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ProductInformation

Ubiquitin, methylated
from bovine erythrocytes

Product Number **U1632**
Storage Temperature 2-8 °C

Product Description

Ubiquitin is a small (approximately 8.5 kDa) and highly conserved protein, which has been found conjugated to free amino groups of proteins through its C-terminal glycine residue. The ubiquitin pathway for protein degradation has been elucidated largely by studies with reticulocyte lysates and with yeast. It is a complex multi-component system. The first step in the pathway involves the ATP-dependent activation of ubiquitin-activating enzyme (E_1), a protein with a molecular weight of approximately 100 kDa. Ubiquitin becomes activated by formation of a thioester between its C-terminal glycine and a cysteinyl residue of E_1. The second step in the pathway involves the transfer of the activated ubiquitin to an ubiquitin carrier protein (E_2). The third step involves transfer of ubiquitin from E_2 to ε-NH_2 groups of Lys residues on the protein substrate. Further conjugations require an ubiquitin protein ligase (E_3). A polyubiquitin chain is elongated on the protein through ligation of additional ubiquitin monomers to Lys residues on ubiquitin bound to the protein. The polyubiquitin tagged protein is then degraded by the 26S proteasome and free ubiquitin is released.

This product is an ubiquitin derivative in which the amino groups are blocked by methylation. Therefore, it inhibits the formation of polyubiquitin chains. It can be used to study the role of polyubiquitination in protein degradation and as an inhibitor of ubiquitin dependent protein degradation.

The product is semisynthetic. It is prepared from bovine ubiquitin by reductive methylation of the primary amino groups.

The product is supplied as an essentially salt-free, lyophilized powder.

Purity: minimum 90% (SDS-PAGE)

Precautions and Disclaimer

This product is for laboratory research use only. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Methylated ubiquitin is soluble in water (at least 0.3 mg/ml).

Storage/Stability

It is recommended to store the product at 2-8 °C.

References

1. Hershko, A., and Heller, H., Occurrence of a polyubiquitin structure in ubiquitin-protein conjugates. Biochem. Biophys. Res. Comm., **128**, 1079-1086 (1985).
2. Ziegenhagen, R., et al., Multiple ubiquitination of calmodulin results in one polyubiquitin chain linked to calmodulin. FEBS Lett., **271**, 71-75 (1990).
3. Hershko, A., et al., Methylated ubiquitin inhibits cyclin degradation in clam embryo extracts. J. Biol. Chem., **266**, 16376-16379 (1991).

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