Technical Data Sheet

# Purified Mouse Anti-DARPP-32

## Product Information

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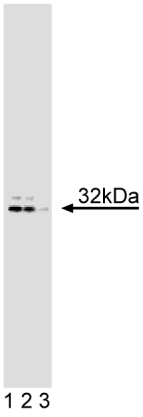
| **Material Number:** | **611520** |
| **Size:** | 50 µg |
| **Concentration:** | 250 µg/ml |
| **Clone:** | 15/DARPP-32 |
| **Immunogen:** | Human DARPP-32 aa. 70-181 |
| **Isotype:** | Mouse IgG1 |
| **Reactivity:** | QC Testing: Rat<br>Tested in Development: Mouse |
| **Target MW:** | 32 kDa |
| **Storage Buffer:** | Aqueous buffered solution containing BSA, glycerol, and ≤0.09% sodium azide. |

## Description

Dopaminergic signaling in midbrain neurons is essential to multiple brain functions and involves the activation of dopamine receptors, such as D1 and D2, which regulate the phosphorylation state of DARPP-32 (**d**opamine and cyclic **A**MP-regulated **p**hospho-**p**rotein of Mr = **32**,000). D1 receptor ligation causes activation of PKA and phosphorylation of DARPP-32 at Thr-34, which converts DARPP-32 to a potent inhibitor of protein phosphatase 1 (PP1). In addition, DARPP-32 is converted to an inhibitor of PKA via phosphorylation at Thr-75 by cyclin-dependent kinase 5 (Cdk5). D2 receptor ligation inhibits PKA and activates protein phosphatase 2B/calcineurin causing dephosphorylation of DARPP-32. The major function of DARPP-32 may be to inhibit the activity of PP1, which controls the phosphorylation state of neurotransmitter receptors, ion channels, ion pumps, and transcription factors. *DARPP-32 -/-* mice are defective in the physiologicial and behavioral responses to dopamine. Thus, DARPP-32, a bifunctional signal transduction molecule that differentially controls a Ser/Thr kinase and a Ser/Thr phosphatase, is a critical element of dopaminergic neurotransmission and normal brain function.




***Western blot analysis of DARPP-32 on rat brain lysate.***
*Lane 1:250, lane 2: 1:500, lane 3: 1:1000 dilution of DARPP-32 .*

## Preparation and Storage

The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography.
Store undiluted at -20°C.

## Application Notes

**Application**

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| Western blot | Routinely Tested |
| Immunofluorescence | Tested During Development |

## Product Notices

1. Since applications vary, each investigator should titrate the reagent to obtain optimal results.
2. Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.
3. Caution: Sodium azide yields highly toxic hydrazoic acid under acidic conditions. Dilute azide compounds in running water before discarding to avoid accumulation of potentially explosive deposits in plumbing.

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4. Source of all serum proteins is from USDA inspected abattoirs located in the United States.

## References


Bibb JA, Snyder GL, Nishi A, Yan Z. Phosphorylation of DARPP-32 by Cdk5 modulates dopamine signalling in neurons. *Nature.* 1999; 402(6762):669-671. (Biology)

Fienberg AA, Hiroi N, Mermelstein PG. DARPP-32: regulator of the efficacy of dopaminergic neurotransmission. *Science.* 1998; 281(5378):838-842. (Biology)

Kurihara T, Lewis RM, Esler J, Greengard P. Cloning of cDNA for DARPP-32, a dopamine- and cyclic AMP-regulated neuronal phosphoprotein. *J Neurosci.* 1988; 8(2):508-517. (Biology)

Yan Z, Feng J, Fienberg AA, Greengard P. D(2) dopamine receptors induce mitogen-activated protein kinase and cAMP response element-binding protein phosphorylation in neurons. *Proc Natl Acad Sci U S A.* 1999; 96(20):11607-11612. (Biology)

Yan Z, Hsieh-Wilson L, Feng J. Protein phosphatase 1 modulation of neostriatal AMPA channels: regulation by DARPP-32 and spinophilin. *Nat Neurosci.* 1999; 2(1):13-17. (Biology)