

Biotinylated K48-Linked Tetra-Ubiquitin

Cat. # SI4804B

Background:

Ubiquitin Chains are essential components in the study of protein degradation pathways, protein trafficking, and cellular signaling processes. These polymeric chains of ubiquitin molecules play critical roles in regulating protein stability, localization, and activity. K48 chains traditionally play a role in proteasomal degradation pathways. Once considered the hallmark of this post-translational modification. It is now clear that many, if not all, poly-Ub chain topologies likely play distinct and important roles in regulating cellular processes. Nevertheless, K48 linkage remains a critical pathway for the cells to maintain homeostasis through proteolytic degradation, and as such remains very intriguing for the study of DUBs that play a role in the degradation, as well as the proteasome itself.

K48 Tetra-Ubiquitin is a tetrameric chain of wild-type ubiquitin, wherein ubiquitin monomers are linked together via an isopeptide bond between Lysine 48 and the C-terminal Glycine. These tetra ubiquitin are then biotinylated on an available cysteine that was mutated in one of the ubiquitins to allow for one biotin molecule to be attached.

Application:

- Biotinylated chains are meant to label the protein so they can be selectively separated via a multitude of methods such as Western Blotting, pull downs (see website), ELISAs, etc.
- Can use streptavidin or avidin to visualize this protein specifically.
- Investigation of ubiquitin chain specificity and selectivity
- Studies on the role of ubiquitin chains in protein degradation pathways (e.g., proteasomal and autophagic degradation)
- Analysis of ubiquitin-mediated signaling pathways and cellular responses
- Structural studies to elucidate the architecture and dynamics of ubiquitin chains
- Screening assays to identify modulators of ubiquitin chain assembly and disassembly processes

Product Information

Purity:	≥ 95% by HPLC-MS
Molecular Weight:	35207 Da
Physical State:	Liquid, 50 mM Tris, pH 7.5, 0.15 M NaCl
Quantity:	25 µg
Solubility:	>1 mg/mL
Storage:	-80° C. Avoid repeated freeze/thaw cycles

References

1. Ohtake, F. Branched Ubiquitin Code: From Basic Biology to Targeted Protein Degradation. *J. Biochem.* **2022**, *171*, 361-366.
 2. Swatek, K.N. & Komander, D. Ubiquitin Modifications. *Cell Res.* **2016**, *26*, 399-422.
 3. Yau, R. & Rape, M. The increasing complexity of the ubiquitin code. *Nature Cell. Bio.* **2016**, *18*, 579-586.
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Data

HPLC

Deconvoluted Mass Spectrum

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