

DIAPH3 (4D5): sc-293288

BACKGROUND

DIAPH3 (diaphanous homolog 3), also known as DIAP3, DRF3 or mDia2 of mouse origin, is a 1,193 amino acid member of the formin homology protein family and is required for the correct function of various cellular processes. DIAPH3 binds to both Profilin, a protein involved in cell maintenance, and to the GTP-bound form of Rho (Rho-GTP). Binding to both of these proteins allows DIAPH3 to recruit Profilin to the membrane, in a Rho-dependent manner. At the membrane, DIAPH3 promotes Actin polymerization and is required for stress fiber formation, cytokinesis and transcriptional activation of the serum response factor (SRF). DIAPH3 also regulates Actin dynamics by coupling Src tyrosine kinase (c-Src) and Rho during Actin signaling events. DIAPH3 contains one diaphanous autoregulatory domain (DAD) and one Rho GTPase-binding domain (GBD). When DAD and GBD are intramolecularly bound, the GBD is occupied and DIAPH3 is inactive. Interruption of the DAD-GBD bond allows the GBD to bind to Rho-GTP, thus activating DIAPH3. Seven isoforms of DIAPH3 exist due to alternative splicing events.

REFERENCES

1. Peng, J., et al. 2003. Disruption of the diaphanous-related formin Drf1 gene encoding mDia1 reveals a role for Drf3 as an effector for Cdc42. *Curr. Biol.* 13: 534-545.
2. Katoh, M. and Katoh, M. 2004. Identification and characterization of human DIAPH3 gene in silico. *Int. J. Mol. Med.* 13: 473-478.
3. Katoh, M. and Katoh, M. 2004. Identification and characterization of human FHOD3 gene in silico. *Int. J. Mol. Med.* 13: 615-620.

CHROMOSOMAL LOCATION

Genetic locus: DIAPH3 (human) mapping to 13q21.2.

SOURCE

DIAPH3 (4D5) is a mouse monoclonal antibody raised against amino acids 632-729 of DIAPH3 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

DIAPH3 (4D5) is recommended for detection of DIAPH3 of 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), 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).

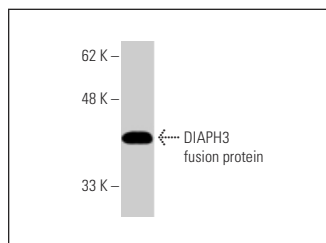
Suitable for use as control antibody for DIAPH3 siRNA (h): sc-62210, DIAPH3 shRNA Plasmid (h): sc-62210-SH and DIAPH3 shRNA (h) Lentiviral Particles: sc-62210-V.

Molecular Weight of DIAPH3: 137 kDa.

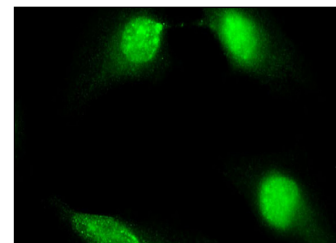
RECOMMENDED SUPPORT REAGENTS

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 A/G PLUS-Agarose: sc-2003 (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 Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



DIAPH3 (4D5): sc-293288. Western blot analysis of human recombinant DIAPH3 fusion protein.



DIAPH3 (4D5): sc-293288. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic and nuclear localization.

SELECT PRODUCT CITATIONS

1. Chen, A., et al. 2017. Cytokinesis requires localized β -Actin filament production by an Actin isoform specific nucleator. *Nat. Commun.* 8: 1530.
2. Ubukawa, K., et al. 2020. Cdc42 regulates cell polarization and contractile actomyosin rings during terminal differentiation of human erythroblasts. *Sci. Rep.* 10: 11806.
3. Cangkrama, M., et al. 2022. A pro-tumorigenic mDia2-MIRO1 axis controls mitochondrial positioning and function in cancer-associated fibroblasts. *Cancer Res.* E-published.

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.

PROTOCOLS

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