

## Biotinylated K63-Linked Tetra-Ubiquitin

Cat. # SI6304B

### 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. K63 chains traditionally play a role in intracellular signalling, trafficking, and autophagy. The topology of this linkage and its apparent role in cellular processes are quite different from that of K48. Poly-Ub chains of this type appear to play a role in endocytic trafficking, DNA repair, neurodegeneration and more.

K63 Tetra-Ubiquitin is a tetrameric chain of wild-type ubiquitin, wherein ubiquitin monomers are linked together via an isopeptide bond between Lysine 63 and the C-terminal Glycine. The chains are then enzymatically phosphorylated at the Ser65 position. Once phosphorylated, 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

<b>Purity:</b>	> 95% by HPLC-MS
<b>Molecular Weight:</b>	34759 Da
<b>Physical State:</b>	Liquid, 50 mM Tris, pH 7.5, 0.15 M NaCl
<b>Quantity:</b>	25 µg
<b>Solubility:</b>	>1 mg/mL
<b>Storage:</b>	-80o C. Avoid repeated freeze/thaw cycles

### References

1. Madiraju, C.; Novack, J.P.; Red, J.C.; Matsuzawa, S-I. K63 Ubiquitination in Immune Signaling. *Trends Immunol.* **2022**, *43*, 148-162.

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2. Cao, L.; Liu, X.; Zheng, B.; Xing, C.; Liu, J. Role of K63-linked Ubiquitination in Cancer. *Cell Death Discov.* **2022**, *8*, 410.
  3. Swatek, K.N. & Komander, D. Ubiquitin Modifications. *Cell Res.* **2016**, *26*, 399-422.
  4. Yau, R. & Rape, M. The increasing complexity of the ubiquitin code. *Nature Cell. Bio.* **2016**, *18*, 579-586.
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