Revision 2

Store at -20C

#12894

USP Antibody Sampler Kit

Cell Signaling TECHNOLOGY®

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Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
HAUSP (D17C6) XP® Rabbit mAb	4833	20 µl	135, 140 kDa	Rabbit IgG
USP1 (D37B4) Rabbit mAb	8033	20 µl	110 kDa	Rabbit IgG
USP2 Antibody	8036	20 µl	68 kDa	Rabbit
USP8 Antibody	8728	20 µl	130 kDa	Rabbit
USP9X Antibody	5751	20 µl	270 kDa	Rabbit
USP10 (D7A5) Rabbit mAb	8501	20 µl	110 kDa	Rabbit IgG
USP18 (D4E7) Rabbit mAb	4813	20 µl	34, 39 kDa	Rabbit IgG
USP28 Antibody	4217	20 µl	135 kDa	Rabbit
USP14 (D8Q6S) Rabbit mAb	11931	20 µl	60 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

Please visit cellsignal.com for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

Description

The USP Antibody Sampler Kit provides an economical means of detecting members of the ubiquitin-specific protease (USP) family. The kit includes enough primary antibody to perform two western blot experiments per primary antibody.

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Background

Ubiquitinating enzymes (UBEs) catalyze protein ubiquitination, a reversible process countered by deubiquitinating enzyme (DUB) action (1,2). The ubiquitin-specific protease (USP) subfamily is one of five distinct groups of DUB enzymes. Ubiquitin-specific-processing protease 1 (USP1) is regulated in a cell cycle dependent manner by both transcriptional and ubiquitin-proteasomal mechanisms (3). Nuclear USP1 localizes to chromatin where it deubiquitinates monoubiquitinated FANCD2 and plays an important role in DNA damage repair and Chk1 protein stability (3,4). Ubiquitin-specific-processing protease 2 (USP2) contains C19 peptidase activity and is involved in ubiquitin recycling and disassembly of polymeric ubiquitin and ubiquitin-like protein complexes (5). USP2 is a putative oncoprotein that is highly over expressed in prostate cancer and drives tumor growth by binding and stabilizing fatty acid synthase through deubiquitination (6,7).

Herpesvirus-associated ubiquitin-specific protease (HAUSP, USP7) binds and deubiquitinates transcription factor p53 and regulator protein Mdm2, stabilizing both proteins (8,9). HAUSP modifies other ubiquitinated proteins, including FoxO family forkhead transcription factors and the mitotic stress checkpoint protein CHFR (10,11). Ubiquitin-specific protease 8 (USP8, UBPy) is a cysteine protease and growth-regulated enzyme that is essential for cell proliferation and survival (12,13). The catalytic domain of USP9X possesses cysteine peptidase activity that cleaves ubiquitin and polyubiquitin conjugates. USP9X may help stabilize adherens and tight junction molecules during epithelial cell polarization (14,15). USP10 is regulated at the posttranslational level through protein-protein interactions and phosphorylation. Interaction of USP10 with the Ras-GAP SH3 domain binding protein (G3BP) inhibits the ability of USP10 to catalyze ubiquitin chain disassembly (16). ATM-mediated phosphorylation of USP10 at Thr42 and Ser337 promotes USP10 stabilization and relocation from the cytoplasm to the nucleus, where it functions in p53 deubiquitination, stabilization, and activation in response to genotoxic stress (17).

USP14 is recruited to the proteasome through association with the PSMD2 (S2/hRPN1) subunit of the 19S regulatory particle, where it may antagonize substrate degradation (18,19). USP14 trims ubiquitin residues from distal polyubiquitin chain ends, decreasing chain affinity for proteasome ubiquitin receptors and allowing for enhanced substrate stability (20,21). USP18 (UBP43) catalyzes the removal of the interferon-regulated, ubiquitin-like protein ISG15 from conjugated proteins (22). Removal of ISG15 from target proteins maintains a critical balance of cellular ISG15-conjugated proteins, which is

important for normal development and brain function (23,24). USP28 can bind, deubiquitinate and stabilize several DNA-damage pathway proteins, including p53BP1 and Chk2 (25). USP28 plays an important role in Myc-related signaling as it catalyzes Myc deubiquitination and promotes Myc stabilization, which contributes to tumor-cell growth (26).

Background References

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