

## Biotinylated M1 (linear) Tetra-Ubiquitin (Phosphorylated)

Cat. # SI0104BP

### 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. M1-linked ubiquitination is traditionally associated with regulation of NFκB and IFN signalling. They are recombinant tetraubiquitin expressed as a linear chain. Amide linkages join the N- and C-terminus of each ubiquitin molecule to each other. This molecule is HIS-tagged at the N-terminus of the most distal ubiquitin.

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

M1 Tetra-Ubiquitin (phosphorylated) is a tetrameric chain of wild-type ubiquitin. This is done via expression and purification (made within the cell). The chains are then enzymatically phosphorylated at the Ser65 position. Once phosphorylated, this linear tetra ubiquitin is then biotinylated on an available cysteine 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>	35226-35466 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

1. Khan, M.; Syed, G.H.; Kim, S-J.; Siddiqui, A. Hepatitis B Virus-Induced Parkin-dependent Recruitment of Linear Ubiquitin Assembly Complex (LUBAC) to Mitochondria and Attenuation of Innate Immunity. *PLoS Pathog.* **2016**, *12*, e1005693.
  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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