# **UBE2G1** (Ubc7) [6His-tagged]

E2 – Ubiquitin Conjugating Enzyme

**Alternate Names:** E217K, UBC7, UBE2G

**Cat. No.** **62-0026-100**
**Lot. No.** **1373**

Quantity: 100 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 proteosomal 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 medullabalastoma 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., Zavadil J, Birshtein 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:** 100 µg

**Concentration:** 1 mg/ml

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

**Molecular Weight:** ~23 kDa

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

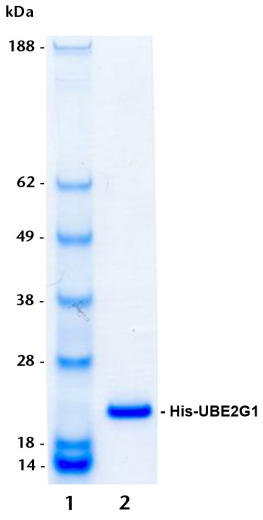
**Stability/Storage:** 12 months at -70˚C; aliquot as required

**Protein Sequence:**
**MGSSHHHHHHSSG**LVPRGSHMASMTG
GQQMGRGS***M***TELQSALLLRRQLAELNKN
PVEGFSAGLIDDNDLYRWEVLIIGPPDTLYEG
GVFKAHLTFPKDYPLRPPKMKFITEIWHPNVD
KNGDVCISILHEPGEDKYGYEKPEERWLPIHT
VETIMISVISMLADPNGDSPANVDAAKEWRE
DRNGEFKRKVARCVRKSQETAFE

Tag (**bold text**): N-terminal His
Protease cleavage site: Thrombin (LVPR▼GS)
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 His-UBE2G1




**Protein Identification:**
Confirmed by mass spectrometry.

**E2-Ubiquitin Thioester Loading Assay:**
The activity of His-UBE2G1 was validated by loading E1 UBE1 activated ubiquitin onto the active cysteine of the His-UBE2G1 E2 enzyme via a transthiolation reaction. Incubation of the UBE1 and His-UBE2G1 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/His-UBE2G1 thioester bond to the reducing agent DTT was confirmed.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**Lot-specific COA version tracker:** v1.0.0