

CUL-3 (3): sc-136285

BACKGROUND

Cullin proteins comprise a distinct family of mediators that participate in the selective targeting of proteins for ubiquitin (Ub)-mediated proteolysis. CUL-1, which is the mammalian homolog of yeast Cdc53, is an integral component of the E3 ubiquitin ligase complex designated SCF. The SCF (Skp1/CUL-1/F-box protein complex) consists of Skp1 associating with both CUL-1 and an F-box protein, such as Skp2, which determines the substrate specificity of the complex. CUL-1-mediated ubiquitination results in the degradation of cell cycle proteins cyclin D, p21 and cyclin E. Another cullin, CUL-3, facilitates the degradation of cyclin E independent of SCF activity, while CUL-2 associates with the tumor suppressing protein VHL and elongin B to form VBC complexes, which structurally resemble the SCF ligase. Proteolysis also occurs by way of CUL-4 associating with Nedd-8, a ubiquitin-like protein, where it too functions as an active component of a multifunctional E3 complex. CUL-5, also designated vasopressin-activated, calcium-mobilizing protein (VACM-1), is also included in the cullin family as it shares substantial sequence homology with CUL-1.

REFERENCES

1. Kipreos, E.T., et al. 1996. CUL-1 is required for cell cycle exit in *C. elegans* and identifies a novel gene family. *Cell* 85: 829-839.
2. Byrd, P.J., et al. 1997. Identification and analysis of expression of human VACM-1, a cullin gene family member located on chromosome 11q22-23. *Genome Res.* 7: 71-75.
3. Yu, Z.K., et al. 1998. Human CUL-1 associates with the SKP1/SKP2 complex and regulates p21^{CIP1/WAF1} and cyclin D proteins. *Proc. Natl. Acad. Sci. USA* 95: 11324-11329.
4. Chen, L.C., et al. 1998. The human homologue for the *Caenorhabditis elegans* CUL-4 gene is amplified and overexpressed in primary breast cancers. *Cancer Res.* 58: 3677-3683.
5. Tyers, M., et al. 1999. One ring to rule a superfamily of E3 ubiquitin ligases. *Science* 284: 601, 603-604.
6. Singer, J.D., et al. 1999. Cullin-3 targets cyclin E for ubiquitination and controls S phase in mammalian cells. *Genes Dev.* 13: 2375-2387.
7. Iwai, K., et al. 1999. Identification of the von Hippel-Lindau tumor-suppressor protein as part of an active E3 ubiquitin ligase complex. *Proc. Natl. Acad. Sci. USA* 96: 12436-12441.
8. Luke-Glaser, S., et al. 2005. The BTB protein MEL-26 promotes cytokinesis in *C. elegans* by a CUL-3-independent mechanism. *Curr. Biol.* 15: 1605-1615.
9. Lu, L., et al. 2005. Identification and characterization of CUL-3b, a novel hominine CUL-3 transcript variant. *Asian J. Androl.* 7: 205-211.

CHROMOSOMAL LOCATION

Genetic locus: CUL3 (human) mapping to 2q36.2; Cul3 (mouse) mapping to 1 C4.

SOURCE

CUL-3 (3) is a mouse monoclonal antibody raised against amino acids 565-684 of CUL-3 of human origin.

PRODUCT

Each vial contains 50 µg IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, 20% glycerol, and 0.04% stabilizer protein.

APPLICATIONS

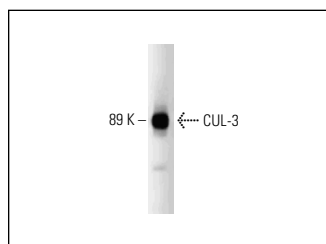
CUL-3 (3) is recommended for detection of CUL-3 of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for CUL-3 siRNA (h): sc-35130, CUL-3 siRNA (m): sc-35131, CUL-3 shRNA Plasmid (h): sc-35130-SH, CUL-3 shRNA Plasmid (m): sc-35131-SH, CUL-3 shRNA (h) Lentiviral Particles: sc-35130-V and CUL-3 shRNA (m) Lentiviral Particles: sc-35131-V.

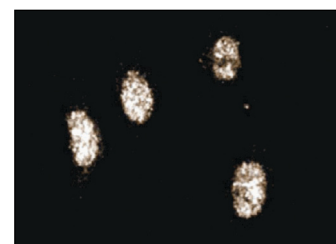
Molecular Weight of CUL-3: 89 kDa.

Positive Controls: rat brain extract: sc-2392, Jurkat whole cell lysate: sc-2204 or rat cerebellum extract: sc-2398.

DATA



CUL-3 (3): sc-136285. Western blot analysis of CUL-3 expression in rat cerebrum tissue extract.



CUL-3 (3): sc-136285. Immunofluorescence staining of human endothelial cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Mukhopadhyay, U., et al. 2019. Biphasic regulation of RNA interference during rotavirus infection by modulation of Argonaute2. *Cell. Microbiol.* 19: e13101.
2. Patra, U., et al. 2020. Progressive rotavirus infection downregulates redox-sensitive transcription factor Nrf2 and Nrf2-driven transcription units. *Oxid. Med. Cell. Longev.* 2020: 7289120.

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. Not for resale.

PROTOCOLS

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