



# Ubiquitin (FL-76): sc-4274

## BACKGROUND

Ubiquitin (Ub) is among the most phylogenetically conserved proteins known. The primary function of Ubiquitin is to clear abnormal, foreign and improperly folded proteins by targeting them for degradation by the 26S Proteasome. This small, 76 amino acid protein can be covalently attached to cellular proteins via an isopeptide linkage between the carboxy terminal group of Ubiquitin and lysine amino groups on the acceptor protein. For proteolysis to occur, Ubiquitin oligomers must be assembled. Ubiquitin chains on proteolytic substrates are commonly found to have an isopeptide bridge between Lys 48 of one Ubiquitin molecule and the carboxy-terminus of a neighboring Ubiquitin molecule. Ubiquitin also plays a role in regulating signal transduction cascades through the elimination inhibitory proteins, such as I $\kappa$ B- $\alpha$  and p27.

## REFERENCES

1. Ciechanover, A. 1994. The Ubiquitin-proteasome proteolytic pathway. *Cell* 79: 13-21.
2. Ciechanover, A. and Schwartz, A.L. 1994. The Ubiquitin-mediated proteolytic pathway: mechanisms of recognition of the proteolytic substrate and involvement in the degradation of native cellular proteins. *FASEB J.* 8: 182-191.
3. Hochstrasser, M. 1995. Ubiquitin, proteasomes and the regulation of intracellular protein degradation. *Curr. Opin. Cell Biol.* 7: 215-223.
4. Pagano, M., et al. 1995. Role of the Ubiquitin-proteasome pathway in regulating abundance of the cyclin-dependent kinase inhibitor p27. *Science* 269: 682-685.
5. Jennissen, H.P. 1995. Ubiquitin and the enigma of intracellular protein degradation. *Eur. J. Biochem.* 231: 1-30.
6. Muller, S. and Schwartz, L.M. 1995. Ubiquitin in homeostasis, development and disease. *Bioessays* 17: 677-684.
7. Hochstrasser, M. 1996. Protein degradation or regulation: Ub the judge. *Cell* 84: 813-815.
8. Chen, Z.J., et al. 1996. Site-specific phosphorylation of I $\kappa$ B $\alpha$  by a novel ubiquitination-dependent protein kinase activity. *Cell* 84: 853-862.

## CHROMOSOMAL LOCATION

Genetic locus: UBB (human) mapping to 17p11.2; Rps27a (mouse) mapping to 11 A3.3.

## SOURCE

Ubiquitin (FL-76) is produced in *E. coli* as a 35 kDa tagged fusion protein corresponding to amino acids 1-76 of ubiquitin of human origin.

## STORAGE

Store Ubiquitin (FL-76): sc-4274 and sc-4274 WB at -20° C; store Ubiquitin (FL-76) AC: sc-4274 AC at 4° C. Stable for one year from the date of shipment.

## PRODUCT

Ubiquitin (FL-76) is purified from bacterial lysates (> 98%) by glutathione affinity chromatography and supplied as 50  $\mu$ g purified protein in PBS containing 5 mM DTT and 50% glycerol.

Also available in agarose conjugate form: 100  $\mu$ g purified ubiquitin protein conjugated to 0.1 ml agarose in PBS containing 0.1% azide, 0.1% stabilizer protein and 10% glycerol: Ubiquitin (FL-76) AC: sc-4274 AC.

Available as a Western blotting control; 10  $\mu$ g in 0.1 ml SDS-PAGE loading buffer, Ubiquitin (FL-76): sc-4274 WB.

## APPLICATIONS

Ubiquitin (FL-76) is suitable as a Western blotting control for sc-6085, sc-8017, sc-9133, sc-34870, sc-166553 and sc-271289.

Molecular Weight of Ubiquitin: 9 kDa.

## SELECT PRODUCT CITATIONS

1. Kuster, C.E., et al. 2004. Immunofluorescence reveals ubiquitination of retained distal cytoplasmic droplets on ejaculated porcine spermatozoa. *J. Androl.* 25: 340-347.
2. Ness, G.C. and Holland, R.C. 2005. Degradation of HMG-CoA reductase in rat liver is cholesterol and ubiquitin independent. *FEBS Lett.* 579: 3126-3130.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.