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PIAS4 Antibody

Catalog # ASC11127

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	Q8N2W9
Other Accession	NP_056981, 24850133
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	56504
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	PIAS4 antibody can be used for detection of PIAS4 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	51588
Other Names	E3 SUMO-protein ligase PIAS4, 6.3.2.-, PIASy, Protein inhibitor of activated STAT protein 4, Protein inhibitor of activated STAT protein gamma, PIAS-gamma, PIAS4, PIASG
Target/Specificity	PIAS4;
Reconstitution & Storage	PIAS4 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	PIAS4 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PIAS4 {ECO:0000303|PubMed:32832608, ECO:0000312|HGNC:HGNC:17002}
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:12511558, PubMed:12631292, PubMed:12727872, PubMed:15831457, PubMed:15976810, PubMed:22508508, PubMed:32832608). Mediates sumoylation of ALKBH5, AXIN1, CEBPA, KLF8, GATA2, PARK7, HERC2, MYB, TCF4 and RNF168 (PubMed:12223491, PubMed:12511558, PubMed:12631292, PubMed:12727872, PubMed:12750312, PubMed:15831457,

	PubMed:15976810, PubMed:16617055, PubMed:22508508, PubMed:34048572). Plays a crucial role as a transcriptional coregulation in various cellular pathways, including the STAT pathway, the p53/TP53 pathway, the Wnt pathway and the steroid hormone signaling pathway (PubMed:11388671). Involved in gene silencing (PubMed:11248056). In Wnt signaling, represses LEF1 and enhances TCF4 transcriptional activities through promoting their sumoylations (PubMed:12727872, PubMed:15831457). Enhances the sumoylation of MTA1 and may participate in its paralog-selective sumoylation (PubMed:21965678). Binds to AT-rich DNA sequences, known as matrix or scaffold attachment regions (MARs/SARs) (By similarity). Catalyzes conjugation of SUMO2 to KAT5 in response to DNA damage, facilitating repair of DNA double-strand breaks (DSBs) via homologous recombination (HR) (PubMed:32832608). Mediates sumoylation of PARP1 in response to PARP1 trapping to chromatin (PubMed:35013556). Mediates sumoylation of KLF8, repressiing KLF8 transcriptional activity and cell cycle progression into G(1) phase (PubMed:16617055). Sumoylates ALKBH5 downstream of MAPK8/JNK1 and MAPK9/JNK2 in response to reactive oxygen species (ROS), inhibiting ALKBH5 RNA demethylase activity (PubMed:34048572).
Cellular Location	Nucleus, PML body Note=Colocalizes with SUMO1 and TCF7L2/TCF4 and LEF1 in a subset of PML (promyelocytic leukemia) nuclear bodies.
Tissue Location	Highly expressed in testis and, at lower levels, in spleen, prostate, ovary, colon and peripheral blood leukocytes

Background

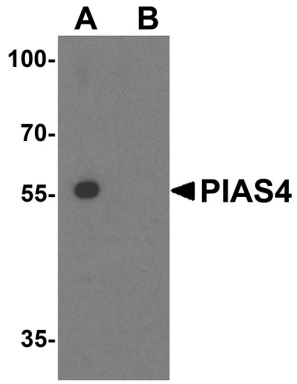
PIAS4 Antibody: The PIAS (protein inhibitor of activated STAT) proteins play a crucial role as transcriptional coregulators in various cellular pathways, including the STAT, p53 and the steroid hormone signaling pathway. The PIAS protein family includes at least five evolutionarily conserved genes, including PIAS4. 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. PIAS4 interacts with p53 and blocks its ability to induce Bax and p21 transcription. PIAS4 is also important in the control of the ubiquitin-dependent proteasomal degradation of the Ets-1 transcription factor. PIAS4 has been implicated in the DNA-damage response pathway and is thought to work in combination with PIAS1 for the productive association of 53BP1, BRCA1 and RNF168.

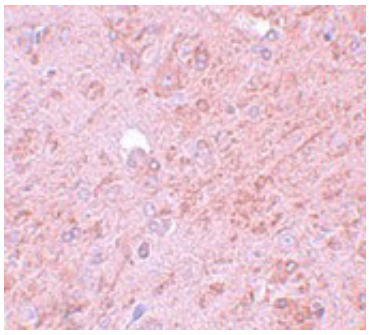
References

Shuai K and Liu B. Regulation of gene-activation pathways by PIAS proteins in the immune system. Nat. Rev. Immunol. 2005; 5:593-605.
Nelson V, Davis GE, and Maxwell SA. A putative protein inhibitor of activated STAT (PIASy) interacts with p53 and inhibits p53-,ediated transactivation but not apoptosis. Apoptosis 2001; 6:221-34.
Nishida T, Terashima M, Fukami K, et al. PIASy controls ubiquitin-dependent proteasomal degradation of Ets-1. Biochem. J. 2007; 405:481-8.
Galanty Y, Belotserkovskaya R, Coates J, et al. Mammalian SUMO E3-ligases PIAS1 and PIAS4 promote responses to DNA double-strand breaks. Nature 2009; 462:935-9.

Images

Western blot analysis of PIAS4 in HL60 cell lysate with PIAS4 antibody at 1 µg/mL in (A) the absence and (B) the presence of blocking peptide.





Immunohistochemistry of PIAS4 in rat brain tissue with PIAS4 antibody at 5 µg/mL.