SANTA CRUZ BIOTECHNOLOGY, INC.

DOCK 4 (R6Y): sc-100718

BACKGROUND

DOCK 4 (dedicator of cytokinesis protein 4) is a cytoplasmic peripheral membrane protein that belongs to the DOCK family of cytokinesis-regulating proteins. Expressed ubiquitously with highest expression in prostate, ovary and skeletal muscle, DOCK 4 functions as a guanine nucleotide exchange factor (GEF) that activates the small GTPase Rap 1 and, via this activation, plays a role in the regulation of adherens junctions between cells. Similar to other DOCK family members, DOCK 4 contains an N-terminal SH3 domain, a C-terminal proline-rich region and two internal DOCK homology regions designated DHR1 and DHR2. Defects in the gene encoding DOCK 4 result in the inactivation of Rap 1 and are thus implicated in the pathogenesis of various cancers such as ovarian, prostate, glioma and colorectal carcinomas. Four isoforms of DOCK 4 are expressed due to alternative splicing events.

CHROMOSOMAL LOCATION

Genetic locus: DOCK4 (human) mapping to 7q31.1; Dock4 (mouse) mapping to 12 B1.

SOURCE

DOCK 4 (R6Y) is a mouse monoclonal antibody raised against recombinant DOCK 4 of human origin.

PRODUCT

Each vial contains 50 µg IgG_{2b} kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

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

DOCK 4 (R6Y) is recommended for detection of DOCK 4 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), 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 DOCK 4 siRNA (h): sc-77170, DOCK 4 siRNA (m): sc-77171, DOCK 4 shRNA Plasmid (h): sc-77170-SH, DOCK 4 shRNA Plasmid (m): sc-77171-SH, DOCK 4 shRNA (h) Lentiviral Particles: sc-77170-V and DOCK 4 shRNA (m) Lentiviral Particles: sc-77171-V.

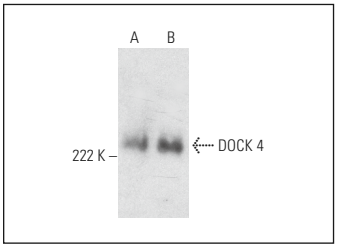
Molecular Weight of DOCK 4: 225 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, human ovary extract: sc-363769 or human prostate extract: sc-363774.

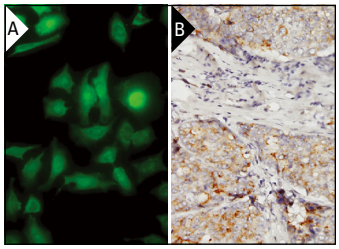
RECOMMENDED SUPPORT REAGENTS

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



DOCK 4 (R6Y): sc-100718. Western blot analysis of DOCK 4 expression in human ovary (**A**) and human prostate (**B**) tissue extracts.



DOCK 4 (R6Y): sc-100718. Immunofluorescence staining of paraformaldehyde-fixed HeLa cells showing nuclear and cytoplasmic localization (**A**). Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast cancer tissue showing membrane localization (**B**).

SELECT PRODUCT CITATIONS

1. Hiramoto-Yamaki, N., et al. 2010. Ephexin4 and EphA2 mediate cell migration through a RhoG-dependent mechanism. J. Cell Biol. 190: 461-477.
2. Cheerathodi, M. and Ballif, B.A. 2011. Identification of CrkL-SH3 binding proteins from embryonic murine brain: implications for Reelin signaling during brain development. J. Proteome Res. 10: 4453-4462.
3. Kobayashi, M., et al. 2014. DOCK4 forms a complex with SH3YL1 and regulates cancer cell migration. Cell. Signal. 26: 1082-1088.
4. Mortensen, A., et al. 2017. Re-evaluation of potassium nitrite (E 249) and sodium nitrite (E 250) as food additives. EFSA J. 15: e04786.
5. Makihara, S., et al. 2018. Polarized dock activity drives Shh-mediated axon guidance. Dev. Cell 46: 410-425.e7.
6. Park, N. and Kang, H. 2020. BMP-induced microRNA-101 expression regulates vascular smooth muscle cell migration. Int. J. Mol. Sci. 21: 4764.
7. Herbst, C., et al. 2024. Heterozygous loss-of-function variants in DOCK4 cause neurodevelopmental delay and microcephaly. Hum. Genet. 143: 455-469.

RESEARCH USE

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