

Dia 1 (D-3): sc-373895

BACKGROUND

Dia 1, also known as DIAPH1 (diaphanous homolog 1) or DRF1, a mammalian homolog of the *Drosophila* diaphanous gene, belongs to a family of formin homology (FH) proteins which are characterized by having tandemly aligned FH1 (formin homology 1) and FH2 (formin homology 2) domains in their carboxy terminal regions. Dia 1 contains a DAD (diaphanous autoregulatory) domain, which is involved in the elongation of Actin filaments, and a GBD/FH3 (Rho GTPase-binding/formin homology 3) domain, which interacts with the DAD domain via autoinhibitory interactions to regulate the activation of Dia 1. Dia 1 is required for the assembly of F-Actin structures, and regulates the polymerization and depolymerization of Actin filaments. Localizing to the cell membrane, Dia 1 is expressed in a wide range of tissues, including brain, heart, lung and kidney. Defects to the gene encoding Dia 1 have been linked to deafness autosomal dominant type 1 (DFNA1), a disorder characterized by sensorineural hearing loss.

REFERENCES

- Lynch, E.D., et al. 1997. Nonsyndromic deafness DFNA1 associated with mutation of a human homolog of the *Drosophila* gene diaphanous. *Science* 278: 1315-1318.
- Bione, S., et al. 1998. A human homologue of the *Drosophila melanogaster* diaphanous gene is disrupted in a patient with premature ovarian failure: evidence for conserved function in oogenesis and implications for human sterility. *Am. J. Hum. Genet.* 62: 533-541.
- Alberts, A.S., et al. 1998. Analysis of RhoA-binding proteins reveals an interaction domain conserved in heterotrimeric G protein β subunits and the yeast response regulator protein Skn7. *J. Biol. Chem.* 273: 8616-8622.
- Watanabe, N., et al. 1999. Cooperation between mDia1 and ROCK in Rho-induced Actin reorganization. *Nat. Cell Biol.* 1: 136-143.
- Nakano, K., et al. 1999. Distinct actions and cooperative roles of ROCK and mDia in Rho small G protein-induced reorganization of the Actin cytoskeleton in Madin-Darby canine kidney cells. *Mol. Biol. Cell* 10: 2481-2491.

CHROMOSOMAL LOCATION

Genetic locus: DIAPH1 (human) mapping to 5q31.3; Diap1 (mouse) mapping to 18 B3.

SOURCE

Dia 1 (D-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1199-1233 near the C-terminus of Dia 1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ 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-373895 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

Dia 1 (D-3) is recommended for detection of Dia 1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

Suitable for use as control antibody for Dia 1 siRNA (h): sc-35190, Dia 1 siRNA (m): sc-35191, Dia 1 shRNA Plasmid (h): sc-35190-SH, Dia 1 shRNA Plasmid (m): sc-35191-SH, Dia 1 shRNA (h) Lentiviral Particles: sc-35190-V and Dia 1 shRNA (m) Lentiviral Particles: sc-35191-V.

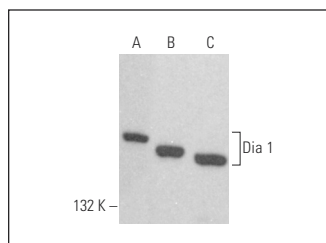
Molecular Weight of Dia 1: 140 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, F9 cell lysate: sc-2245 or Raji whole cell lysate: sc-364236.

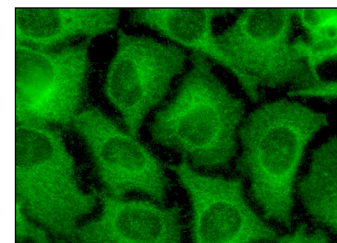
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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 A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

DATA



Dia 1 (D-3): sc-373895. Western blot analysis of Dia 1 expression in F9 (A), K-562 (B) and Raji (C) whole cell lysates.



Dia 1 (D-3): sc-373895. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

- Qian, M., et al. 2019. PLEKHG5 is a novel prognostic biomarker in glioma patients. *Int. J. Clin. Oncol.* 24: 1350-1358.

STORAGE

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

RESEARCH USE

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