



PhosphoSolutions[®]
Antibodies that work™

Colorado Biosciences Park
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Tel: (888) 442-7100

Anti-Phospho-Thr³⁴ DARPP-32

Catalog Number: p1025-34

Size: 100 µl

Product Description: Affinity purified rabbit polyclonal antibody

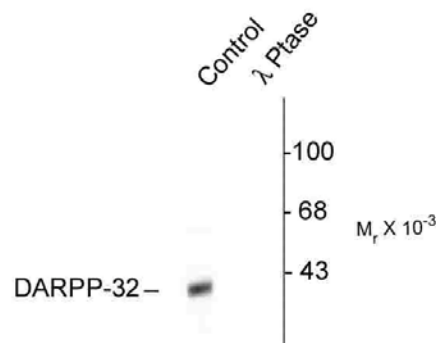
Applications: WB: 1:1000

Antigen: Phosphopeptide corresponding to amino acid residues surrounding the phospho-Thr³⁴ of rat DARPP-32.

Species reactivity: The antibody has been directly tested for reactivity in Western blots with rat tissue. It is anticipated that the antibody will react with bovine, canine, chicken, human, mouse, and non-human primates based on the fact that these species have 100% homology with the amino acid sequence used as antigen.

Biological Significance: DARPP-32 is a dopamine (DA) and cAMP-regulated ~32k phosphoprotein that is associated with dopaminergic neurons (Fienberg et al., 1998). The protein inhibits protein phosphatase I when it is phosphorylated on Thr³⁴. In contrast, when DARPP-32 is phosphorylated on Thr⁷⁵ the protein acts as an inhibitor of PKA (Bibb et al., 1999). Phosphorylation of DARPP-32 is thought to play a critical role in the regulation of dopaminergic neurotransmission. In addition, the activity of DARPP-32 is also thought to play important roles in the actions of alcohol, caffeine and Prozac® (Maldve et al., 2002; Lindskog et al., 2002; Svenningsson et al., 2002).

Anti-Phospho Thr³⁴ DARPP-32



Western blot of rat caudate lysate showing specific immunolabeling of the ~32k DARPP-32 phosphorylated at Thr³⁴ (Control). The phosphospecificity of this labeling is shown in the second lane (*lambda*-phosphatase: λ-Ptase). The blot is identical to the control except that it was incubated in λ-Ptase (1200 units for 30 min) before being exposed to the Anti-Thr³⁴ DARPP-32. The immunolabeling is completely eliminated by treatment with λ-Ptase.

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WB = Western Blot **IF** = Immunofluorescence **IHC** = Immunohistochemistry **IP** = Immunoprecipitation

Packaging: 100 µl in 10 mM HEPES (pH 7.5), 150 mM NaCl, 100 µg BSA per ml and 50% glycerol. Adequate amount of material to conduct 10-mini Western Blots.

Storage and Stability: For long term storage -20°C is recommended. Stable at -20°C for at least 1 year.

Shipment: Domestic - Blue Ice; International - Blue Ice or Dry Ice.

Purification Method: Prepared from rabbit serum by affinity purification via sequential chromatography on phospho- and dephosphopeptide affinity columns.

Antibody Specificity: Specific for the ~32k DARPP-32 protein phosphorylated at Thr³⁴. Immunolabeling is blocked by λ -phosphatase treatment.

Quality Control Tests: Western blots performed on each lot.

References:

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- 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.G., Hyman, S.E., Surmeier, D.G., Girault, J., Nestler, E.J. and Greengard, P. (1998) DARPP-32: regulator of the efficacy of dopaminergic neurotransmission. *Science* 281:838-842.
- Lindskog M, Svenningsson P, Pozzi L, Kim Y, Fienberg AA, Bibb JA, Fredholm BB, Nairn AC, Greengard P, Fisone G (2002) Involvement of DARPP-32 phosphorylation in the stimulant action of caffeine. *Nature (London)* 418:774-778.
- Maldve RE, Zhang TA, Ferrani-Kile K, Schreiber SS, Lippmann MJ, Snyder GL, Feinberg AA, Leslie SW, Gonzales RA, Morrisett RA (2002) DARPP-32 and the regulation of the ethanol sensitivity of NMDA receptors in the nucleus accumbens. *Nature Neurosci* 5:641-648.
- Svenningsson P, Tzavara ET, Witkin JM, Fienberg AA, Nomikos GG, Greengard P (2002) Involvement of striatal and extrastriatal DARPP-32 in biochemical and behavioral effects of fluoxetine (Prozac®). *Proc Natl Acad Sci USA* 99:3182-3187.
- Daniela Marazziti, Chiara Di Pietro, Silvia Mandillo, Elisabetta Golini, Rafaele Matteoni, and Glauco P. Tocchini-Valentini (2011) Absence of the GPR37/PAEL receptor impairs striatal Akt and ERK2 phosphorylation, Δ FosB expression, and conditioned place preference to amphetamine and cocaine *FASEB J*, 25: 2071 - 2081.
- Rajani Maiya, Yan Zhou, Erin H. Norris, Mary Jeanne Kreek, and Sidney Strickland (2009) Tissue plasminogen activator modulates the cellular and behavioral response to cocaine. *PNAS*, 106: 1983 - 1988.
- Michelle Niculescu, Shane A. Perrine, Jonathan S. Miller, Michelle E. Ehrlich, and Ellen M. Unterwald (2008) Trk: A Neuromodulator of Age-Specific Behavioral and Neurochemical Responses to Cocaine in Mice. *J. Neurosci.*, Jan 2008; 28: 1198 - 1207.
- Jean-Martin Beaulieu, Tatyana D. Sotnikova, Raul R. Gainetdinov, and Marc G. Caron (2006) Paradoxical Striatal Cellular Signaling Responses to Psychostimulants in Hyperactive Mice . *J. Biol. Chem.*, Oct 2006; 281: 32072 - 32080.

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