UBE2Q1 (NICE-5) [6His-tagged]

E2 – Ubiquitin Conjugating Enzyme

Alternate Names: UBE2Q1, NICE5, PRO3094, GTAP

Cat. No.	**62-0081-100**	Quantity:	100 µg
Lot. No.	**1832**	Storage:	-70˚C

FOR RESEARCH USE ONLY NOT FOR USE IN HUMANS

CERTIFICATE OF ANALYSIS Page 1 of 1

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). UBE2Q1 is a member of the E2 conjugating enzyme family and cloning of the human gene was described by Marenholz *et al.* (2001). UBE2Q1 shares 50-75% sequence identity with 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, however its NH(2)-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: ~50 kDa

Purity: >98% by InstantBlue™ SDS-PAGE

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

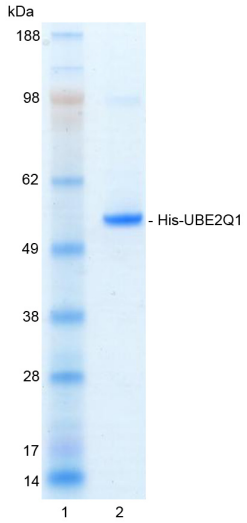
Protein Sequence:

MHHHHHHSSGLVPRGSHMASMTGGQQMGRG
SEF***Q***QPQPQGQQQPGPGQQLGGQGAAPGAG
GGPGGGPGPGPCLRRELKLLESIFHRGHER
FRIASACLDELSCEFLLAGAGGAGAGAAPGPHLP
PRGSVPGDPVRIHCNITESYPAVPPIWSVESD
DPNLAAVLERLVDIKKGNTLLLQHLKRIISDL
CKLYNLPQHPDVEMLDQPLPAEQCTQEDVSSED
EDEEMPEDTEDLDHYEMKEEEPAEGKKSEDD
GIGKENLAILEKIKKNQRQDYLNGAVSGSVQAT
DRLMKELRDIYRSQSFKGGNYAVELVNDSLYD
WNVKLLKVDQDSALHNDLQILKEKEGADFILL
NFSFKDNFPFDPPFVRVVSPVLSGGYVLGG
GAICMELLTKQGWSSAYSIESVIMQISATLVKG
KARVQFGANKSQYSLTRAQQSYKSLVQIHEKNGW
YTPPKEDG

Tag (**bold text**): N-terminal His
Protease cleavage site: Thrombin (LVPR▼GS)
UBE2Q1 (regular text): Start ***bold italics*** (amino acid residues 2-422). Accession number: NP_060052

Quality Assurance

Purity:
4-12% gradient SDS-PAGE
InstantBlue™ staining
Lane 1: MW markers
Lane 2: 1 µg His-UBE2Q1



Protein Identification:
Confirmed by mass spectrometry.

E2-Ubiquitin Thioester Loading Assay:
The activity of His-UBE2Q1 was validated by loading E1 UBE1 activated ubiquitin onto the active cysteine of the His-UBE2Q1 E2 enzyme via a transthiolation reaction. Incubation of the UBE1 and His-UBE2Q1 enzymes in the presence of ubiquitin and ATP at 30˚C was compared at two time points, T_0 and T_{10} minutes. The sensitivity of this ubiquitin/His-UBE2Q1 thioester bond to the reducing agent DTT was confirmed.

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Lot-specific COA version tracker: v1.0.0