Recombinant Human Ubiquitin+1

Catalog Number: 703-UB

DESCRIPTION

Source *E. coli*-derived

ATVID	10-His tag	SS	Ubiquitin (Met1 – Gly75) Accession # CAA44911	*YADLREDPDRQDHHPGSGAQ*

N-terminus C-terminus

The italicized carboxyl terminal sequence is generated by a frameshift in the mRNA.

N-terminal Sequence Analysis Ala

Predicted Molecular Mass 13 kDa

SPECIFICATIONS

SDS-PAGE	13 kDa, reducing conditions
Activity	Bioassay data are not available.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Supplied as a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Shipping The product is shipped with dry ice or equivalent. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**

- 6 months from date of receipt, -20 to -70 °C as supplied.
- 3 months, -20 to -70 °C under sterile conditions after opening.

BACKGROUND

Ubiquitin (Ub) is a 6 - 7 kDa polypeptide whose name derives from the observation that Ubiquitin possesses a highly conserved structure that is found in virtually all plant and animal species (1, 2). Ubiquitin is globular in nature, 76 amino acids (aa) in length, contains multiple lysines plus two C-terminal glycines. In human, there are at least four genes that code for Ubiquitin. Found on human chromosomes 17 (UbB), 2 (UbA-80), 19 (UbA-52) and 12 (UbC), all genes code for a Ubiquitin polymer that undergoes proteolytic processing to generate free, monoubiquitin (3 - 7). In general, about one-half of all Ubiquitin exists in a monomeric form within the cell (8). Ubiquitin can also be added posttranslationally to multiple cell proteins. In conjunction with Ubiquitin ligases E1, 2 and 3, Ubiquitin is covalently attached to amino groups on target molecules via its C-terminal glycines, either at the N-terminus, or on any exposed amino acid that precedes the target's C-terminus (9). Further structural complexity may be added through Ubiquitin binding to Ubiquitin. Depending upon the exact pattern created, cellular proteins possessing UAD (Ub-associated domain) and UIM (Ub-interacting motif) sequences will selectively bind ubiquitinated proteins and incorporate them into multiple signaling pathways or regulatory complexes (10, 11).

The UbB gene codes for a 229 aa precursor. This precursor contains three contiguous head-to-tail, 76 aa Ub sequences that ends with a C-terminal cysteine. A truncated mutation for UbB, termed ubiquitin+1, has now been reported, that shows a 20 aa substitution for the last Gly of the first Ub sequence, generating a 95 aa polypeptide (12). Although a mutation, this molecule is apparently commonly expressed (13). At low levels of expression, it is degraded in a proteosome-dependent manner. At high levels, it overwhelms the proteosome system and accumulates, inhibiting proteosome activity (13). This is suggested to contribute to pathology associated with polyglutamine diseases (14).

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