
MATERIAL DATA SHEET

Recombinant Human Isopeptidase T/USP5**Cat. # E-322**

Isopeptidase T/Ubiquitin Specific Peptidase 5 (USP5) is a widely expressed deubiquitinating enzyme belonging to the peptidase C19 family (1). It is the only known member that requires zinc binding to be active (2). It has a predicted molecular weight of 95.8 kDa (3). Human Isopeptidase T/USP5 is 858 amino acids (aa) in length and shares 98% aa sequence identity with the mouse and rat orthologs (3). Isopeptidase T/USP5 is largely responsible for the disassembly of unanchored poly-Ubiquitin chains. It binds multiple Ubiquitin molecules in a poly-Ubiquitin chain and can cleave Lys29-, Lys48- and Lys63-linked chains (1,4,5). It contains four putative Ubiquitin-binding domains: an N-terminal zinc finger Ubiquitin-binding (ZnF-UBP) domain, a Ubiquitin-specific processing protease (UBP) catalytic domain, and two Ubiquitin-associated domains (UBA1 and UBA2) (5-7). The ZnF-UBP domain (aa 163-291) selectively interacts with an unmodified C-terminus of poly-Ubiquitin chains and induces a conformational change that prevents Isopeptidase T/USP5 from disassembling poly-Ubiquitin until another deubiquitinating enzyme has released the chain from the ubiquitinated protein (5,6,8). The UBP domain binds the second Ubiquitin in poly-Ubiquitin, while the subsequent Ubiquitins bind the UBA2 (aa 722-762) and UBA1 (aa 654-695) domains (5,7). There are short and long forms of human Isopeptidase T/USP5 that differ by an insertion of 23 aa in the long form (2). Suppression of Isopeptidase T/USP5 has been shown to increase the amount and transcriptional activity of p53 due to the accumulation of unanchored poly-Ubiquitin (9). Conversely, an up-regulation of USP5 has been associated with fetal Down syndrome (10).

Product Information

Quantity:	25 µg
MW:	96 kDa
Source:	<i>E. coli</i> -derived Accession # P45974
Stock:	X mg/ml (X µM) in 50 mM HEPES pH 8.0, 150 mM NaCl, 1mM DTT
Purity:	>95%, by SDS-PAGE under reducing conditions and visualized by Colloidal Coomassie® Blue stain.

Use & Storage

Use: Recombinant Human Isopeptidase T/USP5 is a Ubiquitin-specific deconjugating enzyme. Reaction conditions will need to be optimized for each specific application. We recommend an initial Recombinant Human Isopeptidase T/USP5 concentration of 10-100 nM. A 15 minute pre-incubation with 10 mM DTT is recommended to achieve maximum activity.

Storage: Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -70 °C as supplied.
- 3 months, -70 °C under sterile conditions after opening.

Literature

References:

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