Biotinylated K33-Linked Tetra-Ubiquitin

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Background

Ubiquitin Chains are essential components in the study of protein degradation pathways, protein trafficking, and cellular signaling. These polymeric chains of ubiquitin molecules play critical roles in regulating protein stability, localization, and activity. K33-linked ubiquitination is traditionally associated with the regulation of the innate immune response. In addition, these chain types are implicated in protein stabilization and other non-degradative cellular processes.

K33 Tetra-Ubiquitin is a tetrameric chain composed of wild-type ubiquitin monomers enzymatically linked via isopeptide bonds between lysine 33 (K33) of one ubiquitin and the C-terminal glycine of the next. These tetra-ubiquitin chains are then biotinylated on a cysteine residue that was mutated in one of the ubiquitin monomers, allowing the attachment of a single biotin molecule.

Application(s)

- Labeling and enriching target proteins using biotinylated chains for selective separation via techniques such as Western blotting, pull-down assays (see website), and ELISAs
- Visualizing biotin-tagged proteins using streptavidin or avidin-based detection systems
- Investigating ubiquitin chain specificity and selectivity
- Studying the role of ubiquitin chains in protein degradation pathways (e.g., proteasomal and autophagic degradation)
- Analyzing ubiquitin-mediated signaling pathways and their cellular responses
- Elucidating the structure and dynamics of ubiquitin chains through structural studies
- Identifying modulators of ubiquitin chain regulation via screening assays targeting assembly and disassembly processes

Product Specifications

Tag	Biotin
Purity	≥ 95% by HPLC-MS
Molecular Weight	35207 Da
Quantity	25 µg
Species	Human
Expression System	*E. Coli*
Physical State	Liquid
Buffer	50 mM Tris, pH 7.5, 150 mM NaCl
Solubility	>1 mg/ml
Storage	-80° C. Avoid repeated freeze/thaw cycles

References

1. Van Huizen, M. & Kikkert, M. The Role of Atypical Ubiquitin Chains in the Regulation of Antiviral Innate Immune Response. *Front. Cell. Dev. Biol*. **2019**, *7*, 392.
2. Tracz, M.; Bialek, W. Beyond K48 and K63: Non-Canonical Protein Ubiquitination. *Cell. Mol. Biol. Lett.* **2021**, *26*, 1.