Biotinylated K33-Linked Tetra-Ubiquitin

Cat. # SI3304B

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).

K33 Tetra-Ubiquitin 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. 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 ubiquitin chain specificity and selectivity
- Studies on the role of ubiquitin chains in protein degradation pathways (e.g., proteasomal and autophagic degradation)
- Analysis of ubiquitin-mediated signaling pathways and cellular responses
- Structural studies to elucidate the architecture and dynamics of ubiquitin chains
- Screening assays to identify modulators of ubiquitin chain assembly and disassembly processes

Product Information

Purity:	≥ 95% by HPLC-MS
Molecular Weight:	35207 Da
Physical State:	Liquid, 50 mM Tris, pH 7.5, 0.15 M NaCl
Quantity:	25 μg
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.