

# UBE2G1 (Ubc7) [untagged]

E2 – Ubiquitin Conjugating Enzyme

Alternate Names: E217K, UBC7, UBE2G

Cat. No. 62-0028-020

Lot. No. 1465

Quantity: 20 µg

Storage: -70°C

FOR RESEARCH USE ONLY

NOT FOR USE IN HUMANS



CERTIFICATE OF ANALYSIS

## 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). UBE2G1 is a member of the E2 conjugating enzyme family and cloning of the human gene was first described by Watanabe *et al.* (1996). UBE2G1 shares 74% sequence identity with UBC7 from *C. elegans* and a high degree of homology with UBC7 from other species. Expression of UBE2G1 and a helix-loop-helix transcription factor and member of the MYC/MAX superfamily (ROX/MNT) is decreased in medulloblastoma tumours. Haploinsufficiency of the human 17p13.3 region is associated with 35% to 50% of medulloblastomas, indicating the presence of one or more tumour suppressor genes which have not yet been identified (Cvekl *et al.*, 2004).

## References:

Cvekl A, Jr., Zavadij J, Birshstein BK, Grotzer MA, Cvekl A (2004) Analysis of transcripts from 17p13.3 in medulloblastoma suggests ROX/MNT as a potential tumour suppressor gene. *Eur J Cancer* 40, 2525-32.

Watanabe TK, Kawai A, Fujiwara T, Maekawa H, Hirai Y, Nakamura Y, Takahashi E (1996) Molecular cloning of UBE2G, encoding a human skeletal muscle-specific ubiquitin-conjugating enzyme homologous to UBC7 of *C. elegans*. *Cytogenet Cell Genet* 74, 146-8.

## 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:** ~21 kDa

**Purity:** >98% by InstantBlue™ SDS-PAGE

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

## Protein Sequence:

GSHMASMTGGQQMGRGSMTELQSALLLRRO  
LAELNKNPVEGFSAGLIDDNDLYRWEVLI  
IGPPDTLYEGGVFKAHLTFPKDYPLRPPKM  
KFITEIWHPNVDKNGDVCISILHEPGEDKY  
GYEKPEERWLPIHTVETIMISVISMLADPNGD  
SPANVDAAKEWREDRNGEFKRKVARCVRK  
SQETAFE

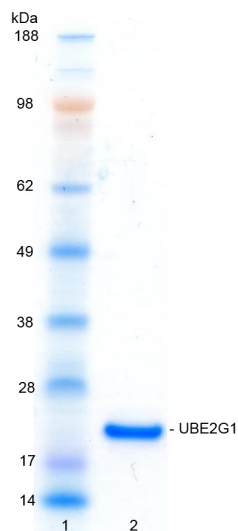
The residues underlined remain after cleavage and removal of the purification tag.

UBE2G1 (regular text): Start **bold italics** (amino acid residues 1-170) Accession number: NP\_003333

## Quality Assurance

### Purity:

4-12% gradient SDS-PAGE  
InstantBlue™ staining  
Lane 1: MW markers  
Lane 2: 1 µg UBE2G1



### Protein Identification:

Confirmed by mass spectrometry.

### E2-Ubiquitin Thioester Loading Assay:

The activity of UBE2G1 was validated by loading E1 UBE1 activated ubiquitin onto the active cysteine of the UBE2G1 E2 enzyme via a transthioylation reaction. Incubation of the UBE1 and UBE2G1 enzymes in the presence of ubiquitin and ATP at 30°C was compared at two time points, T<sub>0</sub> and T<sub>10</sub> minutes. Sensitivity of the ubiquitin/UBE2G1 thioester bond to the reducing agent DTT was confirmed.



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Lot-specific COA version tracker: v1.0.0