USP6 CD(529-1406) [GST-tagged]

Deconjugating enzyme: Deubiquitylase

Alternate Names: TRE2, TRE17, HRP1, Ubiquitin carboxyl terminal hydrolase 6, Ubiquitin specific processing protease 6, Ubiquitin thiolesterase 6

Cat. No.	**64-0045-050**	Quantity:	50 µg
Lot. No.	**30155**	Storage:	-70˚C

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Background

Deconjugating enzymes (DCEs) are proteases that process ubiquitin or ubiquitin-like gene products, reverse the modification of proteins by a single ubiquitin or ubiquitin-like protein (UBL) and remodel polyubiquitin (or poly-UBL) chains on target proteins (Reyes-Turcu *et al.,* 2009). The deubiquitylating – or deubiquitinating – enzymes (DUBs) represent the largest family of DCEs and regulate ubiquitin dependent signalling pathways. The activities of the DUBs include the generation of free ubiquitin from precursor molecules, the recycling of ubiquitin following substrate degradation to maintain cellular ubiquitin homeostasis and the removal of ubiquitin or ubiquitin-like proteins (UBL) modifications through chain editing to rescue proteins from proteasomal degradation or to influence cell signalling events (Komander *et al.,* 2009). There are two main classes of DUB, cysteine proteases and metalloproteases. Ubiquitin specific protease 6 (USP6) is a member of the cysteine protease enzyme family and cloning of the gene was first described by Nakamura *et al.* (1992). USP6 was the first DUB to be identified as an oncogene (Oliveira and Chou, 2012). Multiple DUBs, including A20, CYLD, Cezanne, USP21 and USP15, have been shown to function as negative regulators of NFκB; however, only one DUB, USP6, induces NFκB activation (Pringle *et al.,* 2012). USP6 is translocated and overexpressed in aneurysmal bone cyst (ABC), a paediatric tumour characterized by extensive bone degradation and inflammatory recruitment (Pringle *et al.*, 2012). Recent work has shown that USP6 is part of a signalling pathway that contributes to ABC pathogenesis, raising the possibility that development of USP-specific

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Physical Characteristics

Species: human

Source: insect (Sf21)

Quantity: 50 µg

Concentration: 0.5 mg/ml

Formulation: 50 mM HEPES pH 7.5,
150 mM sodium chloride,
2 mM dithiothreitol, 10% glycerol

Molecular Weight: ~125.3 kDa

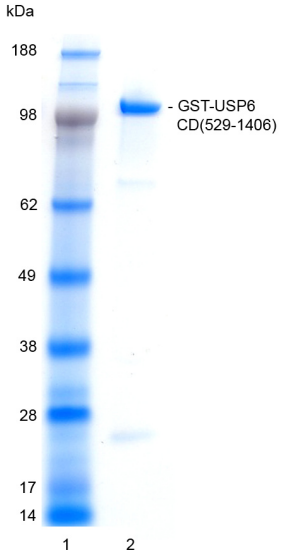
Purity: >88% by InstantBlue™ SDS-PAGE

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-USP6 CD(529-1406)



Protein Identification:
Confirmed by mass spectrometry.

Deubiquitylase Enzyme Assay:
The activity of GST-USP6 CD(529-1406) was validated by determining the increase in fluorescence measured as a result of the enzyme catalysed cleavage of the fluorogenic substrate Ubiquitin-Rhodamine110-Glycine generating Ubiquitin and Rhodamine110-Glycine. Incubation of the substrate in the presence or absence of GST-USP6 CD(529-1406) was compared confirming the deubiquitylating activity of GST-USP6 CD(529-1406).

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Lot-specific COA version tracker: v1.0.0

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Background

Continued from page 1

inhibitors or NF-κB antagonists might be effective novel strategies for the treatment of these tumours (Ye *et al.,* 2010).

References:

Komander D, Clague MJ and Urbe S (2009) Breaking the chains: structure and function of the deubiquitinases. *Nat Rev Mol Cell Biol* **10**, 550-563.

Nakamura T, Hillova J, Mariage-Samson R, Onno M, Huebner K, Cannizzaro LA, *et al.* (1992) A novel transcriptional unit of the tre oncogene widely expressed in human cancer cells. *Oncogene* **7**, 733-741.

