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PIAS1 Antibody

Catalog # ASC11124

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	O75925
Other Accession	NP_057250, 7706637
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	71836
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	PIAS1 antibody can be used for detection of PIAS1 by Western blot at 1 g/mL. Antibody can also be used for immunohistochemistry starting at 5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	8554
Other Names	E3 SUMO-protein ligase PIAS1, 6.3.2.-, 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	PIAS1;
Reconstitution & Storage	PIAS1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	PIAS1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

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 SUMO-tethering factor (PubMed:11583632, PubMed:11867732, PubMed:14500712, PubMed:21965678, PubMed:36050397). Catalyzes sumoylation of various proteins, such as CEBPB, MRE11, MTA1, PTK2 and PML (PubMed:11583632, PubMed:11867732, PubMed:14500712,

	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

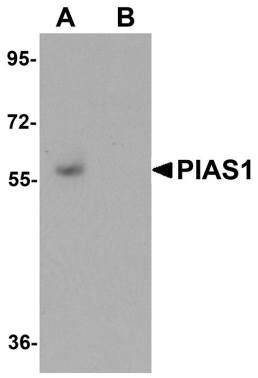
PIAS1 Antibody: The PIAS proteins (protein inhibitor of activated STAT) play a crucial role as transcriptional coregulators in various cellular pathways, including the STAT, p53 and the steroid hormone signaling pathway. The PIAS protein family includes at least five evolutionarily conserved genes, including PIAS1. The major function of the PIAS proteins is the control of gene transcription and can also act as small ubiquitin-like-modifier (SUMO) E3 ligases. PIAS1 binds specifically to STAT1, inhibiting STAT1-mediated gene activation and also binds to the Gu/RNA helicase II enzyme, leading to the proteolytic cleavage of Gu/RH-II. PIAS1 is a potent co-activator for CP2c-mediated alpha-globin expression in erythroid cells.

References

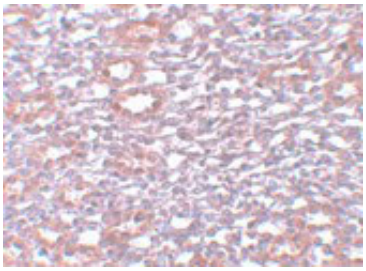
Liu B, Liao J, Rao X, et al. Inhibition of Stat1-mediated gene activation by PIAS1. Proc. Natl. Acad. Sci. USA1998; 95: 10626-31.
Shuai K and Liu B. Regulation of gene-activation pathways by PIAS proteins in the immune system. Nat. Rev. Immunol.2005; 5:593-605.
Kang HC, Chae JH, Jeon J, et al. PIAS1 regulates CP2c localization and active promoter complex formation in erythroid cell-specific {alpha}-globin expression. Nuc. Acids Res.2010 Apr 26.

Images

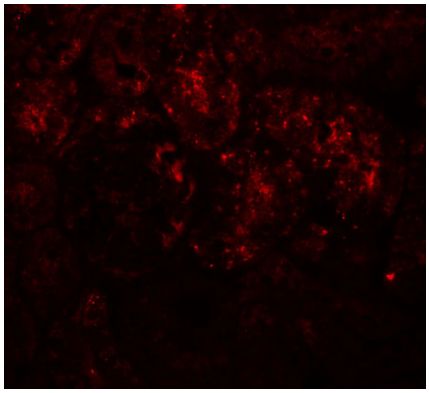
Western blot analysis of PIAS1 in human kidney tissue lysate with PIAS1 antibody at 1 µg/mL in (A) the absence



and (B) the presence of blocking peptide.



Immunohistochemistry of PIAS1 in rat kidney tissue with PIAS1 antibody at 5 µg/mL.



Immunofluorescence of PIAS1 in rat kidney tissue with PIAS1 antibody at 20 µg/mL.