

Technical Data Sheet

Purified Mouse Anti-Human Stat5 (pY694)**Product Information**

Material Number:	611964
Size:	50 µg
Concentration:	250 µg/ml
Clone:	47
Immunogen:	Phosphorylated Sheep Stat5 Peptide
Isotype:	Mouse IgG1, κ
Reactivity:	QC Testing: Human
Target MW:	92 kDa
Storage Buffer:	Aqueous buffered solution containing BSA, glycerol, and ≤0.09% sodium azide.

Description

The Stat proteins function both as cytoplasmic signal transducers and as activators of transcription. Seven mammalian STATs have been identified: Stat 1-4, Stat5a, 5b, and Stat6. The SH3 domain of Stat5 shows extensive homology with the SH2 domains of Stat1 and Stat2. This homology leads to speculation that it may have a broader physiological role than originally anticipated and has led to its classification as a member of the Stat family. Stat5 has been further characterized and shown to be encoded by two separate genes, Stat5a and Stat5b that share over 90% identity at the amino acid level. Further insight into the exact biological role of Stat5a and Stat5b was determined with the generation of Stat5a and Stat5b deficient mice. Stat5a was shown to be involved in lactogenesis and mammary development, while Stat5b was shown to be involved in growth hormone signaling and to play a role in liver gene expression. Both Stat5a and Stat5b share similarities, both are involved in IL-2 induced peripheral T cell proliferation. Stat5 (MGF) mRNA expression is highest in mammary gland tissue. Lower levels are found in ovary, thymus, spleen, kidney, lung, muscle, and the adrenal gland. The peptide hormone, prolactin, binds to the prolactin receptor (PRLR) to initiate the lactogenic response. There are at least three forms of PRLR; however, only the long form is able to activate the 92 kDa Stat5 protein by inducing phosphorylation at Tyr694. Once phosphorylated, Stat5 becomes an essential transcription factor which binds to the β-casein gene promoter. Stat5 activity is tightly regulated throughout gestation, lactation, and post-lactation. Treatment of activated Stat5 with a protein tyrosine phosphatase results in the loss of DNA binding activity. The presence of an SH2 domain within Stat5 suggests that it may directly interact with protein tyrosine kinases (PTKs) such as JAK2.

This antibody is routinely tested by Western blot analysis. Other applications were tested at BD Biosciences Pharmingen during antibody development only or reported in the literature.



A431 cells were either left untreated (-) or treated (+) with 100 ng/ml EGF for 5 minutes at 37°C. The top panel was probed with Stat5 (Cat. No. 610191) and the bottom was probed with Stat5 (pY694) (Cat. No. 611964).

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Preparation and Storage

The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography.

Store undiluted at -20° C.

Application Notes

Application

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

Recommended Assay Procedure:

For use in flow cytometry the conjugated formats of Anti-Human Stat5 (pY694) are recommended (Cat. No. 612567, PE-labeled. Cat. No. 612598, Alexa Fluor 488®. and Cat. No. 612599, Alexa Fluor 647®).

Suggested Companion Products

Catalog Number	Name	Size	Clone
611448	A431 + EGF Cell Lysate	500 µg	(none)

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

- Gouilleux F, Wakao H, Mundt M, Groner B. Prolactin induces phosphorylation of Tyr694 of Stat5 (MGF), a prerequisite for DNA binding and induction of transcription. *EMBO J.* 1994; 13(18):4361-4369.(Biology)
- Park DS, Lee H, Frank PG, et al. Caveolin-1-deficient mice show accelerated mammary gland development during pregnancy, premature lactation, and hyperactivation of the Jak-2/STAT5a signaling cascade. *Mol Biol Cell.* 2002; 13(10):3416-3430.(Clone-specific: Western blot)
- Wakao H, Gouilleux F, Groner B. Mammary gland factor (MGF) is a novel member of the cytokine regulated transcription factor gene family and confers the prolactin response. *EMBO J.* 1994; 13(9):2182-2191.(Biology)
- Williams TM, Cheung MW, Park DS, et al. Loss of caveolin-1 gene expression accelerates the development of dysplastic mammary lesions in tumor-prone transgenic mice. *Mol Biol Cell.* 2003; 14(3):1027-1042.(Clone-specific: Western blot)

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