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STAT1 alpha Antibody

Catalog # ASC10003

Product Information

Application	WB, IP, ICC, E
Primary Accession	P42224
Other Accession	NP_009330, 6274552
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	87335
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	STAT1 alpha antibody can be used for Western blot at 0.5 - 1 μg and for immunoprecipitation at 2 to 4 μg per sample. Antibody can also be used for immunocytochemistry starting at 10 μg/mL.

Additional Information

Gene ID	6772
Other Names	STAT1 alpha Antibody: CANDF7, ISGF-3, STAT91, signal transducer and activator of transcription 1, 91kDa
Target/Specificity	STAT1; At least two isoforms of STAT1 are known to exist; this antibody will only recognize the larger isoform.
Reconstitution & Storage	STAT1 alpha 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	STAT1 alpha Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	STAT1
Function	Signal transducer and transcription activator that mediates cellular responses to interferons (IFNs), cytokine KITLG/SCF and other cytokines and other growth factors (PubMed:12764129, PubMed:12855578, PubMed:15322115, PubMed:23940278, PubMed:34508746, PubMed:35568036, PubMed:9724754, PubMed:32814877). Following type I IFN (IFN-alpha and IFN-beta) binding to cell surface receptors, signaling via protein kinases leads to activation of Jak kinases (TYK2 and JAK1) and to tyrosine phosphorylation of STAT1 and STAT2. The phosphorylated STATs

	dimerize and associate with ISGF3G/IRF-9 to form a complex termed ISGF3 transcription factor, that enters the nucleus (PubMed:28753426, PubMed:35568036). ISGF3 binds to the IFN stimulated response element (ISRE) to activate the transcription of IFN-stimulated genes (ISG), which drive the cell in an antiviral state (PubMed:28753426, PubMed:35568036). In response to type II IFN (IFN-gamma), STAT1 is tyrosine- and serine-phosphorylated (PubMed:26479788). It then forms a homodimer termed IFN-gamma-activated factor (GAF), migrates into the nucleus and binds to the IFN gamma activated sequence (GAS) to drive the expression of the target genes, inducing a cellular antiviral state (PubMed:8156998). Becomes activated in response to KITLG/SCF and KIT signaling (PubMed:15526160). May mediate cellular responses to activated FGFR1, FGFR2, FGFR3 and FGFR4 (PubMed:19088846). Following bacterial lipopolysaccharide (LPS)-induced TLR4 endocytosis, phosphorylated at Thr-749 by IKBKB which promotes binding of STAT1 to the 5'-TTTGAGGC-3' sequence in the ARID5A promoter, resulting in transcriptional activation of ARID5A and subsequent ARID5A-mediated stabilization of IL6 (PubMed:32209697). Phosphorylation at Thr-749 also promotes binding of STAT1 to the 5'-TTTGAGTC-3' sequence in the IL12B promoter and activation of IL12B transcription (PubMed:32209697). Involved in food tolerance in small intestine: associates with the Gasdermin-D, p13 cleavage product (13 kDa GSDMD) and promotes transcription of CIITA, inducing type 1 regulatory T (Tr1) cells in upper small intestine (By similarity).
Cellular Location	Cytoplasm. Nucleus Note=Translocated into the nucleus upon tyrosine phosphorylation and dimerization, in response to IFN-gamma and signaling by activated FGFR1, FGFR2, FGFR3 or FGFR4 (PubMed:15322115). Monomethylation at Lys- 525 is required for phosphorylation at Tyr-701 and translocation into the nucleus (PubMed:28753426). Translocates into the nucleus in response to interferon-beta stimulation (PubMed:26479788)

Background

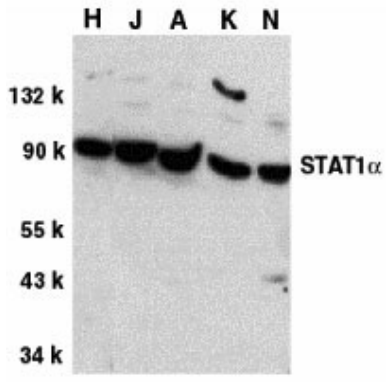
STAT1 alpha Antibody: STATs (signal transducers and activators of transcription) are a family of cytoplasmic latent transcription factors that are activated to regulate gene expression in response to a large number of extracellular signaling polypeptides including cytokines, interferons, and growth factors. After phosphorylation by JAK tyrosine kinases, STATs enter the nucleus to regulate transcription of many different genes. Among the seven STATs (Stat1, Stat2, Stat3, Stat4, Stat5a, Stat5b, and Stat6), Stat1, Stat3, Stat5a, and Stat5b have a wide activation profile. STAT1 is activated by many different ligands including IFN family (IFN-α, IFN-β, IFN-γ and IL-10), gp130 family (IL-6, IL-11, LIF, CNTF, and G-CSF), and receptor tyrosine kinases (EGF, PDGF, and CSF-1).

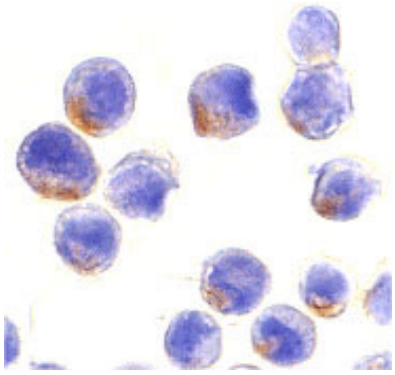
References

Leonard WJ and O'Shea JJ. Jaks and STATs: biological implications. Annu. Rev. Immunol. 1998; 16:293-322.
Schindler C and Darnell JE Jr. Transcriptional responses to polypeptide ligands: the JAK-STAT pathway. Annu. Rev. Biochem. 1995; 64:621-51.
Darnell JE Jr. STATs and gene regulation. Science 1997; 277:1630-5.
Schindler C, Fu XY, Improta T, et al. Proteins of transcription factor ISGF-3: one gene encodes the 91-and 84-kDa ISGF-3 proteins that are activated by interferon α. Proc. Natl. Acad. Sci. USA 1992; 89:7836-9.

Images

Western blot analysis of STAT1 alpha in whole cell lysates from HeLa (H), Jurkat (J), A431 (A), K562 (K), and NIH3T3 (N) cells, with STAT1a antibody at 1 µg/mL.





Immunocytochemistry of STAT1 alpha in HeLa cells with STAT1 alpha antibody at 10 µg/mL.

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