

CUL-3 (H-1): sc-166053

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.

CHROMOSOMAL LOCATION

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

SOURCE

CUL-3 (H-1) is a mouse monoclonal antibody raised against amino acids 1-293 of CUL-3 (cullin-3) 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.

RESEARCH USE

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

APPLICATIONS

CUL-3 (H-1) is recommended for detection of CUL-3 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

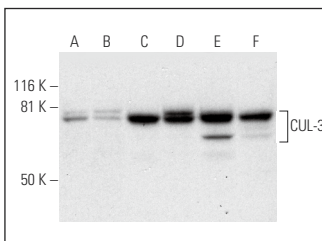
Molecular Weight of CUL-3: 89 kDa.

Positive Controls: CUL-3 (h): 293T Lysate: sc-111606, Ramos cell lysate: sc-2216 or KNRK whole cell lysate: sc-2214.

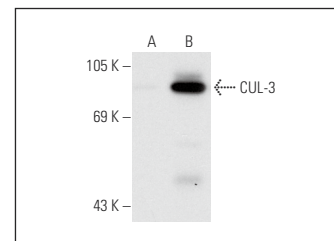
RECOMMENDED SUPPORT REAGENTS

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



CUL-3 (H-1): sc-166053. Western blot analysis of CUL-3 expression in HeLa (A), K-562 (B), Jurkat (C), Ramos (D), NIH/3T3 (E) and KNRK (F) whole cell lysates.



CUL-3 (H-1): sc-166053. Western blot analysis of CUL-3 expression in non-transfected: sc-117752 (A) and human CUL-3 transfected: sc-111606 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Liang, Y., et al. 2021. Desmosomal COP9 regulates proteome degradation in arrhythmic right ventricular dysplasia/cardiomyopathy. *J. Clin. Invest.* 131: e137689.

STORAGE

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