

DUSP18 (H-89): sc-366110

BACKGROUND

Dual specificity phosphatases (DSPs) are a subclass of the protein tyrosine phosphatase (PTP) gene superfamily, which are selective for dephosphorylating critical phosphothreonine and phosphotyrosine residues within MAP kinases. DSP gene expression is induced by a host of growth factors and/or cellular stresses, thereby negatively regulating MAP kinase superfamily members including MAPK/ERK, SAPK/JNK and p38. DUSP18 (dual specificity protein phosphatase 18), also known as low molecular weight dual specificity phosphatase 20, is a 188 amino acid enzyme that functions optimally at a pH of 6.0 and at a temperature of 55 degrees celsius. With highest expression in testis, brain, ovary and liver, DUSP18 is inhibited by iodoacetate and is activated by manganese ions. Along with having preferential enzymatic activity against phosphorylated tyrosine residues over threonine residues, DUSP18 also dephosphorylates p-nitrophenyl phosphate (pNPP) *in vitro*.

REFERENCES

- Aoki, N., Aoyama, K., Nagata, M. and Matsuda, T. 2001. A growing family of dual specificity phosphatases with low molecular masses. *J. Biochem.* 130: 133-140.
- Hood, K.L., Tobin, J.F. and Yoon, C. 2002. Identification and characterization of two novel low-molecular-weight dual specificity phosphatases. *Biochem. Biophys. Res. Commun.* 298: 545-551.
- Wu, Q., Gu, S., Dai, J., Dai, J., Wang, L., Li, Y., Zeng, L., Xu, J., Ye, X., Zhao, W., Ji, C., Xie, Y. and Mao, Y. 2003. Molecular cloning and characterization of a novel dual-specificity phosphatase 18 gene from human fetal brain. *Biochim. Biophys. Acta* 1625: 296-304.
- Jeong, D.G., Cho, Y.H., Yoon, T.S., Kim, J.H., Son, J.H., Ryu, S.E. and Kim, S.J. 2006. Structure of human DSP18, a member of the dual-specificity protein tyrosine phosphatase family. *Acta Crystallogr. D Biol. Crystallogr.* 62: 582-588.
- Wu, Q., Huang, S., Sun, Y., Gu, S., Lu, F., Dai, J., Yin, G., Sun, L., Zheng, D., Dou, C., Feng, C., Ji, C., Xie, Y. and Mao, Y. 2006. Dual specificity phosphatase 18, interacting with SAPK, dephosphorylates SAPK and inhibits SAPK/JNK signal pathway *in vivo*. *Front. Biosci.* 11: 2714-2724.
- Salojin, K. and Oravec, T. 2007. Regulation of innate immunity by MAPK dual-specificity phosphatases: knockout models reveal new tricks of old genes. *J. Leukoc. Biol.* 81: 860-869.
- Jeffrey, K.L., Camps, M., Rommel, C. and Mackay, C.R. 2007. Targeting dual-specificity phosphatases: manipulating MAP kinase signalling and immune responses. *Nat. Rev. Drug Discov.* 6: 391-403.
- Online Mendelian Inheritance in Man, OMIM[™]. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 611446. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Caunt, C.J., Armstrong, S.P., Rivers, C.A., Norman, M.R. and McArdle, C.A. 2008. Spatiotemporal regulation of ERK2 by dual specificity phosphatases. *J. Biol. Chem.* 283: 26612-26623.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

CHROMOSOMAL LOCATION

Genetic locus: DUSP18 (human) mapping to 22q12.2; Dusp18 (mouse) mapping to 11 A1.

SOURCE

DUSP18 (H-89) is a rabbit polyclonal antibody raised against amino acids 100-188 mapping at the C-terminus of DUSP18 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

DUSP18 (H-89) is recommended for detection of DUSP18 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

DUSP18 (H-89) is also recommended for detection of DUSP18 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for DUSP18 siRNA (h): sc-77198, DUSP18 siRNA (m): sc-77199, DUSP18 shRNA Plasmid (h): sc-77198-SH, DUSP18 shRNA Plasmid (m): sc-77199-SH, DUSP18 shRNA (h) Lentiviral Particles: sc-77198-V and DUSP18 shRNA (m) Lentiviral Particles: sc-77199-V.

Molecular Weight of DUSP18: 21 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker[™] compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker[™] Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz[™] Mounting Medium: sc-24941.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.



Try **DUSP18 (E-2): sc-376923**, our highly recommended monoclonal alternative to DUSP18 (H-89).