

Technical Data Sheet

Purified Mouse Anti-Stat3 (pY705)**Product Information**

Material Number:	612357
Size:	150 µg
Concentration:	250 µg/ml
Clone:	4/P-STAT3
Immunogen:	Phosphorylated Human Stat3 Peptide
Isotype:	Mouse IgG2a, κ
Reactivity:	QC Testing: Human Tested in Development: Mouse
Target MW:	92 kDa
Storage Buffer:	Aqueous buffered solution containing BSA, glycerol, and ≤0.09% sodium azide.

Description

Stat (Signal transducer and activators of transcription) proteins are critical mediators of the biologic activity of cytokines, including interleukins, interferons, erythropoietin, and growth factors. Ligand-receptor interaction leads to activation of constitutively associated JAK family kinases and subsequent recruitment/activation of Stat proteins by tyrosine phosphorylation. Active Stat proteins then move to the nucleus to promote transcription of cytokine-inducible genes. Seven Stat proteins have been cloned, each of which is differentially expressed and/or activated in a cytokine-specific and cell type-specific manner. Stat3 is a 92-kDa protein that is activated as a DNA-binding protein through cytokines, such as IL-6, and growth factors, such as EGF. Stat3 activation occurs via tyrosine phosphorylation at Y705. Tyrosine phosphorylation in response to cytokine stimulation is generally mediated by JAK1. Upon activation, Stat3 dimerizes, translocates to the nucleus and binds DNA response elements, thereby regulating gene expression. It has been reported that Stat3 binds to DNA as a homodimer, but it is also capable of binding as a heterodimer with Stat1. In addition to tyrosine phosphorylation, Stat3 is also phosphorylated at S727 via the MAPK pathway. Stat3 is widely expressed and can bind to the sis-inducible element (SIE) site from the c-fos promoter. This site is similar to the GAS element that is present in IFN-γ induced genes. Thus, phosphorylation of Y705 in Stat3 occurs in response to growth factors and cytokines, and is essential for normal transcription activity.

The 4/P-STAT3 monoclonal antibody recognizes the phosphorylated Y705 of Stat3.



Western blot analysis for Stat3 (pY705). A431 cells (Human epithelial carcinoma; ATCC CRL-1555) were either left untreated (lane 1) or treated with 100 ng/ml EGF for 5 minutes at 37°C (lane 2). The top panel was probed with a mouse anti-Stat3 antibody measuring for total Stat3 (Cat. No. 610189) while the bottom panel was probed with a 1:500 dilution of the mouse anti-Stat3 (pY705) antibody.

Preparation and Storage

The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography. Store undiluted at -20° C.

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Application Notes

Application

Western blot	Routinely Tested
Intracellular staining (flow cytometry)	Tested During Development

Recommended Assay Procedure:

Western blot: Please refer to http://www.bdbiosciences.com/pharming/en/protocols/Western_Blotting.shtml

Suggested Companion Products

Catalog Number	Name	Size	Clone
611447	A431 Cell Lysate	500 µg	(none)
611448	A431 + EGF Cell Lysate	500 µg	(none)
554002	HRP Goat Anti-Mouse Ig	1.0 ml	(none)
610189	Purified Mouse Anti-Stat3	50 µg	84/Stat3

Product Notices

1. Since applications vary, each investigator should titrate the reagent to obtain optimal results.
2. Please refer to www.bdbiosciences.com/pharming/en/protocols for technical protocols.
3. Caution: Sodium azide yields highly toxic hydrazoic acid under acidic conditions. Dilute azide compounds in running water before discarding to avoid accumulation of potentially explosive deposits in plumbing.
4. Source of all serum proteins is from USDA inspected abattoirs located in the United States.

References

Darnell JE Jr. STATs and gene regulation. *Science*. 1997; 277(5332):1630-1635.(Biology)
Fu XY, Zhang JJ. Transcription factor p91 interacts with the epidermal growth factor receptor and mediates activation of the c-fos gene promoter. *Cell*. 1993; 74(6):1135-1145.(Biology)
Kanai M, Konda Y, Nakajima T, et al. Differentiation-inducing factor-1 (DIF-1) inhibits STAT3 activity involved in gastric cancer cell proliferation via MEK-ERK-dependent pathway. *Oncogene*. 2003; 22(22):548-554.(Biology; Western blot)
Smith PD, Crompton MR. Expression of v-src in mammary epithelial cells induces transcription via STAT3. *Biochem J*. 1998; 15:331-381.(Biology)