Revision 3

Store at -20C

#12724

Ubiquitin E3 Ligase Complex Antibody Sampler Kit

Cell Signaling TECHNOLOGY®

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Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
CUL4A Antibody	2699	20 µl	80, 82 kDa	Rabbit
CYLD (D6O5O) Rabbit mAb	12797	20 µl	109 kDa	Rabbit IgG
DDB-1 (D4C8) Rabbit mAb	6998	20 µl	127 kDa	Rabbit IgG
DDB-2 (D4C4) Rabbit mAb	5416	20 µl	43 kDa	Rabbit IgG
RBX1 (D3J5I) Rabbit mAb	11922	20 µl	13 kDa	Rabbit IgG
Skp1 (D3J4N) Rabbit mAb	12248	20 µl	19 kDa	Rabbit IgG
Skp2 (D3G5) XP® Rabbit mAb	2652	20 µl	48 kDa	Rabbit IgG
β-TrCP (D12C8) Rabbit mAb	11984	20 µl	62 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

Please visit cellsignal.com for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

Description

The Ubiquitin E3 Ligase Complex Antibody Sampler Kit provides an economical means to study multiple protein components of ubiquitin E3 ligase complexes. The kit includes enough antibody to perform two western blot experiments per primary antibody.

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Background

Ubiquitin can be covalently linked to many cellular proteins by the ubiquitination process, which targets proteins for degradation by the 26S proteasome. Ubiquitin is first activated by forming a thiolester complex with the activation component E1. The activated ubiquitin is subsequently transferred to the ubiquitin-carrier protein E2, and then from E2 to ubiquitin ligase E3 for final delivery to the ε-NH2 of the target protein lysine residue (1-3). Research studies suggest that activated E2 associates transiently with E3, and the dissociation is a critical step for ubiquitination (4).

S phase kinase-associated protein 1 (Skp1) is a critical scaffold protein of the Skp1/CUL1/F-box (SCF) E3 ubiquitin ligase protein complex. Various F-box proteins (e.g. β-TrCP, Skp2) mediate an interaction with Skp1 via their defining and conserved domain of 40 amino acids and with substrates to be ubiquitinated (5). RING-box protein 1 (RBX1 or ROC1) is another essential component of the SCF complex (6). RBX1 mediates the neddylation of CUL1, which activates SCF E3 ligase by facilitating the ubiquitin transfer from E2 to substrates (7-9). The RING finger domain of RBX1 is required for ubiquitin ligation (10).

Cullin-4 (CUL4) is a member of the cullin family of related ubiquitin ligases (11). The carboxy-terminal domain of CUL4 interacts with Rbx1 and E2 enzyme while the amino-terminal CUL4 domain interacts with BPB domain of UV-damaged DNA binding protein DDB-1 to form a CUL4-DDB1 ubiquitin ligase complex (12). Damaged DNA-Binding Protein (DDB) consists of a 127 kDa subunit (DDB-1) and a 48 kDa subunit (DDB-2) that contribute to the formation of the UV-damaged DNA-binding protein complex (UV-DDB) (13-15). In conjunction with CUL4A and RBX1, the UV-DDB complex forms an E3 ubiquitin ligase that recognizes a broad spectrum of DNA lesions. The complex polyubiquitinates components of the nucleotide excision repair pathway (16-18).

Background References

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