Revision 1

#3483 Store at -20C

DUSP10/MKP5 Antibody

Cell Signaling TECHNOLOGY®

Orders: 877-616-CELL (2355) orders@cellsignal.com

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Web: info@cellsignal.com cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

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

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source:	UniProt ID:	Entrez-Gene Id:
WB	H M R	Endogenous	54	Rabbit	#Q9Y6W6	11221

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

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

Specificity / Sensitivity

DUSP10/MKP5 Antibody detects endogenous levels of total DUSP10 protein.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to human DUSP10. Antibodies are purified by protein A and peptide affinity chromatography.

Background

MAP kinases are inactivated by dual-specificity protein phosphatases (DUSPs) that differ in their substrate specificity, tissue distribution, inducibility by extracellular stimuli, and cellular localization. DUSPs, also known as MAPK phosphatases (MKPs), specifically dephosphorylate both threonine and tyrosine residues in MAPK P-loops and have been shown to play important roles in regulating the function of the MAPK family (1,2). At least 13 members of the family (DUSP1-10, DUSP14, DUSP16, and DUSP22) display unique substrate specificities for various MAP kinases (3). MAPK phosphatases typically contain an amino-terminal rhodanese-fold responsible for DUSP docking to MAPK family members and a carboxy-terminal catalytic domain (4). These phosphatases can play important roles in development, immune system function, stress responses, and metabolic homeostasis (5). In addition, research studies have implicated DUSPs in the development of cancer and the response of cancer cells to chemotherapy (6).

DUSP10, or MKP5, selectively phosphorylates and inactivates p38α MAP kinase and JNK, but does not appear to affect p44/42 MAPK. Activated JNK phosphorylates the ATF2 transcription factor during periods of oxidative stress, which induces expression of DUSP10 and related phosphatases. Increased DUSP10 activity helps to further coordinate JNK activity during the stress response (7). Studies using DUSP10 deficient mice demonstrated a likely role of this phosphatase in both the adaptive and innate immune responses (8).

Background References

1. Camps, M. et al. (2000) *FASEB J* 14, 6-16.
2. Theodosiou, A. and Ashworth, A. (2002) *Genome Biol* 3, REVIEWS3009.
3. Salojin, K. and Oravecz, T. (2007) *J Leukoc Biol* 81, 860-9.
4. Tanoue, T. et al. (2002) *J Biol Chem* 277, 22942-9.
5. Dickinson, R.J. and Keyse, S.M. (2006) *J Cell Sci* 119, 4607-15.
6. Wu, G.S. (2007) *Cancer Metastasis Rev* 26, 579-85.
7. Teng, C.H. et al. (2007) *J Biol Chem* 282, 28395-407.
8. Zhang, Y. et al. (2004) *Nature* 430, 793-7.

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

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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