

Product Specification Sheet

Product: Anti-Human Cul1 (C-terminal specific) [RABBIT]

Code: 100-401-A01

Lot #: 15443

Size: 100 µl

Physical State: Liquid (sterile filtered)

Protein Concentration: 85 mg/ml (by Refractometry)

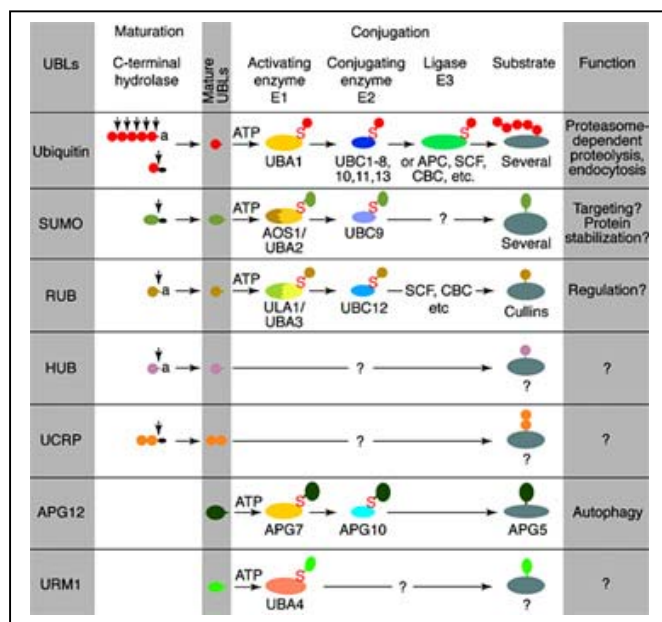
Buffer: None

Stabilizer: None

Preservative: 0.01% (w/v) Sodium Azide

Storage Conditions: Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use. Expiration date is one (1) year from date of opening.

Background Information: Cullins assemble a potentially large number of ubiquitin ligases by binding to the RING protein ROC1 to catalyze polyubiquitination, as well as binding to various specificity factors to recruit substrates. Cullin 1 is an essential component of the SCF (SKP1-CUL1-F-box protein) E3 ubiquitin ligase complex, which mediates the ubiquitination of proteins involved in cell cycle progression, signal transduction and transcription. In the SCF complex, cul1 serves as a rigid scaffold that organizes the SKP1-F-box protein and RBX1 subunits. Cul1 may also contribute to catalysis through positioning of the substrate and the ubiquitin-conjugating enzyme. Cul1 is part of the SCF complex consisting of CUL1, RBX1, SKP1 and SKP2, where it interacts directly with SKP1, SKP2 and RBX1. Cul1 also interacts with RNF7 and is part of a complex with TIP120A/CAND1 and RBX1. The unneddylated form interacts with TIP120A/CAND1 and the interaction negatively regulates the association with SKP1 in the SCF complex.



Application Note(s): This antibody reacts with human Cul1 by western blot and immunoprecipitation. The antibody immunoprecipitates *in vitro* translated product and protein from cell lysates (using HeLa or NIH-3T3). Do not IP in the presence of NP-40, but rather use 0.1% SDS. An 89.6 kDa band corresponding to human Cul1 is detected. Most cell lines expressing Cul1 can be used as a positive control. Researchers should determine optimal titers for other applications.

Figure. Conjugation pathways for ubiquitin and ubiquitin-like modifiers (UBLs). Most modifiers mature by proteolytic processing from inactive precursors (a; amino acid). Arrowheads point to the cleavage sites. Ubiquitin is expressed either as polyubiquitin or as a fusion with ribosomal proteins. Conjugation requires activating (E1) and conjugating (E2) enzymes that form thioesters (S) with the modifiers. Modification of cullins by RUB involves SCF(SKP1/cullin-1/F-box protein) /CBC(cullin-2/elongin B/elonginC) -like E3 enzymes that are also involved in ubiquitination. In contrast to ubiquitin, the UBLs do not seem to form multi-UBL chains. UCRP(ISG15) resembles two ubiquitin moieties linked head-to-tail. Whether HUB1 functions as a modifier is currently unclear. APG12 and URM1 are distinct from the other modifiers because they are unrelated in sequence to ubiquitin. Data contributed by S.Jentsch, see references below.

Recommended Dilution(s):

ELISA

1:2,000 - 1:10,000

WESTERN BLOT

1:500 - 1:1,000

IMMUNOHISTOCHEMISTRY

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Purity and Specificity: This product is monospecific antiserum processed by delipidation and defibrination followed by sterile filtration. This product reacts with human Cullin 1. Cross reactivity is expected against mouse Cul1 based on sequence homology.

