

# UBE2A (HR6A) [untagged]

## E2 – Ubiquitin Conjugating Enzyme

**Alternate Names:** HHR6A, HR6A, RAD6A, UBC2, EC 6.3.2.19, Ubiquitin-conjugating enzyme E2A

**Cat. No.** 62-0002-020

**Lot. No.** 30118

**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 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). UBE2A is a member of the E2 conjugating enzyme family and cloning of the human gene was first described by Koken *et al.* (1991). UBE2A shares 70% identity with its yeast homologue but lacks the acidic C-terminal domain. The ring finger proteins RAD5 and RAD18 interact with UBE2A and other members of the RAD6 pathway (Ulrich and Jentsch, 2000). Phosphorylation of UBE2A by CDK1 and 2 increases its activity during the G2/M phase of the cell cycle (Sarcevic *et al.*, 2002). UBE2A is required for post-replicative DNA damage repair in eukaryotic cells and it is thought binding to ZNF198 may be involved in this process (Kunapuli *et al.*, 2003). A nonsense mutation resulting in the loss of a 25 amino acid region in the C-terminal domain of UBE2A has been identified as a cause of a novel X-linked mental retardation (XLMR) syndrome (Nascimento *et al.*, 2006).

Continued on page 2

### 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:** ~17 kDa

**Purity:** >95% by InstantBlue™ SDS-PAGE

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

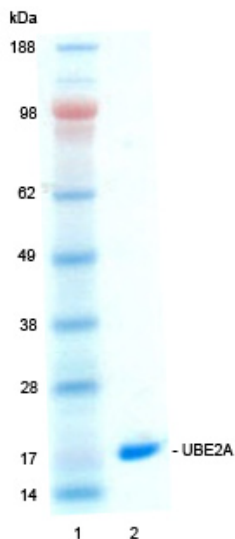
### Protein Sequence:

GPLGSPNSRVDSTPARRRLMRDFKRLQEDP  
PAGVSGAPSENNIMVWNAVIFGPEGTPFEDGT  
FKLTIEFTTEEYPNKPPTVRFVSKMFPNVY  
ADGSICLDILQNRWSPTYDVSSILTSIQSL  
DEPNPNSPANSQAQQLYQENKREYEKRV  
SAIVEQSWRDC

The residues underlined remain after cleavage and removal of the purification tag.  
UBE2A (regular text): Start **bold italics** (amino acid residues 2-152)  
Accession number: NP\_003327

### Quality Assurance

**Purity:** 4-12% gradient SDS-PAGE InstantBlue™ staining  
Lane 1: MW markers  
Lane 2: 1 µg UBE2A



### Protein Identification:

Confirmed by mass spectrometry.

### E2-Ubiquitin Thioester Loading Assay:

The activity of UBE2A was validated by loading E1 UBE1 activated ubiquitin onto the active cysteine of the UBE2A E2 enzyme via a transthiolation reaction. Incubation of the UBE1 and UBE2A 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/UBE2A thioester bond to the reducing agent DTT was confirmed.



www.ubiquigent.com  
Dundee, Scotland, UK

### ORDERS / SALES SUPPORT

**US Toll-Free:** 1-888-4E1E2E3 (1-888-431-3233)  
**International:** +1-617-245-0003  
**Email:** sales.support@ubiquigent.com

### UK HQ and TECHNICAL SUPPORT

**International:** +1-617-245-0020  
**Email:** tech.support@ubiquigent.com

Email [services@ubiquigent.com](mailto:services@ubiquigent.com) for enquiries regarding compound profiling and/or custom assay development services.

© Ubiquigent 2013. Unless otherwise noted, Ubiquigent, Ubiquigent logo and all other trademarks are the property of Ubiquigent, Ltd.

**Limited Terms of Use:** For research use only. Not for use in humans or for diagnostics. Not for distribution or resale in any form, modification or derivative OR for use in providing services to a third party (e.g. screening or profiling) without the written permission of Ubiquigent, Ltd.

Lot-specific COA version tracker: v1.0.0

# UBE2A (HR6A) [untagged]

## E2 – Ubiquitin Conjugating Enzyme

**Alternate Names:** HHR6A, HR6A, RAD6A, UBC2, EC6.3.2.19, Ubiquitin-conjugating enzyme E2A

**Cat. No.** 62-0002-020

**Lot. No.** 30118

**Quantity:** 20 µg

**Storage:** -70°C

FOR RESEARCH USE ONLY

NOT FOR USE IN HUMANS



CERTIFICATE OF ANALYSIS Page 2 of 2

## Background

Continued from page 1

### References:

Koken MH, Reynolds P, Jaspers-Dekker I, Prakash L, Prakash S, Bootsma D, Hoeijmakers JH (1991) Structural and functional conservation of two human homologs of the yeast DNA repair gene RAD6. *Proc Natl Acad Sci USA* **88**, 8865-9.

Kunapuli P, Somerville R, Still IH, Cowell JK (2003) ZNF198 protein, involved in rearrangement in myeloproliferative disease, forms complexes with the DNA repair-associated HHR6A/6B and RAD18 proteins. *Oncogene* **22**, 3417-23.

Nascimento RM, Otto PA, de Brouwer AP, Vianna-Morgante AM (2006) UBE2A, which encodes a ubiquitin-conjugating enzyme, is mutated in a novel X-linked mental retardation syndrome. *Am J Hum Genet* **79**, 549-55.

Sarcevic B, Mawson A, Baker RT, Sutherland RL (2002) Regulation of the ubiquitin-conjugating enzyme hHR6A by CDK-mediated phosphorylation. *EMBO J* **21**, 2009-18.

Ulrich HD, Jentsch S (2000) Two RING finger proteins mediate cooperation between ubiquitin-conjugating enzymes in DNA repair. *EMBO J* **19**, 3388-97.



[www.ubiquigent.com](http://www.ubiquigent.com)  
Dundee, Scotland, UK

### ORDERS / SALES SUPPORT

**US Toll-Free:** 1-888-4E1E2E3 (1-888-431-3233)  
**International:** +1-617-245-0003  
**Email:** [sales.support@ubiquigent.com](mailto:sales.support@ubiquigent.com)

### UK HQ and TECHNICAL SUPPORT

**International:** +1-617-245-0020  
**Email:** [tech.support@ubiquigent.com](mailto:tech.support@ubiquigent.com)

Email [services@ubiquigent.com](mailto:services@ubiquigent.com) for enquiries regarding compound profiling and/or custom assay development services.

© Ubiquigent 2013. Unless otherwise noted, Ubiquigent, Ubiquigent logo and all other trademarks are the property of Ubiquigent, Ltd.

**Limited Terms of Use:** For research use only. Not for use in humans or for diagnostics. Not for distribution or resale in any form, modification or derivative OR for use in providing services to a third party (e.g. screening or profiling) without the written permission of Ubiquigent, Ltd.

Lot-specific COA version tracker: v1.0.0