UBE2Q2 [GST-tagged]

E2 – Ubiquitin Conjugating Enzyme

Alternate Names: DKFZp762C143, EC 6.3.2.19, Ubiquitin carrier protein Q2, Ubiquitin-protein ligase Q2

Cat. No. **62-0089-020**
Lot. No. **1841**

Quantity: 20 µg
Storage: -70˚C

FOR RESEARCH USE ONLY

NOT FOR USE IN HUMANS

Background

The enzymes of the ubiquitylation pathway play a pivotal role in a number of cellular processes including the 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). UBE2Q2 is a member of the E2 conjugating enzyme family. The cloning of human UBE2Q2 was first described by Crawford and Piwnica-Worms. (2001). UBE2Q2 has been found to be up-regulated in 85% of head and neck squamous cell carcinoma tumours, with an increase of 2.4-fold compared to normal tissue. Immunohistochemistry and in situ hybridization analysis on tumour tissue sections has revealed strong signals in the tumour cell islets, invasive epithelia, and dysplastic regions (Seghatoleslam *et al.*, 2006). UBE2Q2 has been identified as a novel oncosuppressor that inhibits tumour growth and it is thought it could function as a novel diagnostic tool and potential therapeutic target for head and neck squamous cell carcinoma (Maeda *et al.*, 2009). UBE2Q2 may play a role in cytoskeleton structure and regulation, as actin and 6 actin-binding proteins have been shown to interact with UBE2Q2 (Seghatoleslam *et al.*, 2006). Inhibition of UBE2Q2 following treatment of HeLa cells with Microtubule Inhibiting Agent (MIA) causes mi-

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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: ~70 kDa

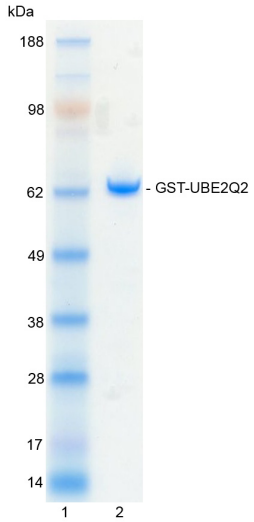
Purity: >98% by InstantBlue™ SDS-PAGE

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-UBE2Q2



Protein Identification:
Confirmed by mass spectrometry.

E2-Ubiquitin Thioester Loading Assay:
The activity of GST-UBE2Q2 was validated by loading E1 UBE1 activated ubiquitin onto the active cysteine of the GST-UBE2Q2 E2 enzyme via a transthiolation reaction. Incubation of the UBE1 and GST-UBE2Q2 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/GST-UBE2Q2 thioester bond to the reducing agent DTT was confirmed.

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Email **services@ubiquigent.com** for enquiries regarding compound profiling and/or custom assay development services.

Lot-specific COA version tracker: v1.0.0

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Background

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totic arrest and increased cytotoxicity, effects only observed in the absence of MIA suggesting UBE2Q2 is only involved in this response rather than having a more general role in mitosis (Banerjee *et al.*, 2007).

References:

Banerjee S, Brooks WS, Crawford DF (2007) Inactivation of the ubiquitin conjugating enzyme UBE2Q2 causes a prophase arrest and enhanced apoptosis in response to microtubule inhibiting agents. *Oncogene* **26**, 6509-17.

Crawford DF, Piwnica-Worms H (2001) The G(2) DNA damage checkpoint delays expression of genes encoding mitotic regulators. *J Biol Chem* **276**, 37166-77.

Maeda H, Miyajima N, Kano S, Tsukiyama T, Okumura F, Fukuda S, Hatakeyama S (2009) Ubiquitin-conjugating enzyme UBE2Q2 suppresses cell proliferation and is down-regulated in recurrent head and neck cancer. *Mol Cancer Res* **7**, 1553-62.

Seghatoleslam A, Zambrano A, Millon R, Ganguli G, Argentini M, Cromer A, Abecassis J, Wasylyk B (2006) Analysis of a novel human gene, LOC92912, over-expressed in hypopharyngeal tumours. *Biochem Biophys Res Commun* **339**, 422-9.

Physical Characteristics

Continued from page 1

Protein Sequence:

MSPILGYWKIKGLVQPTRLLLEYLEEKYEEH
LYERDEGDKWRNKKFELGLEFPNLPYYIDGD
VKLTQSMAIIRYIADKHNMLGGCPKERAEISMLE
GAVLDIRYGVSRIAYSKDFETLKVDFLSKLPEM
LKMFEDRLCHKTYLNGDHVTHPDFMLYDALDV
VLYMDPMCLDAFPKLVCFKKRIEAIPQIDKY
LKSSKYIAWPLQGWQATFGGGDHPPKSDLEV
LFQGPLGS***M***SVSGLKAELKFLASIFDKNHER
FRIVSWKLDELHCQFLVPQQGSPHSLPPPLTLH
CNITESYPSSSPIWFVDSEDPNLTSVLERLEDT
KNNNLLRQQLKWLICELCSLYNLPKHLDVEMLDQ
PLPTGQNGTTEEVTSEEEEEEEEMAEDIEDLD
HYEMKEEEPISGKKSEDEGIEKENLAILEKIRK
TQRQDHLNGAVSGSVQASDRLMKELRDIYR
SQSYKTGIYSVELINDSLYDWHVKLQKVDPD
SPLHSDLQILKEKEGIEYILLNFSFKDNFPFDP
PFVRVVLPVLSGGYVLGGGALCMELLTKQGWS
SAYSIESVIMQINATLVKGKARVQFGANKNQYN
LARAQQSYNSIVQIHEKNGWYTPPKEDG

Tag (**bold text**): N-terminal GST
Protease cleavage site: PreScission™ (LEVLFQ▼GP)
UBE2Q2 (regular text): Start ***bold italics*** (amino acid residues 1-375)
Accession number: NP_775740

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