3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

UBIQUITIN-CARRIER PROTEIN H10, POLYHISTIDINE-TAGGED
Human, Recombinant
Expressed in *E. coli*

Product Number **U 9382**

Product Description

Ubiquitin-carrier Protein H10 (UbcH10), polyhistidine-tagged is produced from a DNA sequence corresponding to human Ubc10 fused to a polyhistidine tag. The recombinant protein has a molecular weight of approx. 20 kDa for the fusion protein.

Degradation of short-lived, key regulatory proteins by the ubiquitin-proteasome pathway plays key roles in a number of cellular processes. A number of proteins are degraded by this system including: cyclins, cyclin-dependent kinases[1,2] and their inhibitors, tumor suppressors, oncoproteins, and transcriptional activators and their inhibitors.

Two discrete steps are involved in the ubiquitin-mediated degradation of proteins: signaling by covalent conjugation of multiple ubiquitin moieties and degradation of the tagged substrate. Conjugation occurs by a three-step mechanism involving three different enzymes that act sequentially: E1, E2 and E3. Ubiquitin-activating enzyme (E1) catalyzes the activation of ubiquitin then E2 (ubiquitin-conjugating enzyme, or ubiquitin carrier protein) transfers activated ubiquitin to E3, which is bound to substrate. E3 catalyzes the polyubiquitination of the targeted protein. The polyubiquitin tagged protein is then degraded by the 26S proteasome in an ATP-dependent process, and free ubiquitin is released.[3-5]

Although it appears there is a single ubiquitin-activating enzyme (E1), a number of species or isoforms of ubiquitin-carrier proteins (E2s) and multiple families of ubiquitin-protein ligases (E3s) exist.[6] A large number of E2s (ubquitin-carrier protein or Ubcs) have been identified. In the yeast *S. cerevisiae* 13 genes encode E2-like proteins. Specific E2s may have overlapping functions or may be involved in specific cellular functions. UbcH10 catalyzes the destruction of both cyclin A and cyclin B in conjunction with the anaphase-promoting complex; and therefore, plays an important role in the control of the cell exit from mitosis.[7]

Reagent

UbcH10 is supplied as 100 µg protein in a solution of 50 mM HEPES, pH 8.0, 125 mM NaCl, 1 mM DTT, and 10% glycerol.

Precautions and Disclaimer

For laboratory use only. Not for drug, household or other uses. Please consult the Material Safety Data Sheet for handling recommendations before working with this material.

Storage/Stability

Store at –70 °C. Avoid repeated freeze-thaw cycles. Do not store in a frost-free freezer.

Product Profile

Purity: minimum 95% by SDS-PAGE

References

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3. Tanaka, K., et al., The ligation systems for ubiquitin and ubiquitin-like proteins. Mol. Cells, **8**, 503-512 (1998).
4. Myung, J., et al., The ubiquitin-proteasome pathway and proteasome inhibitors. Med. Res. Rev., **21**, 245-273 (2001).
5. Benaroudj, N., et al., The unfolding of substrates and ubiquitin-independent protein degradation by proteasomes. Biochimie, **83**, 311-318 (2001).

6. Hershko, A. and Ciechanover, A., The ubiquitin system. Annu. Rev. Biochem., **67**, 425-479 (1998).

7. Townsley, F. M. et al., Dominant-negative cyclin-selective ubiquitin carrier protein E2-C/UbcH10 blocks cells in metaphase. Proc. Natl. Acad. Sci. USA, **94**, 2362-2367 (1997).

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