

## USP2 Protein, Human

Cat. No.:	HY-P701349
Synonyms:	USP2; Ubiquitin carboxyl-terminal hydrolase 2; 41 kDa ubiquitin-specific protease; Deubiquitinating enzyme 2; Ubiquitin thioesterase 2; Ubiquitin-specific-processing protease 2
Species:	Human
Source:	E. coli
Accession:	O75604 (N259-M605)
Gene ID:	9099
Molecular Weight:	Approximately 40 kDa

### PROPERTIES

Biological Activity	The fundamental role of USP2 is specific removal of ubiquitin from substrates. USP2 catalyses the ubiquitin from the substrate Ub-Rho110 to release fluorophores. Rho110 will release 535 nM emission light under the excitation condition of 485 nM. The signal of which can be quickly and reliably captured using a microplate reader.
Appearance	Solution
Formulation	Supplied as a 0.22 µm filtered solution of 50 mM HEPES, 500 mM NaCl, 5% glycerol, pH 8.0,
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	Please use rapid thawing with running water to thaw the protein.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice

### DESCRIPTION

Background	The USP2 catalytic domain protein acts as a hydrolase, targeting polyubiquitinated proteins such as MDM2, MDM4, and CCND1. Isoform 1 and isoform 4 exhibit both ubiquitin-specific peptidase and isopeptidase activities. Notably, it deubiquitinates MDM2, indirectly promoting p53/TP53 degradation and limiting p53 activity without reversing MDM2-mediated ubiquitination of p53. Additionally, USP2 prevents MDM2-mediated degradation of MDM4, contributing to the intricate regulation of cellular processes. In the context of cell-cycle progression, USP2 plays a role in G1/S transition in both normal and cancer cells. Furthermore, it emerges as a regulator of the circadian clock, influencing its intrinsic rhythm and responsiveness to external cues. By associating with clock proteins, USP2 deubiquitinates the core clock component PER1, affecting its nucleocytoplasmic shuttling and nuclear retention. This multifaceted protein also participates in the regulation of myogenic differentiation of embryonic muscle cells and serves as a circadian clock output effector, influencing Ca(2+) absorption in the small intestine by likely modulating NHERF4 levels and, consequently, the activity of the Ca(2+) channel TRPV6.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA