Phospho-STAT Isoform Sampler Kit

E051027

Kits Includes	Cat.	Quantity	Application	Reactivity	Source
STAT1 (Phospho-Tyr701) Antibody	E011044-1	50μg/50μl	IHC, WB	Human, Mouse, Rat	Rabbit
STAT3 (Phospho-Tyr705) Antibody	E011045-1	50μg/50μl	IHC, WB	Human, Mouse, Rat	Rabbit
STAT4 (Phospho-Tyr693) Antibody	E011047-1	50μg/50μl	IHC, WB	Human, Mouse, Rat	Rabbit
STAT5A (Phospho-Tyr694) Antibody	E011048-1	50μg/50μl	IHC, WB	Human, Mouse, Rat	Rabbit
STAT6 (Phospho-Tyr641) Antibody	E011050-1	50μg/50μl	IHC, WB	Human	Rabbit

In response to cytokines and growth factors, STAT family members are phosphorylated by the receptor associated kinases, and then form homo- or heterodimers that translocate to the cell nucleus where they act as transcription activators. This protein can be activated by various ligands including interferon-alpha, interferon-gamma, EGF, PDGF and IL6. This protein mediates the expression of a variety of genes, which is thought to be important for cell viability in response to different cell stimuli and pathogens. Two alternatively spliced transcript variants encoding distinct isoforms have been described. Signal transducer and activator of transcription that mediates signaling by interferons (IFNs). Following type I IFN (IFN-alpha and IFN-beta) binding to cell surface receptors, Jak kinases (TYK2 and JAK1) are activated, leading to tyrosine phosphorylation of STAT1 and STAT2. The phosphorylated STATs dimerize, associate with ISGF3G/IRF-9 to form a complex termed ISGF3 transcription factor, that enters the nucleus. ISGF3 binds to the IFN stimulated response element (ISRE) to activate the transcription of interferon stimulated genes, which drive the cell in an antiviral state. In response to type II IFN (IFN-gamma), STAT1 is tyrosine- and serine-phosphorylated. 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.

STATs (signal transducers and activators of transcription) are a family of 7 transcription factors that form part of the JAK-STAT signaling cascade. This cascade is the basis of the signal transduction mechanism for many cytokine receptors. Once activated by phosphorylation by JAKs, STATs translocate to the nucleus. Accumulation of STATs in the nucleus is both rapid and tightly controlled. A number of factors regulate the JAK-STAT pathway including STAT dephosphorylation by phosphatases, altered nuclear import-export dynamics of STAT, and STAT gene activation antagonists such as SOCS (suppressors of cytokine signaling) and PIAS (Protein Inhibitors of Activated STATs). Phosphorylated of STAT on tyrosine and serine residues in response to IFN-alpha, IFN-gamma, PDGF and EGF. Phosphorylation on Tyr-701 (lacking in beta form) by JAK promotes dimerization and subsequent translocation to the nucleus. Phosphorylation on

Ser-727 by several kinases including MAPK14, ERK1/2 and CAMKII on IFN-gamma stimulation, regulates STAT1 transcriptional activity. Phosphorylation on Ser-727 promotes sumoylation though increasing interaction with PIAS. Phosphorylation on Ser-727 by PKCdelta induces apoptosis in response to DNA-damaging agents.

STAT3 protein is a member of the STAT protein family. In response to cytokines and growth factors, STAT family members are phosphorylated by the receptor associated kinases, and then form homo- or heterodimers that translocate to the cell nucleus where they act as transcription activators. This protein is activated through phosphorylation in response to various cytokines and growth factors including IFNs, EGF, IL5, IL6, HGF, LIF and BMP2. This protein mediates the expression of a variety of genes in response to cell stimuli, and thus plays a key role in many cellular processes such as cell growth and apoptosis. The small GTPase Rac1 has been shown to bind and regulate the activity of this protein. PIAS3 protein is a specific inhibitor of this protein. Three alternatively spliced transcript variants encoding distinct isoforms have been described. Transcription factor that binds to the interleukin-6 (IL-6)-responsive elements identified in the promoters of various acute-phase protein genes. Activated by IL31 through IL31RA.

STAT4 is a member of the STAT family of transcription factors. In response to cytokines and growth factors, STAT family members are phosphorylated by the receptor associated kinases, and then form homo- or heterodimers that translocate to the cell nucleus where they act as transcription activators. This protein is essential for mediating responses to IL12 in lymphocytes, and regulating the differentiation of T helper cells. Carries out a dual function: signal transduction and activation of transcription. Involved in IL12 signaling

STAT5A is a member of the STAT family of transcription factors. In response to cytokines and growth factors, STAT family members are phosphorylated by the receptor associated kinases, and then form homo- or heterodimers that translocate to the cell nucleus where they act as transcription activators. This protein is activated by, and mediates the responses of many cell ligands, such as IL2, IL3, IL7 GM-CSF, erythropoietin, thrombopoietin, and different growth hormones. Activation of this protein in myeloma and lymphoma associated with a TEL/JAK2 gene fusion is independent of cell stimulus and has been shown to be essential for the tumorigenesis. The mouse counterpart of this gene is found to induce the expression of BCL2L1/BCL-X(L), which suggests the antiapoptotic function of this gene in cells. Carries out a dual function: signal transduction and activation of transcription. Binds to the GAS element and activates PRL-induced transcription.

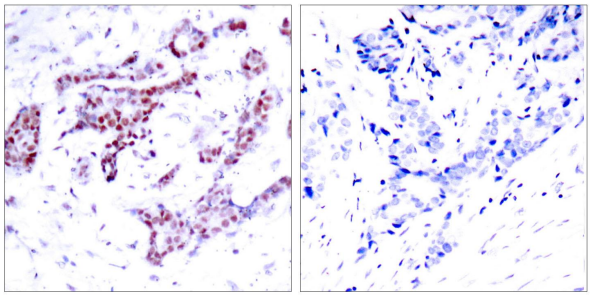
STAT6 is a member of the STAT family of transcription factors. In response to cytokines and growth factors, STAT family members are phosphorylated by the receptor associated kinases, and then form homo- or heterodimers that translocate to the cell nucleus where they act as transcription activators. This protein plays a central role in exerting IL4 mediated biological responses. It is found to induce the expression of BCL2L1/BCL-X(L), which is responsible for the anti-apoptotic activity of IL4. Knockout studies in mice

suggested the roles of this gene in differentiation of T helper 2 (Th2) cells, expression of cell surface markers, and class switch of immunoglobulins. Carries out a dual function: signal transduction and activation of transcription. Involved in interleukin-4 signalling.

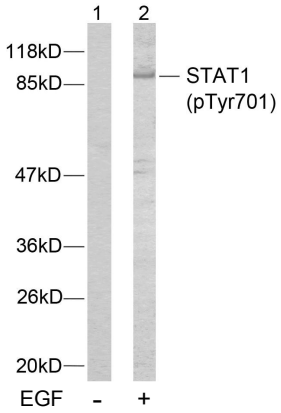
STAT1 (Phospho-Tyr701) Antibody

E011044

Catalog Number: E011044-1, E011044-2
Amount: 50μg/50μl, 100μg/100μl
Form of Antibody: Rabbit IgG in phosphate buffered saline (without Mg^{2+} and Ca^{2+}), pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Storage/Stability: Store at -20℃/1 year
Immunogen: The antiserum was produced against synthesized phosphopeptide derived from human STAT1 around the phosphorylation site of tyrosine 701 (T-G-Y^P-I-K).
Purification: The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific phosphopeptide. The antibody against non-phosphopeptide was removed by chromatography using non-phosphopeptide corresponding to the phosphorylation site.
Specificity/Sensitivity: STAT1 (phospho-Tyr701) antibody detects endogenous levels of STAT1 only when phosphorylated at tyrosine 701.
Reactivity: Human, Mouse, Rat
Applications: WB: 1:500~1:1000 IHC: 1:50~1:100
Swiss-Prot No. : P42224
References:
Heim M H, (1999) J Recept Signal Transduct Res. 19: 75-120.
Durbin J E, et al. (1996) Cell. 84: 443-450.
Demoulin J, B. et al. (1999) J Biol Chem. 274: 25855-258.
Ihle J N, et al. (1994) Trends Biochem Sci. 19: 222-227.



Immunohistochemical analysis of paraffin-embedded human breast carcinoma tissue using STAT1 (phospho-Tyr701) antibody.

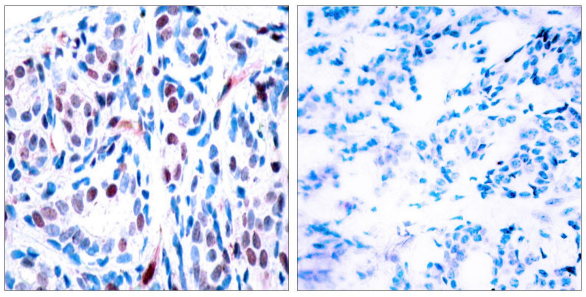


Western blot analysis of extracts from MCF7 cells using STAT1 (phospho-Tyr701) antibody.

STAT3 (Phospho-Tyr705) Antibody

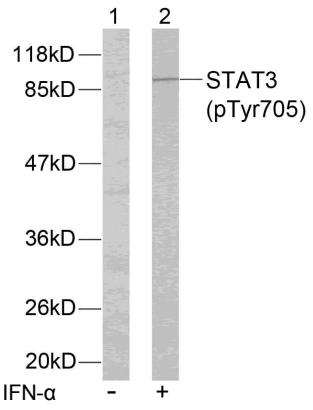
E011045

Catalog Number: E011045-1, E011045-2
Amount: 50μg/50μl, 100μg/100μl
Form of Antibody: Rabbit IgG in phosphate buffered saline (without Mg^{2+} and Ca^{2+}), pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Storage/Stability: Store at -20˚C/1 year
Immunogen: The antiserum was produced against synthesized phosphopeptide derived from human STAT3 around the phosphorylation site of tyrosine 705 (A-P-Y^P-L-K).
Purification: The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific phosphopeptide. The antibody against non-phosphopeptide was removed by chromatography using non-phosphopeptide corresponding to the phosphorylation site.
Specificity/Sensitivity: STAT3 (phospho-Tyr705) antibody detects endogenous levels of STAT3 only when phosphorylated at tyrosine 705.
Reactivity: Human, Mouse, Rat
Applications: WB: 1:500~1:1000 IHC: 1:50~1:100
Swiss-Prot No. : P40763
References:
Fan G, et al. (2003) J Biol Chem. 278(52): 52432-52436.
Barry FA, et al. (2003) FEBS Lett. 553(1-2): 173-178.
Welsh, et al. (1996) Trends Cell Biol. 6: 274-279.
Srivastava A K, et al. (1998) Mol Cell Biochem. 182: 135-141.



P-Peptide - +

Immunohistochemical analysis of paraffin-embedded human breast carcinoma tissue using STAT3 (phospho-Tyr705) antibody.

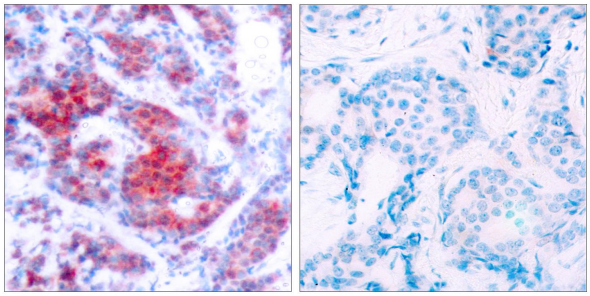


Western blot analysis of extracts from HeLa cells using STAT3 (phospho-Tyr705) antibody.

STAT4 (Phospho-Tyr693) Antibody

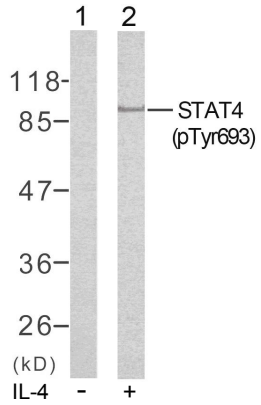
E011047

Catalog Number: E011047-1, E011047-2
Amount: 50μg/50μl, 100μg/100μl
Form of Antibody: Rabbit IgG in phosphate buffered saline (without Mg^{2+} and Ca^{2+}), pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Storage/Stability: Store at -20˚C/1 year
Immunogen: The antiserum was produced against synthesized phosphopeptide derived from human STAT4 around the phosphorylation site of tyrosine 693 (K-G-Y^P-V-P).
Purification: The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific phosphopeptide. The antibody against non-phosphopeptide was removed by chromatography using non-phosphopeptide corresponding to the phosphorylation site.
Specificity/Sensitivity: STAT4 (phospho-Tyr693) antibody detects endogenous levels of STAT4 only when phosphorylated at tyrosine 693.
Reactivity: Human, Mouse, Rat
Applications: WB: 1:500~1:1000 IHC: 1:50~1:100
Swiss-Prot No. : Q14765
References: Strausberg R L, et al. (2002) Proc Natl Acad Sci U S A. 99(26):16899-16903.



P-Peptide - +

Immunohistochemical analysis of paraffin-embedded human breast carcinoma tissue using STAT4 (phospho-Tyr693) antibody.

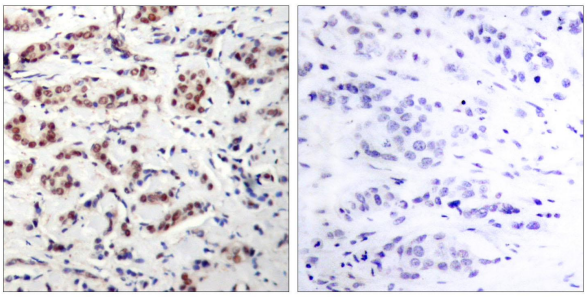


Western blot analysis of extracts from HeLa cells using STAT4 (phospho-Tyr693) antibody.

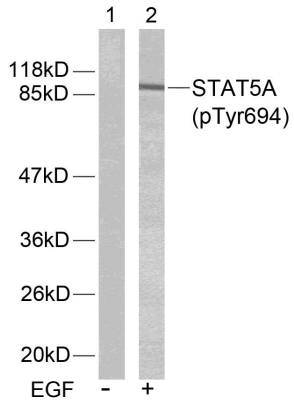
STAT5A (Phospho-Tyr694) Antibody

E011048

Catalog Number: E011048-1, E011048-2
Amount: 50μg/50μl, 100μg/100μl
Form of Antibody: Rabbit IgG in phosphate buffered saline (without Mg^{2+} and Ca^{2+}), pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Storage/Stability: Store at -20˚C/1 year
Immunogen: The antiserum was produced against synthesized phosphopeptide derived from human STAT5A around the phosphorylation site of tyrosine 694 (D-G-Y^{P}-V-K).
Purification: The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific phosphopeptide. The antibody against non-phosphopeptide was removed by chromatography using non-phosphopeptide corresponding to the phosphorylation site.
Specificity/Sensitivity: STAT5A (phospho-Tyr694) antibody detects endogenous levels of STAT5A only when phosphorylated at tyrosine 694.
Reactivity: Human, Mouse, Rat
Applications: WB: 1:500~1:1000 IHC: 1:50~1:100
Swiss-Prot No. : P42229
References:
Gouilleux F, et al. (1994) EMBO J. 13: 4361-4369.
Dentelli P, et al. (1999) J Immunol. 163: 2151-2159.
Meinke A, et al. (1996) Mol Cell Biol. 16: 6937-6944.



Immunohistochemical analysis of paraffin-embedded human breast carcinoma tissue using STAT5A (phospho-Tyr694) antibody.

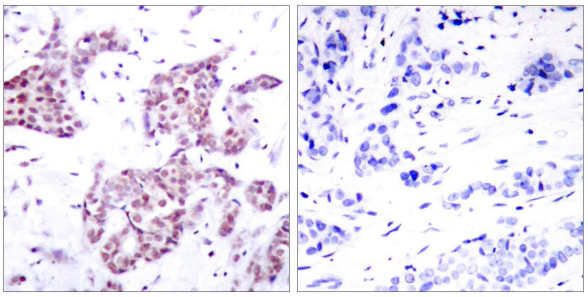


Western blot analysis of extracts from HeLa cells using STAT5A (phospho-Tyr694) antibody.

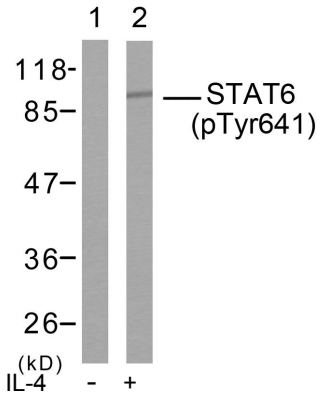
STAT6 (Phospho-Tyr641) Antibody

E011050

Catalog Number: E011050-1, E011050-2
Amount: 50μg/50μl, 100μg/100μl
Form of Antibody: Rabbit IgG in phosphate buffered saline (without Mg^{2+} and Ca^{2+}), pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Storage/Stability: Store at -20˚C/1 year
Immunogen: The antiserum was produced against synthesized phosphopeptide derived from human STAT6 around the phosphorylation site of Tyrosine 641 (R-G-Y^{P}-V-P).
Purification: The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific phosphopeptide. The antibody against non-phosphopeptide was removed by chromatogramphy using non-phosphopeptide corresponding to the phosphorylation site.
Specificity/Sensitivity: STAT6 (phospho-Tyr641) antibody detects endogenous levels of STAT6 only when phosphorylated at tyrosine 641.
Reactivity: Human
Applications: WB: 1:500~1:1000 IHC: 1:50~1:100
Swiss-Prot No. : P42226
References:
Nelms K, et al. (1999) Annu Rev Immunol. 17:701-738.
Malabarba M G, et al. (1996) Biochem. J. 319:865-872.
Hou J, et al. (1994) Science. 265:1701-1706.
Quelle F W, et al. (1995) Mol Cell Biol. 15: 3336-3343.



Immunohistochemical analysis of paraffin-embedded human breast carcinoma tissue using STAT6 (phospho-Tyr641) antibody.



Western blot analysis of extract from HeLa cells, using STAT6 (phospho-Tyr641) antibody.