UBE2V2 (Mms2) [GST-tagged]

E2 – Ubiquitin Conjugating Enzyme

Alternate Names: UEV2, Methyl Methanesulphonate Sensitive 2, Mms2, Enterocyte Differentiation-Promoting Factor 1, EDPF1

Cat. No.	**62-0101-020**	Quantity:	20 µg
Lot. No.	**30040**	Storage:	-70˚C

FOR RESEARCH USE ONLY NOT FOR USE IN HUMANS

Background

The enzymes of the ubiquitylation pathway play a pivotal role in a number of cellular processes including regulated and targeted proteasomal degradation of substrate proteins. Three classes of enzymes are involved in the process of ubiquitylation; activating enzymes (E1s), conjugating enzymes (E2s) and protein ligases (E3s). UBE2V2 is a member of the E2 conjugating enzyme family and cloning of the human gene was first described by Fritsche *et al.* (1997). UBE2V2 shares 90% sequence identity with UBE2V1 in its C-terminal domain (Sancho *et al.*, 1998). The UEV protein Mms2 (yeast homologue of human UBE2V2) forms a heterodimer with yeast Ubc13 (UBE2N) which is recruited to chromatin by the RING finger proteins RAD5 and RAD18 in the RAD6 dependent post-replicative DNA repair pathway (Hofmann and Pickart 1999). These proteins also play a central role in the assembly of K63-linked polyubiquitin chains (Ulrich and Jentsch 2000; Xiao *et al.*, 1998). UEV/Ubc complexes have been implicated in the assembly of Lys63-linked polyubiquitin chains that act as a novel signal in post-replicative DNA repair and IκBα kinase activation. Recent crystal structure analysis provides direct evidence that the Mms2/Ubc13 heterodimer is necessary for DNA repair (Moraes *et al.*, 2001).

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Physical Characteristics

Species: human

Source: *E. coli* expression

Quantity: 20 µg

Concentration: 1 mg/ml

Formulation: 50 mM HEPES pH 7.5, 150 mM sodium chloride, 2 mM dithiothreitol, 10% glycerol

Molecular Weight: ~43 kDa

Purity: >98% by InstantBlue™ SDS-PAGE

Stability/Storage: 12 months at -70˚C; aliquot as required

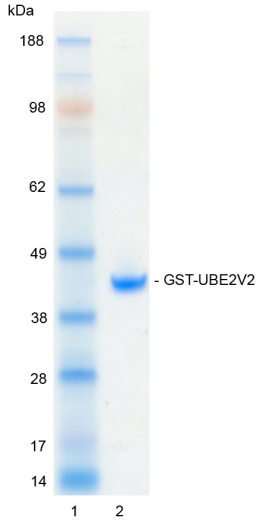
Protein Sequence:

MSPILGYWKIKGLVQPTRLLLEYLEEKYEEH
LYERDEGDKWRNKKFELGLEFPNLPYYIDGD
VKLTQSMAIIRYIADKHNMLGGCPKERAEISMLE
GAVLDIRYGVSRIAYSKDFETLKVDFLSKLPEM
LKMFEDRLCHKTYLNGDHVTHPDFMLYDALDV
VLYMDPMCLDAFPKLVCFKKRIEAIPQIDKY
LKSSKYIAWPLQGWQATFGGGDHPPKSDLEV
LFQGPLGS***M***AVSTGVKVPRNFRLLEELEEGQK
GVGDGTVSWGLEDDEDMTLTRWTGMIIGPPRTNY
ENRIYSLKVECGPKYPEAPPSVRFVTKINMNG
INNSSGMVDARSIPVLAKWQNSYSIKVVLQELR
RLMMSKENMKLPQPPEGQTYNN

Tag (**bold text**): N-terminal GST
Protease cleavage site: PreScission™ (LEVLFQ▼GP)
UBE2V2 (regular text): Start ***bold italics*** (amino acid residues 1-145)
Accession number: NP_003341.1

Quality Assurance

Purity:
4-12% gradient SDS-PAGE
InstantBlue™ staining
Lane 1: MW markers
Lane 2: 1 µg GST-UBE2V2



Protein Identification:
Confirmed by mass spectrometry.

Polyubiquitin Chain Formation Assay:
The activity of GST-UBE2V2 was validated in a polyubiquitin chain formation assay. Incubation of UBE1, UBE2N and CHIP - with and without GST-UBE2V2 - in the presence of ubiquitin and ATP at 30˚C was compared at two time points, T_0 and T_{60} minutes. Polyubiquitin chains were detected by Western blot using a monoclonal anti-ubiquitin conjugate antibody. The ability of GST-UBE2V2 to promote the formation of polyubiquitin chains was observed.

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Lot-specific COA version tracker: v1.0.0

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Background

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References:

Fritsche, J., M. Rehli, *et al.* (1997). Molecular cloning of a 1alpha,25-dihydroxyvitamin D3-inducible transcript (DDVit 1) in human blood monocytes. *Biochem Biophys Res Commun* **235**(2): 407-12.

Hofmann RM, Pickart CM (1999). Noncanonical MMS2-encoded ubiquitin-conjugating enzyme functions in assembly of novel polyubiquitin chains for DNA repair. *Cell* **96**, 645-53.

Moraes, T. F., R. A. Edwards, *et al.* (2001). Crystal structure of the human ubiquitin conjugating enzyme complex, hMms2-hUbc13. *Nat Struct Biol* **8**(8): 669-73.

Sancho, E., M. R. Vila, *et al.* (1998). Role of UEV-1, an inactive variant of the E2 ubiquitin-conjugating enzymes, in *in vitro* differentiation and cell cycle behavior of HT-29-M6 intestinal mucosecretory cells. *Mol Cell Biol* **18**(1): 576-89.

Ulrich, H. D. and S. Jentsch (2000). Two RING finger proteins mediate cooperation between ubiquitin-conjugating enzymes in DNA repair. *EMBO J* **19**(13): 3388-97.

Xiao, W., S. L. Lin, *et al.* (1998). The products of the yeast MMS2 and two human homologs (hMMS2 and CROC-1) define a structurally and functionally conserved Ubc-like protein family. *Nucleic Acids Res* **26**(17): 3908-14.

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