

# DUSP18 (E-2): sc-376923

## 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

1. Aoki, N., et al. 2001. A growing family of dual specificity phosphatases with low molecular masses. *J. Biochem.* 130: 133-140.
2. Hood, K.L., et al. 2002. Identification and characterization of two novel low-molecular-weight dual specificity phosphatases. *Biochem. Biophys. Res. Commun.* 298: 545-551.
3. Wu, Q., et al. 2003. Molecular cloning and characterization of a novel dual-specificity phosphatase 18 gene from human fetal brain. *Biochim. Biophys. Acta* 1625: 296-304.
4. Jeong, D.G., et al. 2006. Structure of human DSP18, a member of the dual-specificity protein tyrosine phosphatase family. *Acta Crystallogr. D Biol. Crystallogr.* 62: 582-588.
5. Wu, Q., et al. 2006. Dual specificity phosphatase 18, interacting with SAPK, dephosphorylates SAPK and inhibits SAPK/JNK signal pathway *in vivo*. *Front. Biosci.* 11: 2714-2724.

## CHROMOSOMAL LOCATION

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

## SOURCE

DUSP18 (E-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1-29 at the N-terminus of DUSP18 of human origin.

## PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-376923 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## STORAGE

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

## APPLICATIONS

DUSP18 (E-2) is recommended for detection of DUSP18 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

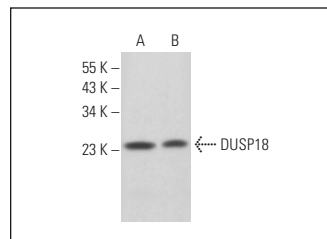
Molecular Weight of DUSP18: 21 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, ES-2 cell lysate: sc-24674 or A-10 cell lysate: sc-3806.

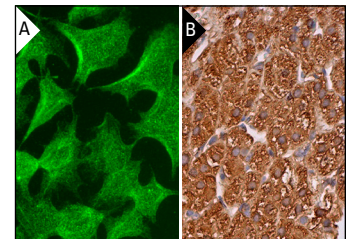
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohisto-mount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



DUSP18 (E-2): sc-376923. Western blot analysis of DUSP18 expression in Hep G2 (A) and A-10 (B) whole cell lysates.



DUSP18 (E-2): sc-376923. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic and nuclear localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing cytoplasmic staining of glandular cells (B).

## SELECT PRODUCT CITATIONS

1. Qiao, X., et al. 2021. Dual-specificity phosphatase 15 (DUSP15) in the nucleus accumbens is a novel negative regulator of morphine-associated contextual memory. *Addict. Biol.* 26: e12884.

## RESEARCH USE

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