Recombinant Human Ubiquitin Rhodamine 110 C-Terminal Derivative

Catalog Number: U-555

DESCRIPTION

Source	*E. coli*-derived human Ubiquitin protein Contains a C-terminal Rhodamine 110 (R110) Accession # P0CG47.1
Predicted Molecular Mass	8.9 kDa

SPECIFICATIONS

Activity	Recombinant Human Ubiquitin-Rhodamine110 (R110) is ideal for use in assays requiring fluorescent detection. Optimal fluorescence at pH 8.0 is monitored with an excitation wavelength of 485 nM and an emission wavelength of 535 nM. Reaction conditions will need to be optimized for each specific application. We recommend an initial Recombinant Human Ubiquitin-Rhodamine110 (R110) concentration of 0.1-1 µM.
Formulation	Supplied as a solution in DMSO. 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	**Protect from light. Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 6 months from date of receipt, -70 °C as supplied. • 3 months, -70 °C under sterile conditions after opening.

BACKGROUND

Ubiquitin is a 76 amino acid (aa) protein that is ubiquitously expressed in all eukaryotic organisms. Ubiquitin is highly conserved with 96% aa sequence identity shared between human and yeast Ubiquitin, and 100% aa sequence identity shared between human and mouse Ubiquitin (1). In mammals, four Ubiquitin genes encode for two Ubiquitin-ribosomal fusion proteins and two poly-Ubiquitin proteins. Cleavage of the Ubiquitin precursors by deubiquitinating enzymes gives rise to identical Ubiquitin monomers each with a predicted molecular weight of 8.6 kDa. Conjugation of Ubiquitin to target proteins involves the formation of an isopeptide bond between the C-terminal glycine residue of Ubiquitin and a lysine residue in the target protein. This process of conjugation, referred to as ubiquitination or ubiquitylation, is a multi-step process that requires three enzymes: a Ubiquitin-activating (E1) enzyme, a Ubiquitin-conjugating (E2) enzyme, and a Ubiquitin ligase (E3). Ubiquitination is classically recognized as a mechanism to target proteins for degradation and as a result, Ubiquitin was originally named ATP-dependent Proteolysis Factor 1 (APF-1) (2,3). In addition to protein degradation, ubiquitination has been shown to mediate a variety of biological processes such as signal transduction, endocytosis, and post-endocytic sorting (4-7).

This fluorogenic substrate is based on the C-terminus derivatization of Ubiquitin with Rhodamine 110 (R110) (8). Similar to Ubiquitin-AMC, this is an exquisitely sensitive deubiquitinating enzyme substrate and is useful for studying Ubiquitin C-terminal hydrolytic activity when detection sensitivity or continuous monitoring is essential.

References:

1. Sharp, P.M. & W.-H. Li. (1987) Trends Ecol. Evol. **2**:328.
2. Ciechanover, A. *et al.* (1980) Proc. Natl. Acad. Sci. USA **77**:1365.
3. Hershko, A. *et al.* (1980) Proc. Natl. Acad. Sci. USA **77**:1783.
4. Greene, W. *et al.* (2012) PLoS Pathog. **8**:e1002703.
5. Tong, X. *et al.* (2012) J. Biol. Chem. **287**:25280.
6. Wei, W. *et al.* (2004) Nature **428**:194.
7. Wertz, I.E. *et al.* (2004) Nature **430**:694.
8. Hassiepen, U. *et al.* (2007) Anal. Biochem. **371**: 201.

Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 **Canada** TEL 855 668 8722 **China** TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449