

## DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human Ubiquitin+1 in Western blots. Does not detect recombinant Ubiquitin.
<b>Source</b>	Monoclonal Mouse IgG <sub>2A</sub> Clone # 82001
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	KLH-coupled human Ubiquitin+1 synthetic peptide CADLREDPDRQDHHHPGSGAQ
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

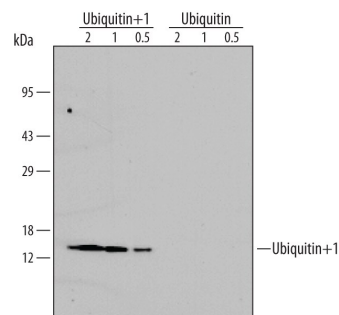
## APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. [General Protocols](#) are available in the Technical Information section on our website.

	Recommended Concentration	Sample
<b>Western Blot</b>	1 µg/mL	See Below
<b>Immunohistochemistry</b>	5-25 µg/mL	Immersion fixed paraffin-embedded sections of human brain (cortex)

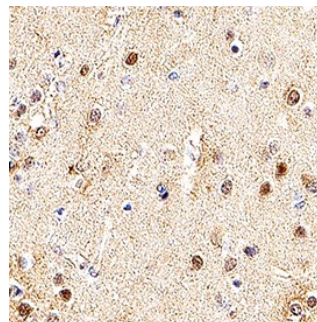
## DATA

### Western Blot



**Detection of Human Ubiquitin+1 by Western Blot.** Western blot shows samples of Recombinant Human Ubiquitin+1 (Catalog # [703-UB](#)) (2, 1, and 0.5 ng) and Recombinant Human Ubiquitin (Catalog # [701-UB](#)) (2, 1, and 0.5 ng). PVDF membrane was probed with 1 µg/mL Mouse Anti-Human Ubiquitin+1 Monoclonal Antibody (Catalog # MAB703) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # [HAF007](#)). A specific band for Ubiquitin+1 was detected at approximately 13 kDa (as indicated). This experiment was conducted under reducing conditions and using [Immunoblot Buffer Group 4](#).

### Immunohistochemistry



**Ubiquitin+1 in Human Brain.** Ubiquitin+1 was detected in immersion fixed paraffin-embedded sections of human brain (cortex) using Mouse Anti-Human Ubiquitin+1 Monoclonal Antibody (Catalog # MAB703) at 5 µg/mL for 1 hour at room temperature followed by incubation with the Anti-Mouse IgG VisUCyte™ HRP Polymer Antibody (Catalog # [VC001](#)). Before incubation with the primary antibody, tissue was subjected to heat-induced epitope retrieval using Antigen Retrieval Reagent-Basic (Catalog # [CTS013](#)). Tissue was stained using DAB (brown) and counterstained with hematoxylin (blue). Specific staining was localized to neuronal cytoplasm and nuclei. Staining was performed using our protocol for IHC Staining with VisUCyte HRP Polymer Detection Reagents.

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 0.5 mg/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

## 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 proteasome-dependent manner. At high levels, it overwhelms the proteasome system and accumulates, inhibiting proteasome activity (13). This is suggested to contribute to pathology associated with polyglutamine diseases (14).

## References:

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