SANTA CRUZ BIOTECHNOLOGY, INC.

ROD (43-K): sc-81853

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

ROD (rough deal), also known as KNTC1 (kinetochore-associated protein 1), is the human homolog of the *Drosophila* ROD protein and is an essential component of the mitotic cell cycle checkpoint, functioning to assemble MAD1-MAD2 and Dynein-Dynactin complexes into kinetochores. Highly expressed in the testis, ROD exhibits a dynamic pattern of localization during the cell cycle, beginning at the nucleus and cytoplasm during interphase and translocating to kinetochores and spindle fibers during anaphase. ROD interacts with ZW10 and, through this interaction, is able to associate in a stable manner with the kinetochore. ROD and ZW10 are required for proper spindle assembly and help target microtubule motor cytoplasmic Dynein to kinetochores.

REFERENCES

1. Karess, R.E. and Glover, D.M. 1989. Rough deal: a gene required for proper mitotic segregation in *Drosophila*. J. Cell Biol. 109: 2951-2961.
2. Scaërou, F., et al. 1999. The rough deal protein is a new kinetochore component required for accurate chromosome segregation in *Drosophila*. J. Cell Sci. 119: 3757-3768.
3. Chan, G.K., et al. 2000. Human ZW10 and ROD are mitotic checkpoint proteins that bind to kinetochores. Nat. Cell Biol. 2: 944-947.

CHROMOSOMAL LOCATION

Genetic locus: KNTC1 (human) mapping to 12q24.31.

SOURCE

ROD (43-K) is a mouse monoclonal antibody raised against recombinant ROD 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.

STORAGE

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

APPLICATIONS

ROD (43-K) is recommended for detection of ROD 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for ROD siRNA (h): sc-62958, ROD shRNA Plasmid (h): sc-62958-SH and ROD shRNA (h) Lentiviral Particles: sc-62958-V.

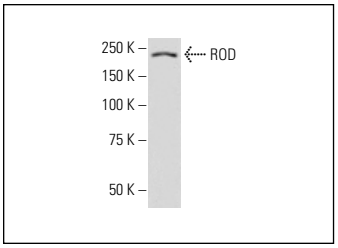
Molecular Weight of ROD: 240 kDa.

Positive Controls: HeLa nuclear extract: sc-2120.

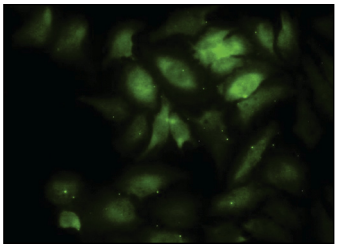
RECOMMENDED SUPPORT REAGENTS

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.

DATA



ROD (43-K): sc-81853. Western blot analysis of ROD expression in HeLa nuclear extract.



ROD (43-K): sc-81853. Immunofluorescence staining of paraformaldehyde-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Maldonado, M. and Kapoor, T.M. 2011. Constitutive Mad1 targeting to kinetochores uncouples checkpoint signalling from chromosome biorientation. Nat. Cell Biol. 13: 475-482.
2. Maciejowski, J., et al. 2017. Mps1 regulates kinetochore-microtubule attachment stability via the Ska complex to ensure error-free chromosome segregation. Dev. Cell 41: 143-156.e6.
3. Petsalaki, E., et al. 2018. The ESCRT protein Chmp4c regulates mitotic spindle checkpoint signaling. J. Cell Biol. 217: 861-876.
4. Rodriguez-Rodriguez, J.A., et al. 2018. Distinct roles of RZZ and Bub1-KNL1 in mitotic checkpoint signaling and kinetochore expansion. Curr. Biol. 28: 3422-3429.e5.
5. Wang, C., et al. 2022. Kinetochore-associated protein 1 promotes the invasion and tumorigenicity of cervical cancer cells via matrix metalloproteinase-2 and matrix metalloproteinase-9. Bioengineered 13: 9495-9507.
6. Yu, P., et al. 2022. Identification and validation of three hub genes involved in cell proliferation and prognosis of castration-resistant prostate cancer. Oxid. Med. Cell. Longev. 2022: 8761112.
7. Herman, J.A., et al. 2022. Functional dissection of human mitotic genes using CRISPR-Cas9 tiling screens. Genes Dev. 36: 495-510.
8. Pan, W., et al. 2023. KNTC1, regulated by HPV E7, inhibits cervical carcinogenesis partially through Smad2. Exp. Cell Res. 423: 113458.

RESEARCH USE

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