

Hec1 (1): sc-135934

BACKGROUND

Highly expressed in cancer (Hec1) is a coiled-coil-enriched protein expressed abundantly in the S and M phases of rapidly dividing cells where it localizes to the kinetochores. Hec1 is involved in spindle checkpoint signaling. Hec1 is not expressed in terminal differentiated cells. Hec1 is expressed in tissues with high mitotic rates including testis, spleen and thymus. Hec1 is also found in the late S to M phases of bladder carcinoma cells. In dividing cells, Hec1 is required for the recruitment of Mps1 kinase and MAD1/MAD2 complexes to the kinetochores. The phosphorylation of Hec1 on Serine 165 by Nek2 is essential for faithful chromosome segregation. The binding of retinoblastoma protein to Hec1 also increases the fidelity of chromosomal segregation.

REFERENCES

1. Chen, Y., et al. 1997. HEC, a novel nuclear protein rich in leucine heptad repeats specifically involved in mitosis. *Mol. Cell. Biol.* 17: 6049-6056.
2. Zheng, L., et al. 2000. Retinoblastoma protein enhances the fidelity of chromosome segregation mediated by hsHec1p. *Mol. Cell. Biol.* 20: 3529-3537.
3. Martin-Lluesma, S., et al. 2002. Role of Hec1 in spindle checkpoint signaling and kinetochore recruitment of MAD1/MAD2. *Science* 297: 2267-2270.
4. Chen, Y., et al. 2002. Phosphorylation of the mitotic regulator protein Hec1 by Nek2 kinase is essential for faithful chromosome segregation. *J. Biol. Chem.* 277: 49408-49416.

CHROMOSOMAL LOCATION

Genetic locus: NDC80 (human) mapping to 18p11.32; Ndc80 (mouse) mapping to 17 E1.3.

SOURCE

Hec1 (1) is a mouse monoclonal antibody raised against amino acids 495-608 of Hec1 of human origin.

PRODUCT

Each vial contains 50 µg IgG₁ in 500 µl of PBS with < 0.1% sodium azide, 0.1% gelatin, 20% glycerol and 0.04% stabilizer protein.

APPLICATIONS

Hec1 (1) is recommended for detection of Hec1 of mouse, rat, human and canine 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Hec1 siRNA (h): sc-37612, Hec1 siRNA (m): sc-145927, Hec1 shRNA Plasmid (h): sc-37612-SH, Hec1 shRNA Plasmid (m): sc-145927-SH, Hec1 shRNA (h) Lentiviral Particles: sc-37612-V and Hec1 shRNA (m) Lentiviral Particles: sc-145927-V.

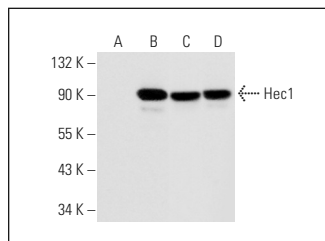
Molecular Weight of Hec1: 76 kDa.

Positive Controls: Hec1 (h): 293T Lysate: sc-115079, HEK293 whole cell lysate: sc-45136 or HeLa nuclear extract: sc-2120.

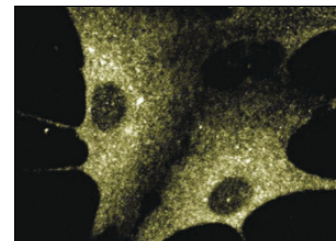
STORAGE

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

DATA



Hec1 (1): sc-135934. Western blot analysis of Hec1 expression in non-transfected: sc-117750 (A), human Hec1 transfected: sc-115079 (B) and HEK293 (C) whole cell lysates and HeLa nuclear extract (D).



Hec1 (1): sc-135934. Immunofluorescence staining of BC₃H1 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Liu, B., et al. 2016. ShRNA-mediated silencing of the Ndc80 gene suppress cell proliferation and affected hepatitis B virus-related hepatocellular carcinoma. *Clin. Res. Hepatol. Gastroenterol.* 40: 297-303.
2. Thomas, G.E., et al. 2016. EB1 regulates attachment of Ska1 with microtubules by forming extended structures on the microtubule lattice. *Nat. Commun.* 7: 11665.
3. Zielinska, A.P., et al. 2019. Meiotic kinetochores fragment into multiple lobes upon cohesin loss in aging eggs. *Curr. Biol.* 29: 3749-3765.e7.
4. Radhakrishnan, R.M., et al. 2022. Kinetochore-microtubule attachment in human cells is regulated by the interaction of a conserved motif of Ska1 with EB1. *J. Biol. Chem.* E-published.

RESEARCH USE

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

PROTOCOLS

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