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# PIAS1 Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP1242a

## Product Information

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| **Application** | WB, IHC-P, E |
| **Primary Accession** | O75925 |
| **Reactivity** | Human, Mouse |
| **Host** | Rabbit |
| **Clonality** | Polyclonal |
| **Isotype** | Rabbit IgG |
| **Calculated MW** | 71836 |
| **Antigen Region** | 100-130 |

## Additional Information

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| **Gene ID** | 8554 |
| **Other Names** | E3 SUMO-protein ligase PIAS1, 632-, DEAD/H box-binding protein 1, Gu-binding protein, GBP, Protein inhibitor of activated STAT protein 1, RNA helicase II-binding protein, PIAS1, DDXBP1 |
| **Target/Specificity** | This PIAS1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 100-130 amino acids from the N-terminal region of human PIAS1. |
| **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 prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS. |
| **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** | PIAS1 Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures. |

## Protein Information

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| **Name** | PIAS1 |
| **Synonyms** | DDXBP1 |
| **Function** | Functions as an E3-type small ubiquitin-like modifier (SUMO) ligase, stabilizing the interaction between UBE2I and the substrate, and as a |

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|---|---|
| | SUMO-tethering factor (PubMed:11583632, PubMed:11867732, PubMed:14500712, PubMed:15280358, PubMed:21965678, PubMed:36050397). Catalyzes sumoylation of various proteins, such as CEBPB, MRE11, MTA1, PTK2, PML and ZNF76 (PubMed:11583632, PubMed:11867732, PubMed:14500712, PubMed:15280358, PubMed:21965678, PubMed:36050397). Plays a crucial role as a transcriptional coregulation in various cellular pathways, including the STAT pathway, the p53 pathway and the steroid hormone signaling pathway (PubMed:11583632, PubMed:11867732). In vitro, binds A/T-rich DNA (PubMed:15133049). The effects of this transcriptional coregulation, transactivation or silencing, may vary depending upon the biological context (PubMed:11583632, PubMed:11867732, PubMed:14500712, PubMed:21965678, PubMed:36050397). Mediates sumoylation of MRE11, stabilizing MRE11 on chromatin during end resection (PubMed:36050397). Sumoylates PML (at 'Lys-65' and 'Lys-160') and PML-RAR and promotes their ubiquitin-mediated degradation (By similarity). PIAS1-mediated sumoylation of PML promotes its interaction with CSNK2A1/CK2 which in turn promotes PML phosphorylation and degradation (By similarity). Enhances the sumoylation of MTA1 and may participate in its paralog- selective sumoylation (PubMed:21965678). Plays a dynamic role in adipogenesis by promoting the SUMOylation and degradation of CEBPB (By similarity). Mediates the nuclear mobility and localization of MSX1 to the nuclear periphery, whereby MSX1 is brought into the proximity of target myoblast differentiation factor genes (By similarity). Also required for the binding of MSX1 to the core enhancer region in target gene promoter regions, independent of its sumoylation activity (By similarity). Capable of binding to the core enhancer region TAAT box in the MYOD1 gene promoter (By similarity). |
| **Cellular Location** | Nucleus {ECO:0000250\|UniProtKB:O88907}. Nucleus speckle Nucleus, PML body {ECO:0000250\|UniProtKB:O88907}. Cytoplasm, cytoskeleton. Note=Interaction with CSRP2 may induce a partial redistribution along the cytoskeleton (PubMed:11672422). Interaction with MSX1 is required for localization to the nuclear periphery (By similarity) {ECO:0000250\|UniProtKB:O88907, ECO:0000269\|PubMed:11672422} |
| **Tissue Location** | Expressed in numerous tissues with highest level in testis. |

## Background

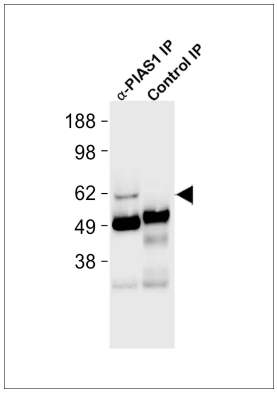
PIAS1 functions as an E3-type small ubiquitin-like modifier (SUMO) ligase, stabilizing the interaction between UBE2I and the substrate, and as a SUMO-tethering factor. This protein plays a crucial role in transcriptional coregulation of various cellular pathways, including the STAT pathway, the p53 pathway and the steroid hormone signaling pathway. It functions in testis as a nuclear receptor transcriptional coregulator and may have a role in androgen receptor initiation and maintenance of spermatogenesis. The effects of transcriptional coregulation, transactivation or silencing, may vary depending upon the biological context.

## References

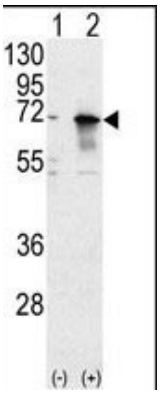
Miyauchi, Y., et al., J. Biol. Chem. 277(51):50131-50136 (2002). Nishida, T., et al., J. Biol. Chem. 277(44):41311-41317 (2002). Tan, J.A., et al., J. Biol. Chem. 277(19):16993-17001 (2002). Megidish, T., et al., J. Biol. Chem. 277(10):8255-8259 (2002). Liu, B., et al., J. Biol. Chem. 276(39):36624-36631 (2001).

## Images

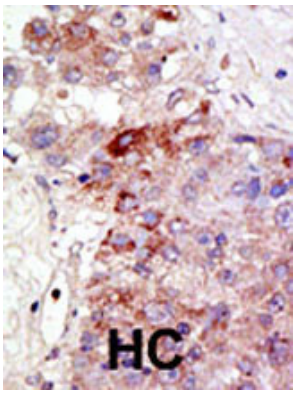
HEK293 cell extracts were prepared and immunoprecipitated with AP1242a (left lane alpha-PIAS1




IP) or a control antibody (right lane Control IP), followed by Western blotting with AP1242a. Taken from Polyakova o, Borman S, Grimley R, Vamathevan J, Hayes B. et al. (2012) Identification of Novel interacting Partners of Sirtuin6. Plos ONE 7 (12): e51555. doi: 10.1371/journal.pone. 0051555




Western blot analysis of PIAS1 (arrow) using rabbit polyclonal PIAS1 Antibody (N-term) (RB00668). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the PIAS1 gene (Lane 2) (Origene Technologies).




Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary 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. BC = breast carcinoma; HC = hepatocarcinoma.

## Citations

- TRIB3 Promotes APL Progression through Stabilization of the Oncoprotein PML-RARα and Inhibition of p53-Mediated Senescence.
- Substantially reduced expression of PIAS1 is associated with colon cancer development.
- Identification of novel interacting partners of Sirtuin6.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.