M1 (linear) Tetra-Ubiquitin (Phosphorylated)

Cat. # SI0104P

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 the regulation of NFκB and IFN signaling. Phospho-ubiquitin chains, characterized by phosphorylation at serine 65, represent a specialized class of polyubiquitin that plays a central role in mitophagy signaling pathways.

M1 Tetra-Ubiquitin (phosphorylated) is a tetrameric chain of wild-type ubiquitin. It is expressed as a linear chain, wherein monomers are linked through N-terminal methionines and C-terminal glycines. The chains are then enzymatically phosphorylated at the Ser65 position.

Application(s)

- 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 Specifications

Tag	None
Purity	≥ 95% by HPLC-MS
Molecular Weight	35,146.5 Da
Quantity	25 µg
Species	Human
Expression System	*E. Coli*
Physical State	Liquid
Buffer	50 mM Tris, pH 7.5, 0.15 M NaCl
Stability & Storage	Over 1-year at -80° C. Avoid repeated freeze/thaw cycles

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.