

Biotinylated K63-Linked Tetra-Ubiquitin (Phosphorylated)

Cat. # SI6304BP

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 signaling, 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. Phospho-ubiquitin chains represent a specialized class of polyubiquitin characterized by phosphorylation at Serine 65 and play a central role in mitophagy signaling pathways.

K63 Tetra-Ubiquitin (phosphorylated) 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 chains 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 phosphoubiquitin chain specificity and selectivity
- Studies on the role of phosphoubiquitin chains in protein degradation pathways (e.g., proteasomal and autophagic degradation)
- Analysis of phosphoubiquitin-mediated signaling pathways and cellular responses
- Structural studies to elucidate the architecture and dynamics of phosphoubiquitin chains
- Screening assays to identify modulators of phosphoubiquitin chain assembly and disassembly processes

Product Information

Purity:	> 95% by HPLC-MS
Molecular Weight:	34842-35082 Da
Physical State:	Liquid, 50 mM Tris, pH 7.5, 0.15 M NaCl
Quantity:	25 µg
Solubility:	>1 mg/mL
Storage:	-80o C. Avoid repeated freeze/thaw cycles

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References

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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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