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## MATERIAL DATA SHEET

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### Recombinant Human Hexa-Ubiquitin Wild-type Chains (K63)

#### Cat. # UC-317

With a predicted molecular weight of 52 kDa, hexa-Ubiquitin chains are composed of six Ubiquitin monomers that are covalently linked through isopeptide bonds, which typically form between a lysine residue of one Ubiquitin molecule and the C-terminal glycine residue of another Ubiquitin molecule (1). Each human Ubiquitin monomer is 76 amino acids (aa) in length and shares 96% and 100% aa identity with yeast and mouse Ubiquitin, respectively (2). Seven of the 76 aa in Ubiquitin are lysine residues that can participate in poly-Ubiquitin chain formation. Linkage through specific lysine residues is thought to serve as a signal that affects protein degradation, signaling, trafficking, and other cellular processes (3-8).

Linkage specific hexa-Ub can be used to investigate the mechanism of binding and recognition by E1 or E2 enzymes, deubiquitinating enzymes, E3 ligases, the proteasome or other proteins that contain Ubiquitin-associated domains (UBAs) or Ubiquitin-interacting motifs (UIMs). This product is formed with wild-type Ubiquitin and linkage-specific enzymes. It has been shown that the rate of Ubiquitin-substrate conjugate degradation is related to poly-Ubiquitin chain length. Tetra-Ubiquitin is the minimal unit required for recognition by the proteasome, and longer chains probably have enhanced binding to proteasomal subunits and may be more resistant to disassembly by a proteasome-associated isopeptidases.

#### Product Information

<b>Quantity:</b>	25 µg
<b>MW:</b>	52 kDa
<b>Source:</b>	<i>E. coli</i> -derived human Hexa-Ubiquitin protein Accession # P0CG47
<b>Stock:</b>	1 mg/ml (19 µM) in sterile, deionized water
<b>Solubility:</b>	
<b>Purity:</b>	>90%, by SDS-PAGE under reducing conditions and visualized by Colloidal Coomassie® Blue stain.

## Use & Storage

**Use:** Ubiquitin chains vary in length, linkage, and function. K63-linked Hexa-Ubiquitin Chains (Ub6) are ideal for investigating Ubiquitin-binding proteins and as substrates for Ubiquitin-specific isopeptidases. Reaction conditions will need to be optimized for each specific application. **IMPORTANT:** Heating this product in SDS-PAGE buffer or terminating reactions containing this product with heated SDS-PAGE buffer could lead to unexpected, high apparent molecular weight banding or smearing on gels that is not representative of product purity. For optimal results, we recommend incubation in SDS-PAGE buffer + DTT at <40 °C for 20 minutes prior to gel electrophoresis.

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

- 24 months from date of receipt, -20 to -70 °C as supplied.
- 3 months, -20 to -70 °C under sterile conditions after opening.

## Literature

### References:

1. Scheffner, M. *et al.* (1995) *Nature* **373**:81.
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3. Behrends, C. & J.W. Harper (2011) *Nat. Struct. & Mol. Biol.* **18**:520.
4. Greene, W. *et al.* (2012) *PLoS Pathog.* **8**:e1002703.
5. Henry, A.G. *et al.* (2012) *Dev. Cell* **23**:519.
6. Tong, X. *et al.* (2012) *J. Biol. Chem.* **287**:25280.
7. Wei, W. *et al.* (2004) *Nature* **428**:194.
8. Zhang, J. *et al.* (2012) *J. Biol. Chem.* **287**:28646.

***For research use only. Not for use in humans.***