SANTA CRUZ BIOTECHNOLOGY, INC.

PIAS 1/3 (N-18): sc-8153

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The IL-6-type family of cytokines, which includes IL-6 as well as a number of similar cytokines and growth factors, plays a significant role in regulating gene activation, proliferation and differentiation. Transcription factors of the Stat family are known to be involved in this signal transduction pathway, undergoing phosphorylation, dimerization and translocation to the nucleus upon activation. PIAS 1, for protein inhibitor of activated Stat1 (also designated Gu/RNA helicase II binding protein), binds specifically to Stat1, blocking Stat1 DNA-binding activity and inhibiting Stat1-mediated gene activation. PIAS 1 also binds to the Gu/RNA helicase II enzyme, leading to the proteolytic cleavage of Gu/RH-II. PIAS 3 similarly binds specifically to Stat3, blocking Stat3 DNA-binding activity and inhibiting Stat3-mediated gene activation.

REFERENCES

1. Akira, S., et al. 1994. Molecular cloning of APRF, a novel IFN-stimulated gene factor 3 p91-related transcription factor involved in the gp130-mediated signaling pathway. Cell 77: 63-71.
2. Zhong, Z., et al. 1994. Stat3: a Stat family member activated by tyrosine phosphorylation in response to epidermal growth factor and Interleukin-6. Science 264: 95-98.

CHROMOSOMAL LOCATION

Genetic locus: PIAS1 (human) mapping to 15q23, PIAS3 (human) mapping to 1q21.1; Pias1 (mouse) mapping to 9 B, Pias3 (mouse) mapping to 3 F2.1.

SOURCE

PIAS 1/3 (N-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of PIAS 1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-8153 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PIAS 1/3 (N-18) is recommended for detection of PIAS 1 and PIAS 3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000). PIAS 1/3 (N-18) is also recommended for detection of PIAS 1 and PIAS 3 in additional species, including equine, canine, bovine, porcine and avian. Suitable for use as control antibody for PIAS 1/3 siRNA (h): sc-44013, PIAS 1/3 shRNA Plasmid (h): sc-44013-SH and PIAS 1/3 shRNA (h) Lentiviral Particles: sc-44013-V.

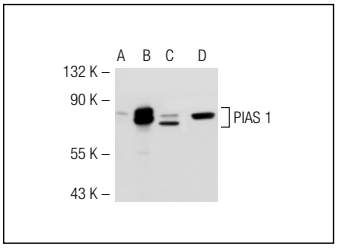
Molecular Weight of PIAS 1/3: 78/68 kDa.

Positive Controls: KNRK nuclear extract: sc-2141, PIAS 1 (m): 293T Lysate: sc-122561 or Daudi cell lysate: sc-2415.

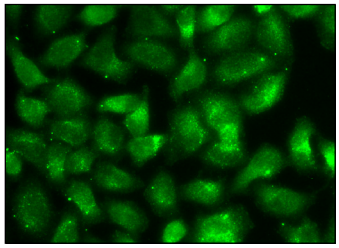
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



PIAS 1/3 (N-18): sc-8153. Western blot analysis of PIAS 1 expression in non-transfected 293T: sc-117752 (**A**), mouse PIAS 1 transfected 293T: sc-122561 (**B**), HeLa (**C**) and MCF7 (**D**) whole cell lysates.



PIAS 1/3 (N-18): sc-8153. Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear and cytoplasmic localization. Kindly provided by Yang Xiang, Ph.D., Division of Newborn Medicine, Boston Children's Hospital, Cell Biology Department, Harvard Medical School.

SELECT PRODUCT CITATIONS

1. Rödel, B., et al. 2000. The zinc finger protein Gfi-1 can enhance Stat3 signaling by interacting with the Stat3 inhibitor PIAS 3. EMBO J. 19: 5845-5855.
2. Ling, Y., et al. 2004. Modification of *de novo* DNA methyltransferase 3a (Dnmt3a) by SUMO-1 modulates its interaction with histone deacetylases (HDACs) and its capacity to repress transcription. Nucleic Acids Res. 32: 598-610.
3. Prigge, J.R., et al. 2006. Interaction of protein inhibitor of activated Stat (PIAS) proteins with the TATA-binding protein, TBP. J. Biol. Chem. 281: 12260-12269.
4. Tiefenbach, J., et al. 2006. SUMOylation of the corepressor N-CoR modulates its capacity to repress transcription. Mol. Biol. Cell 17: 1643-1651.
5. Netherton, S.J. and Bonni, S. 2010. Suppression of TGFβ-induced epithelial-mesenchymal transition like phenotype by a PIAS1 regulated sumoylation pathway in NMuMG epithelial cells. PLoS ONE 5: e13971.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.