Revision 1

Store at -20C

#14695

Delta FosB (D3S8R) 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:
W, IP	H M R Mk	Endogenous	37	Rabbit IgG	#P53539	2354

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

Delta FosB (D3S8R) Rabbit mAb recognizes endogenous levels of total delta FosB protein. This antibody also cross-reacts with an unidentified protein of 85 kDa. This antibody does not cross-react with FosB protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of human delta FosB protein.

Background

The Fos family of nuclear oncogenes includes c-Fos, FosB, Fos-related antigen 1 (FRA1), and Fos-related antigen 2 (FRA2) (1). While most Fos proteins exist as a single isoform, the FosB protein exists as two isoforms: full-length FosB and a shorter form, FosB2 (Delta FosB), which lacks the carboxy-terminal 101 amino acids (1-3). The expression of Fos proteins is rapidly and transiently induced by a variety of extracellular stimuli, including growth factors, cytokines, neurotransmitters, polypeptide hormones, and stress. Fos proteins dimerize with Jun proteins (c-Jun, JunB, and JunD) to form Activator Protein-1 (AP-1), a transcription factor that binds to TRE/AP-1 elements and activates transcription. Fos and Jun proteins contain the leucine-zipper motif that mediates dimerization and an adjacent basic domain that binds to DNA. The various Fos/Jun heterodimers differ in their ability to transactivate AP-1 dependent genes. In addition to increased expression, phosphorylation of Fos proteins by Erk kinases in response to extracellular stimuli may further increase transcriptional activity (4-6). Phosphorylation of c-Fos at Ser32 and Thr232 by Erk5 increases protein stability and nuclear localization (5). Phosphorylation of FRA1 at Ser252 and Ser265 by Erk1/2 increases protein stability and leads to overexpression of FRA1 in cancer cells (6). Following growth factor stimulation, expression of FosB and c-Fos in quiescent fibroblasts is immediate, but very short-lived, with protein levels dissipating after several hours (7). FRA1 and FRA2 expression persists longer, and appreciable levels can be detected in asynchronously growing cells (8). Deregulated expression of c-Fos, FosB, or FRA2 can result in neoplastic cellular transformation; however, Delta FosB lacks the ability to transform cells (2,3).

The delta FosB protein is encoded by the *FosB* gene and is produced by alternative splicing. This shorter isoform lacks a carboxy-terminal FosB region that contains ubiquitination sites and results in more stable delta FosB protein (9). Induced delta FosB accumulates in select brain regions upon chronic drug use (10-12) where it interacts with JunD to form an active, long-lasting AP-1 complex (13). This complex may represent a molecular switch that helps initiate and maintain the addicted state (14,15).

Background References

1. Tulchinsky, E. (2000) *Histol Histopathol* 15, 921-8.
2. Dobrazanski, P. et al. (1991) *Mol Cell Biol* 11, 5470-8.
3. Nakabeppu, Y. and Nathans, D. (1991) *Cell* 64, 751-9.
4. Rosenberger, S.F. et al. (1999) *J Biol Chem* 274, 1124-30.
5. Sasaki, T. et al. (2006) *Mol Cell* 24, 63-75.
6. Basbous, J. et al. (2007) *Mol Cell Biol* 27, 3936-50.
7. Kovary, K. and Bravo, R. (1991) *Mol Cell Biol* 11, 2451-9.
8. Kovary, K. and Bravo, R. (1992) *Mol Cell Biol* 12, 5015-23.
9. Carle, T.L. et al. (2007) *Eur J Neurosci* 25, 3009-19.
10. Hope, B.T. et al. (1994) *Neuron* 13, 1235-44.
11. Nye, H.E. et al. (1995) *J Pharmacol Exp Ther* 275, 1671-80.
12. Nye, H.E. and Nestler, E.J. (1996) *Mol Pharmacol* 49, 636-45.
13. Chen, J. et al. (1997) *J Neurosci* 17, 4933-41.
14. Nestler, E.J. et al. (2001) *Proc Natl Acad Sci U S A* 98, 11042-6.

15. McClung, C.A. et al. (2004) *Brain Res Mol Brain Res* 132, 146-54.

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 nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat **Mk:** Monkey

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Limited Uses