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# PUM1 Antibody (Y83)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7569d

## Product Information

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| **Application** | WB, IHC-P, E |
| **Primary Accession** | Q14671 |
| **Other Accession** | Q80U78, Q2VB19 |
| **Reactivity** | Human |
| **Predicted** | Chicken, Mouse |
| **Host** | Rabbit |
| **Clonality** | Polyclonal |
| **Isotype** | Rabbit IgG |
| **Clone Names** | RB16264 |
| **Calculated MW** | 126473 |
| **Antigen Region** | 62-91 |

## Additional Information

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| **Gene ID** | 9698 |
| **Other Names** | Pumilio homolog 1, HsPUM, Pumilio-1, PUM1, KIAA0099, PUMH1 |
| **Target/Specificity** | This PUM1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 62-91 amino acids from human PUM1. |
| **Dilution** | WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration. |
| **Format** | Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification. |
| **Storage** | Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles. |
| **Precautions** | PUM1 Antibody (Y83) is for research use only and not for use in diagnostic or therapeutic procedures. |

## Protein Information

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| **Name** | PUM1 ( HGNC:14957) |
| **Function** | Sequence-specific RNA-binding protein that acts as a post- transcriptional repressor by binding the 3'-UTR of mRNA targets. Binds to an RNA consensus sequence, the Pumilio Response Element (PRE), 5'- UGUANAUA-3', that is related to the Nanos Response Element (NRE) (PubMed:18328718, |

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| | PubMed:21397187, PubMed:21572425, PubMed:21653694). Mediates post-transcriptional repression of transcripts via different mechanisms: acts via direct recruitment of the CCR4-POP2-NOT deadenylase leading to translational inhibition and mRNA degradation (PubMed:22955276). Also mediates deadenylation-independent repression by promoting accessibility of miRNAs (PubMed:18776931, PubMed:20818387, PubMed:20860814, PubMed:22345517). Following growth factor stimulation, phosphorylated and binds to the 3'-UTR of CDKN1B/p27 mRNA, inducing a local conformational change that exposes miRNA-binding sites, promoting association of miR-221 and miR-222, efficient suppression of CDKN1B/p27 expression, and rapid entry to the cell cycle (PubMed:20818387). Acts as a post-transcriptional repressor of E2F3 mRNAs by binding to its 3'- UTR and facilitating miRNA regulation (PubMed:22345517, PubMed:29474920). Represses a program of genes necessary to maintain genomic stability such as key mitotic, DNA repair and DNA replication factors. Its ability to repress those target mRNAs is regulated by the lncRNA NORAD (non-coding RNA activated by DNA damage) which, due to its high abundance and multitude of PUMILIO binding sites, is able to sequester a significant fraction of PUM1 and PUM2 in the cytoplasm (PubMed:26724866). Involved in neuronal functions by regulating ATXN1 mRNA levels: acts by binding to the 3'-UTR of ATXN1 transcripts, leading to their down-regulation independently of the miRNA machinery (PubMed:25768905, PubMed:29474920). Plays a role in cytoplasmic sensing of viral infection (PubMed:25340845). In testis, acts as a post- transcriptional regulator of spermatogenesis by binding to the 3'-UTR of mRNAs coding for regulators of p53/TP53. Involved in embryonic stem cell renewal by facilitating the exit from the ground state: acts by targeting mRNAs coding for naive pluripotency transcription factors and accelerates their down-regulation at the onset of differentiation (By similarity). Binds specifically to miRNA MIR199A precursor, with PUM2, regulates miRNA MIR199A expression at a postranscriptional level (PubMed:28431233). |
| **Cellular Location** | Cytoplasm. Cytoplasm, P-body. Cytoplasmic granule. Note=Recruited to cytoplasmic stress granules upon viral infection. |
| **Tissue Location** | Expressed in brain, heart, kidney, muscle, intestine and stomach. Not expressed in cerebellum, corpus callosum, caudate nucleus, hippocampus, medulla oblongata and putamen. Expressed in all fetal tissues tested. |

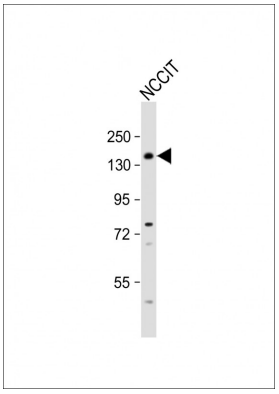
## Background

PUM1 is a member of the PUF family, evolutionarily conserved RNA-binding proteins related to the Pumilio proteins of Drosophila and the fem-3 mRNA binding factor proteins of C. elegans. This protein contains a sequence-specific RNA binding domain comprised of eight repeats and N- and C-terminal flanking regions, and serves as a translational regulator of specific mRNAs by binding to their 3' untranslated regions. The evolutionarily conserved function of this protein in invertebrates and lower vertebrates suggests that the human protein may be involved in translational regulation of embryogenesis, and cell development and differentiation.

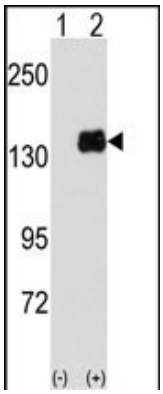
## References

Gupta,Y.K., Structure 16 (4), 549-557 (2008)
Spassov,D.S.,IUBMB Life 55 (7), 359-366 (2003)
Spassov,D.S.,Gene 299 (1-2), 195-204 (2002)

## Images




Anti-PUM1 Antibody (Y83) at 1:1000 dilution + NCCIT whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 126 kDa Blocking/Dilution buffer: 5% NFDM/TBST.




Western blot analysis of PUM1 (arrow) using PUM1 Antibody (Y83) (Cat.#AP7569d). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the PUM1 gene (Lane 2) (Origene Technologies).


Formalin-fixed and paraffin-embedded humanbrain tissue reacted with Phospho-PUM1-Y83.ctrl antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.