cDNA encoding a human homolog of yeast ubiquitin 1

Guy Salvesen, Cindy Lloyd and David Farley

Biochemistry Department, University of Georgia, Athens, GA 30602, USA
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Ubiquitin is a highly conserved 76 residue protein apparently present in all eukaryotic cells. The protein forms an isopeptide link via its C-terminal alpha-carboxyl group to protein amino groups, and has been implicated in a variety of cellular functions including regulation of actively transcribed genes (1) and non-lysosomal intracellular proteolysis (2). When screening a human U937 cDNA library for cystatin A, by the procedures described in ref. 3, we fortuitously isolated the following clone that encodes residues 40-76 of ubiquitin plus a C-terminal extension that exhibits 83% identity with a similar gene from *Saccharomyces cerevisiae* (4). This clone is closely related to a mouse cDNA (5) that probably represents a 3'-truncated sequence. The arrow marks the beginning of the C-terminal extension, and the boxed and underlined residues respectively represent a putative DNA binding motif and nuclear translocation signal as suggested in ref. 4.

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Q Q R L I F A G K Q L E D G R T L S D Y N I Q K E S T L H L V L R
CCAGCAGCGTCTGATATTTCGCCCAACAGCTGGAGGATGGCCGCACTCTCTCAGACTACAACATCCAGAAAGAGTCCACCTGACCTGGTGTGCGC 100
      |
L R G G I I E P S L R Q L A Q K Y N [C] D K N I [C] R K [C] Y A R L H P
CTGCGAGGTGGCATTATTGAGCCTTCTCTCCGCCAGCTTGGCCAGAAATACAACCTGCSACAAGATGATCTGCCCAAGTGTATGCTGCGCTTACCCCTC 200

A V N [C] R K K K [C] G H T N N L R P K K K V K *
GTGCTGTCAACTGCCCAAGAAGAGTGTGGTCAACCAACCACTGCTGCCCAAGAAGAGGTCAAAATAGGTTGTTCTTCTTGAAGGGCAGCCTCC 300

TGCCCAAGGCCCGTGGCCCTGGAGCCTCAATAAGTGTCTTTTCATTGACTGGAGCAGCAAAAAA 364

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