., O'Callaghan, J.P., Miller, D.B., Cole, D.G., Corbett, R., Haile, C.N., Cooper, D.C., Onn, S.P., Grace, A.A., Ouimet, C.C., White, F.J., Hyman, S.E., Surmeier, D.J., Girault, J., Nestler, E.J., and Greengard, P. 1998. DARPP-32: regulator of the efficacy of dopaminergic neuro-transmission. Science 281: 838-842.
- Greengard, P., Nairn, A.C., Girault, J.A., Ouimet, C.C., Snyder, G.L., Fisone, G., Allen, P.B., Fienberg, A., and Nishi, A. 1998. The DARPP-32/protein phosphatase-1 cascade: a model for signal integration. Brain Res. Rev. 26: 274-284.

SOURCE

DARPP-32 (134-195) is expressed in *E. coli* as a 34 kDa tagged fusion protein corresponding to amino acids 134-195 of DARPP-32 of human origin.

PRODUCT

DARPP-32 (134-195) is purified from bacterial lysates (>98%) by glutathione agarose affinity chromatography; supplied as 10 μg in 0.1 ml SDS-PAGE loading buffer.

APPLICATIONS

DARPP-32 (134-195) is suitable as a Western blotting control for sc-11365.

STORAGE

Store at -20° C; stable for one year from the date of shipment.

RESEARCH USE

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