UBE2J2 (1-226) (NCUBE2) [untagged]
E2 – Ubiquitin Conjugating Enzyme

Alternate Names: EC 6.3.2.19, NCUBE2, Non canonical ubiquitin conjugating enzyme 2, PRO2121 UBC6 homolog, Ubc6p

Cat. No. 62-0067-100	**Quantity:** 100 µg
Lot. No. 1540	**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). UBE2J2 is a member of the E2 conjugating enzyme family and the human gene was first described by Lenk *et al.* (2002). UBE2J2 is a 318 amino acid protein that shares 26% identity to its yeast homologue (Lenk *et al.*, 2002). UBE2J2 is localised to the cytoplasmic surface of the Endoplasmic Reticulum (ER) and participates in Endoplasmic Reticulum Associated Degradation (ERAD). It has been demonstrated that expression of a mutant form of UBE2J2 affects ERAD of the T cell receptor and a mutant form of the CFTR protein (Lenk *et al.*, 2002). UBE2J2 has also been identified as the primary cellular E2 recruited by the E3 ligase murine K3 (mK3), and this E2-E3 pair is capable of conjugating ubiquitin on lysine or serine residues of substrates. Interestingly, UBE2J2-mK3 preferentially promotes ubiquitylation of hydroxylated amino acids via ester bonds even when lysine residues are present on wild-type substrates (Wang *et al.*, 2009). Treatment of Sertoli and germ cells of the testies with a proteasome inhibitor results in the colocalisation of the retinoic acid receptor alpha (RARA) to the ER where it interacts with UBE2J2 resulting in its ubiquity-

Physical Characteristics

Species: human

Source: *E. coli* expression

Quantity: 100 µg

Concentration: 1 mg/ml

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

Molecular Weight: ~27 kDa

Purity: >98% by InstantBlue™ SDS-PAGE

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

Protein Sequence:

GSHMASMTGGQQMGRGS*M*SSTSSKRAPTTATQR
LKQDYLRIKKDPVPYICAEPLPSNILEWHYVVRG
PEMTPYEGGYYHGKLIFPREFPFKPPSIYMITPN
GRFKCNTRLCLSITDFHPDTWNPAWSVSTILT
GLLSFMVEKGPTLGSIETSDFTKRQLAVQSLAFN
LKDKVFCELFPEVVEEIKQKQKAQDELSSRPQTL
PLPDVVPDGETHLVQNGIQLLNGHAPGAVPN
LAGLQQANRHH

The residues underlined remain after cleavage and removal of the purification tag.
UBE2J2 (regular text): Start **bold italics** (amino acid residues 1-226)
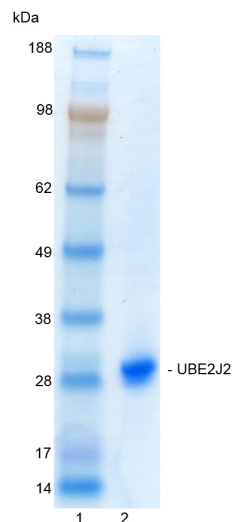Accession number: NP_477515.2

Quality Assurance

Purity:
4-12% gradient SDS-PAGE
InstantBlue™ staining
Lane 1: MW markers
Lane 2: 1 µg UBE2J2

Protein Identification:
Confirmed by mass spectrometry.

E2-Ubiquitin Thioester Loading Assay:
The activity of UBE2J2 was validated by loading E1 UBE1 activated ubiquitin onto the active cysteine of the UBE2J2 E2 enzyme via a transthiolation reaction. Incubation of the UBE1 and UBE2J2 enzymes in the presence of ubiquitin and ATP at 30˚C was compared at two time points, T_0 and T_{10} minutes. Sensitivity of the ubiquitin/UBE2J2 thioester bond to the reducing agent DTT was confirmed.

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Background

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lation and degradation via the ERAD pathway (Zhu *et al.*, 2010).

References:

Lenk U, Yu H, Walter J, Gelman MS, Hartmann E, Kopito RR, Sommer T (2002) A role for mammalian Ubc6 homologues in ER-associated protein degradation. *J Cell Sci* **115**, 3007-14.

Wang X, Herr RA, Rabelink M, Hoeben RC, Wiertz EJ, Hansen TH (2009) UBE2j2 ubiquitinates hydroxylated amino acids on ER-associated degradation substrates. *J Cell Biol* **187**, 655-68.

Zhu L, Santos NC, Kim KH (2010) Disulfide isomerase glucose-regulated protein 58 is required for the nuclear localization and degradation of retinoic acid receptor alpha. *Reproduction* **139**(4), 717-31.