Revision 1

#3401 Store at -20C

Phospho-DARPP-32 (Ser97) (D11A5) Rabbit mAb

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB, IP	H M R	Endogenous	32	Rabbit IgG	#Q9UD71	84152

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

Phospho-DARPP-32 (Ser97) (D11A5) Rabbit mAb detects endogenous levels of DARPP-32 only when phosphorylated at Ser97.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser102 of human DARPP-32 protein (equivalent to Ser97 of mouse DARPP-32 protein).

Background

DARPP-32 (dopamine and cyclic AMP-regulated phosphoprotein, relative molecular mass 32,000) is a cytosolic protein highly enriched in medium-sized spiny neurons of the neostriatum (1). It is a bifunctional signaling molecule that controls serine/threonine kinase and serine/threonine phosphatase activity (2). Dopamine stimulates phosphorylation of DARPP-32 through D1 receptors and activation of PKA. PKA phosphorylation of DARPP-32 at Thr34 converts it into an inhibitor of protein phosphatase 1 (1). DARPP-32 is converted into an inhibitor of PKA when phosphorylated at Thr75 by cyclin-dependent kinase 5 (CDK5) (2). Mice containing a targeted deletion of the DARPP-32 gene exhibit an altered biochemical, electrophysiological, and behavioral phenotype (3).
Drugs of abuse such as cocaine and food reinforcement learning activate the dopamine D1 receptor-signaling cascade. The downstream effector DARPP-32 is dephosphorylated at Ser97 inhibiting its nuclear export. This enables DARPP-32 to function as an inhibitor of protein phosphatase-1, increasing phosphorylation of histone H3 at Ser10. Knock-in mice bearing a DARPP-32 Ser97 to Ala (S97A) mutation demonstrate changed behavioral effects to drugs of abuse and a decreased motivation for food (4).

Background References

1. Nishi, A. et al. (1997) *J. Neurosci.* 17, 8147-8155.
2. Bibb, J.A. et al. (1999) *Nature* 402, 669-671.
3. Fienberg, A.A. et al. (1998) *Science* 281, 838-842.
4. Stipanovich, A. et al. (2008) *Nature* 453, 879-84.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster **X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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