

## Biotinylated K33-Linked Tetra-Ubiquitin (Phosphorylated)

Cat. # SI3304BP

### 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. K33-linked ubiquitination is traditionally associated with regulation of the innate immune response. These chain types are also involved in protein stabilization and other non-degradative processes. It is a useful substrate for identifying and characterizing deubiquitinating enzymes that cleave the K33-linkage and for structural and binding studies of ubiquitin chain recognition by ubiquitin-associated domains (UBA) or ubiquitin-interacting motifs (UIMs). Phospho-ubiquitin chains represent a specialized class of polyubiquitin characterized by phosphorylation at Serine 65 and play a central role in mitophagy signaling pathways.

K33 Tetra-Ubiquitin (phosphorylated) is a tetrameric chain of wild-type ubiquitin, wherein ubiquitin monomers are enzymatically linked together via an isopeptide bond between Lysine 33 and the C-terminal Glycine. The chains are then enzymatically phosphorylated at the Ser65 position. 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 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

<b>Purity:</b>	≥ 95% by HPLC-MS
<b>Molecular Weight:</b>	34842-35082 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>	-80° C. Avoid repeated freeze/thaw cycles

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## References

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  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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