SANTA CRUZ BIOTECHNOLOGY, INC.

Dia 1 (E-4): sc-373807

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.

CHROMOSOMAL LOCATION

Genetic locus: DIAPH1 (human) mapping to 5q31.3; Diaph1 (mouse) mapping to 18 B3.

SOURCE

Dia 1 (E-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1219-1248 at the C-terminus of Dia 1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Dia 1 (E-4) is available conjugated to agarose (sc-373807 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-373807 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-373807 PE), fluorescein (sc-373807 FITC), Alexa Fluor® 488 (sc-373807 AF488), Alexa Fluor® 546 (sc-373807 AF546), Alexa Fluor® 594 (sc-373807 AF594) or Alexa Fluor® 647 (sc-373807 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-373807 AF680) or Alexa Fluor® 790 (sc-373807 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-373807 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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

APPLICATIONS

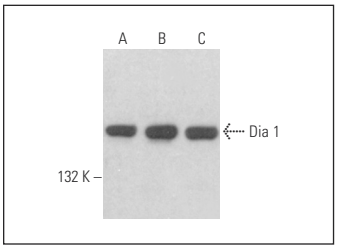
Dia 1 (E-4) is recommended for detection of Dia 1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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 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.

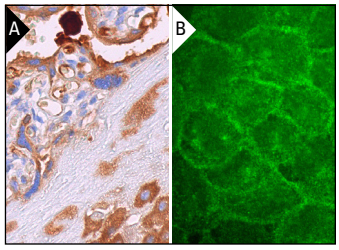
Molecular Weight of Dia 1: 140 kDa.

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

DATA



Dia 1 (E-4): sc-373807. Western blot analysis of Dia 1 expression in F9 (**A**), K-562 (**B**) and Raji (**C**) whole cell lysates.



Dia 1 (E-4): sc-373807. Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing cytoplasmic staining of trophoblastic cells and decidual cells (**A**). Immunofluorescence staining of formalin-fixed A-431 cells showing membrane localization (**B**).

SELECT PRODUCT CITATIONS

1. Meghnani, V., et al. 2014. RAGE overexpression confers a metastatic phenotype to the WM115 human primary melanoma cell line. Biochim. Biophys. Acta 1842: 1017-1027.
2. Ercan-Sencicek, A.G., et al. 2015. Homozygous loss of DIAPH1 is a novel cause of microcephaly in humans. Eur. J. Hum. Genet. 23: 165-172.
3. Juanes, M.A., et al. 2019. The role of APC-mediated Actin assembly in microtubule capture and focal adhesion turnover. J. Cell Biol. 218: 3415-3435.
4. Liu, D., et al. 2020. Protein diaphanous homolog 1 (Diaph1) promotes myofibroblastic activation of hepatic stellate cells by regulating Rab5a activity and TGFβ receptor endocytosis. FASEB J. 34: 7345-7359.
5. Mei, J., et al. 2023. Formin protein DIAPH1 positively regulates PD-L1 expression and predicts the therapeutic response to anti-PD-1/PD-L1 immunotherapy. Clin. Immunol. 246: 109204.

RESEARCH USE

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