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## MATERIAL DATA SHEET

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### Recombinant Human HA Ubiquitin Aldehyde C-Terminal Derivative

#### Cat. # U-211

Ubiquitin is a 76 amino acid (aa) protein that is ubiquitously expressed in all eukaryotic organisms. Ubiquitin is highly conserved with 96% aa sequence identity shared between human and yeast Ubiquitin, and 100% aa sequence identity shared between human and mouse Ubiquitin (1). In mammals, four Ubiquitin genes encode for two Ubiquitin-ribosomal fusion proteins and two poly-Ubiquitin proteins. Cleavage of the Ubiquitin precursors by deubiquitinating enzymes gives rise to identical Ubiquitin monomers each with a predicted molecular weight of 8.6 kDa. Conjugation of Ubiquitin to target proteins involves the formation of an isopeptide bond between the C-terminal glycine residue of Ubiquitin and a lysine residue in the target protein. This process of conjugation, referred to as ubiquitination or ubiquitylation, is a multi-step process that requires three enzymes: a Ubiquitin-activating (E1) enzyme, a Ubiquitin-conjugating (E2) enzyme, and a Ubiquitin ligase (E3). Ubiquitination is classically recognized as a mechanism to target proteins for degradation and as a result, Ubiquitin was originally named ATP-dependent Proteolysis Factor 1 (APF-1) (2,3). In addition to protein degradation, ubiquitination has been shown to mediate a variety of biological processes such as signal transduction, endocytosis, and post-endocytic sorting (4-7).

Ubiquitin-aldehyde is a potent and specific inhibitor of most deubiquitinating enzymes (DUBs) such as Ubiquitin C-terminal hydrolases (UCHs) and Ubiquitin-specific proteases (USPs). It prevents the hydrolysis of poly-Ubiquitin chains on substrate proteins *in vitro* and thus enhances poly-Ubiquitin chain accumulation. This tagged version contains an N-terminal HA peptide sequence (YPYDVPDYA) derived from the influenza Hemagglutinin protein. This epitope allows for the sensitive identification or purification of DUBs since it is specifically recognized by Anti-HA antibodies and/or Anti-HA-agarose.

## Product Information

<b>Quantity:</b>	50 µg
<b>MW:</b>	9.8 kDa
<b>Source:</b>	<i>E. coli</i> -derived Contains an N-terminal HA (YPYDVPDYA) tag and a mixture of derivatized and underivatized C-terminal Aldehyde, quantity is by derivatized content. Accession # P0CG47
<b>Stock:</b>	Lyophilized from a solution in MES.
<b>Solubility:</b>	Reconstitute at 2 mg/mL in an aqueous solution.
<b>Purity:</b>	>95%, by HPLC.

## Use & Storage

<b>Use:</b>	Add Recombinant Human HA-Ubiquitin Aldehyde to <i>in vitro</i> assays to inhibit deubiquitinating enzymes. The HA-tag allows for detection and purification of deubiquitinating enzyme activity. Reaction conditions will need to be optimized for each specific application. We recommend an initial Recombinant Human HA-Ubiquitin Aldehyde concentration of 2-5 µM.
<b>Storage:</b>	<p><b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b></p> <ul style="list-style-type: none"> <li>• 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 3 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

## Literature

### References:

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