
MATERIAL DATA SHEET

**Recombinant Human Tetra-Ubiquitin/Ub4 Wild-type Chains (K48), Biotin
Cat. # UCB-210**

With a predicted molecular weight of 34 kDa, Tetra-Ubiquitin chains are composed of four 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 Tetra-Ubiquitin can also be used to investigate mechanism of binding and recognition by E1 or E2 enzymes, deubiquitinating enzymes, E3 ligases or other proteins that contain Ubiquitin-associated domains or Ubiquitin-interacting motifs (UIMs). This product is formed with wild-type Ubiquitin and linkage-specific enzymes. Tetra-Ubiquitin is the minimal unit necessary for recognition by the 26S proteasome and contains structural characteristic (such as repeating hydrophobic patches) not present in di-Ubiquitin. This product is made with wild-type human recombinant Ubiquitin and linkage-specific enzymes. These chains are modified with biotin via primary amine coupling. This results in multiple biotinylated species modified at the N-terminus, as well as lysine residues. Biotinylated Ubiquitin can be detected using avidin-linked reagents.

Product Information

Quantity:	25 µg
MW:	34 kDa
Source:	<i>E. coli</i> -derived Accession # P0CG47
Stock:	Lyophilized from a solution in deionized water.
Solubility:	Reconstitute at 2 mg/mL in an aqueous solution.
Purity:	>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. K48-linked Biotinylated Tetra-Ubiquitin Chains (Ub4) are ideal for use in assays that utilize avidin-linked reagents for visualization or quantitation. 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.

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

Literature

References:

1. Scheffner, M. *et al.* (1995) *Nature* **373**:81.
2. Sharp, P.M. & W.-H. Li (1987) *Trends Ecol. Evol.* **2**:328.
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.
9. Beal R.E., *et al.* (1995) *Biochem.* **37**:2925-2934.
10. Cook W. J., *et al.* (1992) *J. Biol. Chem.* **267**:16467-16471.
11. Cook W. J. *et al.* (1994) *J. Mol. Biol.* **236**:601-609.
12. Phillips C. L., *et al.* (2001) *Acta. Cryst.* **57**:341-344.
13. Piotrowski J. *et al.* (1997) *J. Biol. Chem.* **272**:23712-23721.
14. Tenno T., *et al.* (2004) *Genes to Cells.* **9**:865-875.
15. Wilkinson K.D., *et al.* (1995) *Biochem.* **34**:14535-14546.

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