Oliveira AM and Chou MM (2012) The TRE17/USP6 oncogene: a riddle wrapped in a mystery inside an enigma. *Front Biosci (Schol Ed)* **4**, 321-334.

Pringle LM, Young R, Quick L, Riquelme DN, Oliveira AM, May MJ, *et al.* (2012) Atypical mechanism of NF-kappaB activation by TRE17/ubiquitin-specific protease 6 (USP6) oncogene and its requirement in tumorigenesis. *Oncogene* **31**, 3525-3535.

Reyes-Turcu FE, Ventii KH and Wilkinson KD (2009) Regulation and cellular roles of ubiquitin-specific deubiquitinating enzymes. *Ann Rev Biochem* **78**, 363-397.

Ye Y, Pringle LM, Lau AW, Riquelme DN, Wang H, Jiang T, *et al.* (2010) TRE17/USP6 oncogene translocated in aneurysmal bone cyst induces matrix metalloproteinase production via activation of NF-kappaB. *Oncogene* **29**, 3619-3629.

Physical Characteristics

Continued from page 1

MSPILGYWKIKGLVQPTRLLLEYLEEKYEEH
LYERDEGDKWRNKKFELGLEFPNLPYYIDGD
VKLTQSMAIIRYIADKHNMLGGCPKERAEISM
LEGAVLDIRYGVSRIAYSKDFETLKVDFL
SKLPEMLKMFEDRLCHKTYLNGDHVTHPD
FMLYDALDVVLYMDPMCLDAFPKLVCFK
KRIEAIPQIDKYLKSSKYIAWPLQGWQATF
GGGDHPPKSDLEVLFQGPLGS***K***GATGLSNL
GNTCFMNSSIQCVSNTQPLTQYFISGRH
LYELNRTNPIGMKGHMAKCYGDLVQELWS
GTQKSVAPLKLRRTIAKYAPKFDGFQQQD
SQELLAFLLDGLHEDLNRVHEKPYVELKDS
DGRPDWEVAAEAWDNHLRRNRSIIVDLFH
GQLRSQVKCKTCGHISVRFDPFNFLSLPLP
MDSYMDLEITVIKLDGTTPVRYGLRL
NMDEKYTGLKKQLRDLCGLNSEQIL
LAEVHDSNIKNFPQDNQKVQLSVSGFL
CAFEIPVPSSPISASSPTQIDFSSSPSTNGM
FTLTTNGDLPKPIFIPNGMPNTVVPCGTEKN
FTNGMVNGHMPSLPDSPFTGYIIAVHRKM
MRTELYFLSPQENRPSLFGMPLIVPCT
VHTRKKDLYDAVWIQVSWLARPLPPQEASI
HAQDRDNCMGYQYPFTLRVVQKDGNSCAW
CPQYRFCRGCKIDCGEDRAFIGNAYI
AVDWHPTALHLRYQTSQERVVDKHESVEQS
RRAQAEPINLDSCLRAFTSEEELGESE
MYYCSKCKTHCLATKKLDLWRLPPFLII
HLKRFQFVNDQWIKSQKIVRFLRESFDP
SAFLVPRDPALCQHKPLTPQGDELSKPRI
LAREVKKVDAQSSAGKEDMLLSKSPSSLSANI
SSSPKGSPSSSRKSGTSCPSSKNSSPNS
SPRTLGRSKGRLRLPQIGSKNKPSSSK
KNLDASKENGAGQICELADALSRGHM
RGGSQPELVTPQDHEVALANGFLYE
HEACGNGCGDGYSNGQLGNHSEEDSTD
DQREDTHIKPIYNLYAISCHSGILSGGHY
ITYAKNPNCKWYCYNDSSCEELHPDEIDTD
SAYILFYEQQGIDYAQFLPKIDGKKMADTSST
DEDSESDYEKYSMLQ

Tag (**bold text**): N-terminal GST
Protease cleavage site: PreScission™ (LEVLFQ▼GP)
USP6 CD(529-1406) (regular text): Start ***bold italics***
(amino acid residues 529-1406)
Accession number: NP_004496

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