

# UBE2Z (USE1) [GST-tagged]

## E2 - FAT10 or Ubiquitin Conjugating Enzyme

Alternate Names: UBA6-Specific E2; USE1

Cat. No. **62-0060-020**  
Lot. No. **1418**

Quantity: 20 µg  
Storage: -70°C

FOR RESEARCH USE ONLY

NOT FOR USE IN HUMANS



CERTIFICATE OF ANALYSIS Page 1 of 2

### Background

The enzymes of the FATylation pathway play a pivotal role in a number of cellular processes including regulated and targeted proteasomal degradation of ubiquitylated substrate proteins (Buchsbau *et al.*, 2011). Three classes of enzymes are involved in the process of FATylation; the activating enzyme Uba6, conjugating enzymes (E2s) and protein ligases (E3s). UBE2Z is a member of the E2 conjugating enzyme family and cloning of the human gene was first described by Gu *et al.* (2007) and Jin *et al.* (2007). UBE2Z is widely expressed in human tissues and expression is particularly high in the placenta, pancreas, spleen and testis (Gu *et al.*, 2007). UBE2Z has been identified as an interaction partner of FAT10. FAT10 can be transferred from Uba6 to UBE2Z *in vitro* and both FAT10 and UBE2Z have been co-immunoprecipitated from intact cells. Down regulation of UBE2Z by siRNA resulted in a strong reduction of endogenous conjugate formation suggesting UBE2Z is the major E2 conjugating enzyme in the FAT10 cascade (Aichem *et al.*, 2010).

### References:

Aichem, A., C. Pelzer, *et al.* (2010) USE1 is a bispecific conjugating enzyme for ubiquitin and FAT10, which FAT10ylates itself *in cis*. *Nat Commun* 1: 13.

Buchsbau, S., B. Bercovich, *et al.* (2011) FAT10 is a proteasomal degradation signal which is itself regulated by ubiquitination. *Mol Biol Cell*. (in press)

Gu, X., F. Zhao, *et al.* (2007) Cloning and characterization of a gene encoding the human putative ubiquitin conjugating enzyme E2Z (UBE2Z). *Mol Biol Rep* 34(3): 183-8.

Jin, J., X. Li, *et al.* (2007) Dual E1 activation systems for ubiquitin differentially regulate E2 enzyme charging. *Nature* 447(7148): 1135-8.

### 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:** ~65 kDa

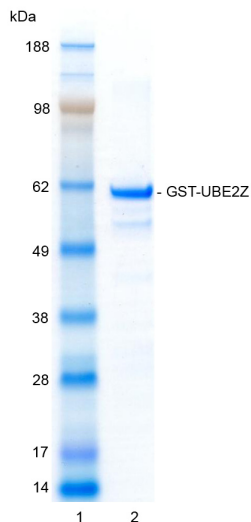
**Purity:** >85% by InstantBlue™ SDS-PAGE

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

**Protein Sequence:** Please see page 2

### Quality Assurance

**Purity:**  
4-12% gradient SDS-PAGE  
InstantBlue™ staining  
Lane 1: MW markers  
Lane 2: 1 µg GST-UBE2Z



### Protein Identification:

Confirmed by mass spectrometry.

### E2-Ubiquitin Thioester Loading Assay:

The activity of GST-UBE2Z was validated by loading E1 Uba6 activated ubiquitin onto the active cysteine of the GST-UBE2Z E2 enzyme via a transthioester reaction. Incubation of the Uba6 and GST-UBE2Z 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. Under these conditions tested no GST-UBE2Z/ubiquitin thioester loading was observed.



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Lot-specific COA version tracker: v1.0.0

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CERTIFICATE OF ANALYSIS Page 2 of 2

## Physical Characteristics

Continued from page 1

### Protein Sequence:

**MSPILGYWKIKGLVQPTRLLLEYLEEKYE**  
**EH**  
**LYERDEGDKWRNKKFELGLEFPNLPYYIDGD**  
**VKLTQSMAIIRYIADKHNMLGGCPKERAEISM**  
**LEGAVLDIRYGVSRIAYS**  
**KDFETLKVDFL**  
**SKLPEMLKMFEDRLCHKTYLNGDHVTHPD**  
**FMLYDALDVVLYMDPMCLDAFPKLVCFK**  
**KRIEAI**  
**QIDKYLKSSKYIAWPLQGWQATFG**  
**GGDHPPKSDLEVL**  
**FQGPLG**  
**SMAESPTEEAATA**  
**GAGAAGPGASSVAGVVGVS**  
**GSGGGFGPPFLPD**  
**VWAAAAAAGGAGGPGSGLAPLPGLPPSAAA**  
**HGAALLSHWDPTLSSDWDGERTAPQCLLR**  
**IKRDIM**  
**SIYKEPPPGMFVVPD**  
**TVDMTKIH**  
**ALITGPFDT**  
**PYEGGFLLFVFRCPDYP**  
**IHPPRVKLMTGNNT**  
**VRFNPNFYRNGKVCLSILGTWTGPAWSPAQ**  
**SISSVLISIQSLMTENPYHNEPGFEQERHPGD**  
**SKNYNECIRHETIRVAVCDMMEGKCPCPEPL**  
**RGVMEKSFLEYDYDFYEVACKDRLHLQGQTMQDPF**  
**GEKRGHFDYQSLLMRLGLIRQVLERLHNENAE**  
**MDS**  
**DSSSSGTETDLHGSLRV**

Tag (**bold text**): N-terminal GST

Protease cleavage site: PreScission™ (**LEVL****FQ**▼**GP**)

UBE2Z (regular text): Start **bold italics** (amino acid residues 1-354)

Accession number: NP\_075567.2



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