

Rootletin (C-2): sc-374056

BACKGROUND

Rootletin, also known as CROCC (ciliary rootlet coiled-coil protein), is a 2,017 amino acid protein that forms centriole-associated fibrous structures and is an essential component of the ciliary rootlet. Localized to basal bodies and centrosomes in ciliated and nonciliated cells, respectively, Rootletin associates with the proximal ends of basal bodies and, in photoreceptors, functions to form elongated polymers between them. Rootletin is required for centrosome cohesion and, through interaction with C-Nap1 (a centrosomal protein present at the ends of the centrioles), can regulate the linkage of centrioles to basal bodies. Rootletin exists as a homopolymer whose association with centrosomes can be regulated via phosphorylation by Nek2 (NIMA-related kinase 2). Two isoforms exist due to alternative splicing events.

REFERENCES

1. Yang, J., et al. 2002. Rootletin, a novel coiled-coil protein, is a structural component of the ciliary rootlet. *J. Cell Biol.* 159: 431-440.
2. Yang, J., et al. 2005. The ciliary rootlet maintains long-term stability of sensory cilia. *Mol. Cell. Biol.* 25: 4129-4137.
3. Bahe, S., et al. 2005. Rootletin forms centriole-associated filaments and functions in centrosome cohesion. *J. Cell Biol.* 171: 27-33.

CHROMOSOMAL LOCATION

Genetic locus: CROCC (human) mapping to 1p36.13; Crocc (mouse) mapping to 4 D3.

SOURCE

Rootletin (C-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1882-1917 within an internal region of Rootletin of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Rootletin (C-2) is available conjugated to agarose (sc-374056 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374056 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374056 PE), fluorescein (sc-374056 FITC), Alexa Fluor[®] 488 (sc-374056 AF488), Alexa Fluor[®] 546 (sc-374056 AF546), Alexa Fluor[®] 594 (sc-374056 AF594) or Alexa Fluor[®] 647 (sc-374056 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-374056 AF680) or Alexa Fluor[®] 790 (sc-374056 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-374056 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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STORAGE

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

APPLICATIONS

Rootletin (C-2) is recommended for detection of Rootletin 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).

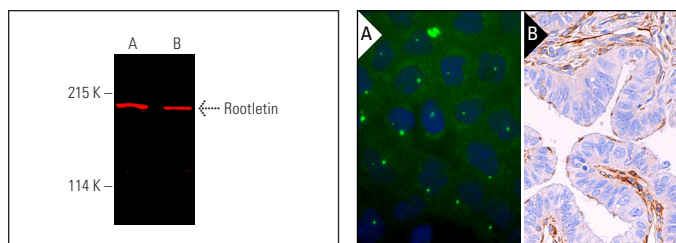
Rootletin (C-2) is also recommended for detection of Rootletin in additional species, including porcine.

Suitable for use as control antibody for Rootletin siRNA (h): sc-62960, Rootletin siRNA (m): sc-62961, Rootletin shRNA Plasmid (h): sc-62960-SH, Rootletin shRNA Plasmid (m): sc-62961-SH, Rootletin shRNA (h) Lentiviral Particles: sc-62960-V and Rootletin shRNA (m) Lentiviral Particles: sc-62961-V.

Molecular Weight of Rootletin: 228 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, CCRF-CEM cell lysate: sc-2225 or Y79 nuclear extract: sc-2126.

DATA



Rootletin (C-2): sc-374056. Near-infrared western blot analysis of Rootletin expression in A-431 (A) and CCRF-CEM (B) whole cell lysates. Blocked with UltraCruz[®] Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 790: sc-516181.

Rootletin (C-2): sc-374056. Immunofluorescence staining of formalin-fixed A-431 cells showing centrosome localization and nuclear DAPI counterstain (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human fallopian tube tissue showing cytoplasmic staining of ciliated glandular cells (B).

SELECT PRODUCT CITATIONS

1. Akiyama, T., et al. 2017. SHG-specificity of cellular Rootletin filaments enables naïve imaging with universal conservation. *Sci. Rep.* 7: 39967.
2. Sahabandu, N., et al. 2019. Expansion microscopy for the analysis of centrioles and cilia. *J. Microsc.* 276: 145-159.
3. Gurkaslar, H.K., et al. 2020. CCDC57 cooperates with microtubules and microcephaly protein CEP63 and regulates centriole duplication and mitotic progression. *Cell Rep.* 31: 107630.
4. Balestra, F.R., et al. 2021. TRIM37 prevents formation of centriolar protein assemblies by regulating Centrobin. *Elife* 10: e62640.
5. Fdez, E., et al. 2022. Pathogenic LRRK2 regulates centrosome cohesion via Rab10/RILPL1-mediated CDK5RAP2 displacement. *iScience* 25: 104476.

RESEARCH USE

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