Immunogen: This antibody was prepared from whole rabbit serum produced by repeated immunizations with a synthetic peptide corresponding to amino acids 742-752 of Human Cul1 (C-terminus) coupled to KLH. 766-776

Protein Sequence: Human Cullin 1 (776 aa 89.6 kDa)

1	msstrsqnph	glkqigldqi	wddlragiqq	vytrqsmaks	rymelythvy	nyctsvhqsn
61	qargagvpps	kskkgqtpgg	aqfvglelyk	rlkeflknyl	tnllkdgedl	mdesvlkfyt
121	qqwedyrfss	kvngicayl	nrhwvrrccd	egrkgyeyiy	slalvtwrdc	lfrplnkqvt
181	navlklicke	rnetintrl	isgvvqsyve	lglneddafa	kgptltvyke	sfesqlfadt
241	erfytrete	flqqnpvtey	mkkaearle	eqrrvqvylh	estqdelark	ceqvliekhl
301	eifhtefqnl	ldacknedlg	rmynlvsriq	dglgelkkl	ethihnggla	aiekcgcaal
361	ndpkmyvqtv	ldvhkkynal	vmsafnndag	fvaaldkacg	rfinnavtk	maqssskspe
421	llarycdsll	kkssknpeea	eledtlmqvm	vvfkyiedkd	vfqkfyakml	akrlvhqnsa
481	sddaeasmis	klkqacgfey	tsklqrmfqd	igvskdlneq	fkkhltsep	ldldfsiqvl
541	ssgswpfqqs	ctfalpsele	rsyqrfafy	asrhsgrklit	wlyqlskgel	vtncfknryt
601	lqastfqmai	llqynteday	tvqqltdstq	ikmdilaqvl	qillkskllv	ledenanvde
661	velkpdtkik	lylgyknkkl	rvninvpmtk	eqkqeqetth	kniedrkl	iqaiavrimk
721	mrkvlkhqqj	lgevlqlss	rflkprvpvik	kcidilieke	ylervdgedk	tysyla

Related Link(s): Accession # [NP_003583](#) [Q13616](#)

Specific Reference(s):

Michel, J.J. and Xiong, Y. (1998) Human CUL-1, but not other cullin family members, selectively interacts with SKP1 to form a complex with SKP2 and cyclin A. *Cell Growth Differ.* **9** (6), 435-449.

Kipreos, E.T., Lander, L.E., Wing, J.P., He, W.W. and Hedgecock, E.M. (1996) cul-1 is required for cell cycle exit in *C. elegans* and identifies a novel gene family. *Cell* **85** (6), 829-839.

Ohta, T., Michel, J.J., Schottelius, A.J. and Xiong, Y. (1999) ROC1, a homolog of APC11, represents a family of cullin partners with an associated ubiquitin ligase activity. *Mol. Cell* **3** (4), 535-541.

Mathias, N., Johnson, S.L., Winey, M., Adams, A.E., Goetsch, L., Pringle, J.R., Byers, B., Goebel, M.G. (1996) Cdc53p acts in concert with Cdc4p and Cdc34p to control the G1-to-S-phase transition and identifies a conserved family of proteins. *Mol Cell Biol* **16**:12, 6634-6643.

General Reference(s):

Hori, T., Osaka, F., Chiba, T., Miyamoto, C., Okabayashi, K., Shimbara, N., Kato, S. and Tanaka, K. (1999) Covalent modification of all members of human cullin family proteins by NEDD8. *Oncogene* **18** (48), 6829-6834.

Read, M.A., Brownell, J.E., Gladysheva, T.B., Hottel, M., Parent, L.A., Coggins, M.B., Pierce, J.W., Podust, V.N., Luo, R.-S., Chau, V. and Palombella, V.J. (2000) Ned8 modification of cul-1 activates SCF(beta-TrCP)-dependent ubiquitination of I kappa B alpha. *Mol. Cell. Biol.* **20** (7), 2326-2333.

Tan, P., Fuchs, S.Y., Chen, A., Wu, K., Gomez, C., Ronai, Z. and Pan, Z.Q. (1999) Recruitment of a ROC1-CUL1 ubiquitin ligase by Skp1 and HOS to catalyze the ubiquitination of I kappa B alpha. *Mol. Cell* **3** (4), 527-533 (1999).

Jentsch S, Pyrowolakis G. (2000) Ubiquitin and its kin: how close are the family ties? *Trends Cell Biol.* **10**(8):335-42.

Related Product(s):

#100-401-A01 Anti-Human Cul1 (RABBIT)	#100-401-A08 Anti-Human SLP1 (RABBIT)	#100-401-A15 Anti-Human APC11 (RABBIT)
#100-401-A02 Anti-Human Cul2 (RABBIT)	#100-401-A09 Anti-Human DDB1 (RABBIT)	#100-401-A15 Anti-Human APC11 (RABBIT)
#100-401-A03 Anti-Human Cul3 (RABBIT)	#100-401-A10 Anti-Human DDB2 (RABBIT)	#100-401-A15 Anti-Human APC2 (RABBIT)
#100-401-A04 Anti-Human Cul4A (RABBIT)	#100-401-A11 Anti-Human CAND1 (RABBIT)	#100-401-A09 Anti-Human cdc20 (RABBIT)
#100-401-A05 Anti-Human Cul5 (RABBIT)	#100-401-A12 Anti-Human CAND2 (RABBIT)	#611-703-127 HRP Dnky-a-Rabbit IgG [H&L]
#100-401-A06 Anti-Human Cul7 (RABBIT)	#100-401-A13 Anti-Human ROC1 (RABBIT)	#611-132-122 IRDye800 Gt-a-Rabbit IgG [H&L]
#100-401-A07 Anti-Human PARC (RABBIT)	#100-401-A14 Anti-Human ROC2 (RABBIT)	

USDA Certification: All products of animal origin manufactured by Rockland Immunochemicals are derived from starting materials of North American origin. Collection was performed in United States Department of Agriculture (USDA) inspected facilities and all materials have been inspected and certified to be free of disease and suitable for exportation.

Note: This product is for research use only and is not intended for therapeutic or diagnostic applications. Please contact a technical service representative for more information.