

# UBE2Q1 (NICE-5) [GST-tagged]

E2 – Ubiquitin Conjugating Enzyme

Alternate Names: UBE2Q1, NICES, PRO3094, GTAP

**Cat. No.** 62-0049-100  
**Lot. No.** 1402

**Quantity:** 100 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 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). UBE2Q1 is a member of the E2 conjugating enzyme family. Cloning of human UBE2Q1 was first described by Marenholz *et al.* (2001). UBE2Q1 shares 50-75% sequence identity to its homologues in, *Mus musculus*, *Drosophila*, *C. elegans* and *Xenopus*. Murine UBE2Q1 has a conserved sequence for ubiquitin binding shared by all the ubiquitin-conjugating enzymes and its NH<sub>2</sub>-terminal domain appears critical for the binding and internalization of cell surface galactosyltransferase 1 (GalT1) in embryonic stem cells. UBE2Q1 regulates GalT1-associated laminin-dependent embryonic cell adhesion and the formation of embryoid bodies (Wassler *et al.*, 2008).

### References:

Marenholz I, Zirra M, Fischer DF, Backendorf C, Ziegler A, Mischke D (2001) Identification of human epidermal differentiation complex (EDC)-encoded genes by subtractive hybridization of entire YACs to a gridded keratinocyte cDNA library. *Genome Res* 11, 341-55.

Wassler MJ, Shur BD, Zhou W, Geng YJ (2008) Characterization of a novel ubiquitin-conjugating enzyme that regulates beta1,4-galactosyltransferase-1 in embryonic stem cells. *Stem Cells* 26, 2006-18.

## 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:** ~73 kDa

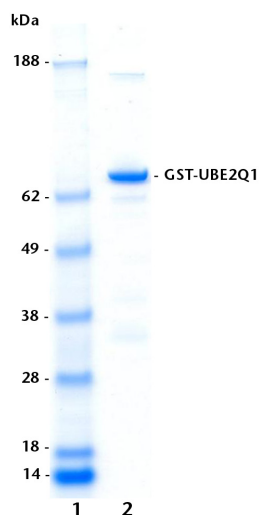
**Purity:** >80% by InstantBlue™ SDS-PAGE

**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-UBE2Q1



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

### E2-Ubiquitin Thioester Loading Assay:

The activity of GST-UBE2Q1 was validated by loading E1 UBE1 activated ubiquitin onto the active cysteine of the GST-UBE2Q1 E2 enzyme via a transthioester reaction. Incubation of the UBE1 and GST-UBE2Q1 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/GST-UBE2Q1 thioester bond to the reducing agent DTT was confirmed.



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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:

MSPILGYWKIKGLVQPTRLLEYLEEKYEHH  
LYERDEGDKWRNKKFELGLEFPNLPYY  
IDGDVKLTQSMARIYIADKHNMLGGCPKER  
AEISMLEGAVLDIRYGVSRAYSKDFETLKVD  
FLSKLPEMLKMFEDRLCHKTYLNGDH  
VTHPDFMLYDALDVVLYMDPMCLDAFP  
KLVCFKKRIEAIQIDKYLKSSKYIAWPLQG  
WQATFGGGDHPPKSDLEVLFGPLGSPE  
FQQPQPQQQQPGPGQQLGGQGAAPGAG  
GGPGGGPGPGCLRRELKLESIFHRGHER  
FRIASACDELSCFLLAGAGGAGAGAAPGPHLP  
PRGSVPGDPVRIHCNITESYPVPPPIWSVESD  
DPNLAAVLERLVDIKKGNLTLQLHLKRIISDLCK  
LYNLPQHDPVEMLDQPLPAEQCTQEDVSSD  
EDEEMPEDTEDLDHYEMKEEPAEGKKSDD  
GIGKENLAILEKIKKNQRQDYLNQAVSGSVQAT  
DRLMKELRDIYRSQSFKGGNYAVELVNDSLYD  
WNVKLLKVDQDSALHNDLQILKEGADGAD  
NFSFKDNFPDPPFVVRVSPVLSGGYVLGGGAIC  
MELLTKQGWSSAYSIESVIMQISATLVKGGARVQF  
GANKSQYSLTRAQQSYKSLVQIHEKNGWYTP  
PKEDG

Tag (**bold text**): N-terminal glutathione-S-transferase (GST)

Protease cleavage site: PreScission™ (LEVLFG▼GP)

UBE2Q1 (regular text): Start **bold italics** (amino acid residues 2-422)

Accession number: NP\_060052



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