

STAT4 ABfinity™ Recombinant Rabbit Monoclonal Antibody - Purified

REF Catalog no. 700185

(See product label for lot information)



Clone/PAD: 2H9L5
Isotype: IgG
Gene ID: 6775
Protein Acc. no.: Q14765
Qty: 100 µg
Volume: 200 µl
Concentration: 0.5 mg/ml

Formulation

PBS + 0.09% azide

Immunogen

A peptide corresponding to amino acids
730-748 of Q14765.

Immunogen sequence

ENLSPTTIETAMNSPYSAE

Reactivity

This antibody reacts with human, mouse,
and rat STAT4. Based on sequence identity
and similarity, reactivity to equine, swine
and chicken is expected.

Storage

2-8°C for up to 1 mo, -20°C for long term
storage. Avoid repeated freezing and
thawing.



Expiration Date

Expires one year from date of receipt when
stored as instructed.

Validated Applications:

	Species	Test Material	Concentration
Western Blotting	human, mouse, rat	mouse / rat testes, A549	3-5 µg/ml
Immunohistochemistry	human	testes and colon carcinoma	4-6 µg/ml
Immunofluorescence	human	A549	2-4 µg/ml
Flow Cytometry	human	Jurkat	0.5-1 µg/test
Sandwich ELISA	Detector		1-5 µg/ml

Background

Signal transducer and activator of transcription 4 (STAT4) was originally identified using degenerate primers complementary to sequences encoding conserved regions of other STAT proteins (1). The STAT4 protein is most similar to STAT 1 (52%) and STAT3 (47%). Functionally, STAT4 is similar to other STAT family members in that it can be tyrosine phosphorylated by Jak1 or Jak2 (5). STAT4 forms homodimers and heterodimers with related STAT family members. Tyrosine phosphorylated STAT4 can bind the IFN-gamma activated site (GAS). Serine phosphorylation of STAT is also required for maximal transcriptional activity. STAT4 expression is restricted to the thymus, spleen and testis (2). Until recently the cytokine(s) responsible for activation of STAT4 had not been identified. STAT4 is now known to be activated by the cytokine interleukin 12 (IL-12). IL-12 is required for the T-cell independent induction of IFN-gamma which is a key step in the initial suppression of bacterial and parasitic infections (4). In addition, IL-12 is required for the development of a Th1 response which is necessary for effective host defense against intracellular pathogens (6). Perhaps not surprisingly, STAT4-deficient mice display impaired IL-12 development of Th1 cells and enhanced development of Th2 cells (3). A recent study in mouse has shown that in response to viral infection IFN-α/b activation of STAT4 is required for IFN-γ production (7).

References

1. Yamamoto, K., et al. (1994) Stat4, a novel gamma interferon activation site-binding protein expressed in early myeloid differentiation. *Mol. Cell. Biol.* 14:4342-4349.
2. Zhong, Z., et al. (1994) Stat3 and Stat4: members of the family of signal transducers and activators of transcription. *Proc. Natl. Acad. Sci. USA* 91:4806-4810.
3. Thierfelder, W.E., et al. (1996) Requirement for Stat4 in interleukin-12-mediated responses of natural killer and T cells. *Nature* 382:171-174.
4. Yu, C.R., et al. (1996) Differential utilization of Janus kinase-signal transducer activator of transcription signaling pathways in the stimulation of human natural killer cells by IL-2, IL-12, and IFN-α. *J. Immunol.* 157:126-137.
5. Cho, S.S., et al. (1996) Activation of STAT4 by IL-12 and IFN-α: evidence for the involvement of ligand-induced tyrosine and serine phosphorylation. *J. Immunol.* 157:4781-4789.
6. Kaplan, M.H., et al. (1996) Impaired IL-12 responses and enhanced development of Th2 cells in Stat4-deficient mice. *Nature* 382:174-177 (1996).
7. Nguyen, K.B., et al (2002) Critical Role for STAT4 Activation by Type 1 Interferons in the Interferon- Response to Viral Infection. *Science* 297: 2063-2066.

For research use only. CAUTION: Not intended for human or animal therapeutic or diagnostic use.

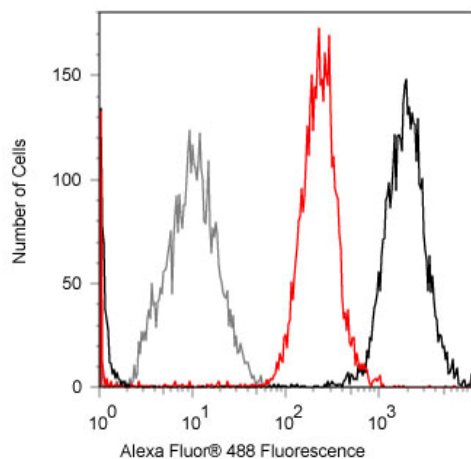
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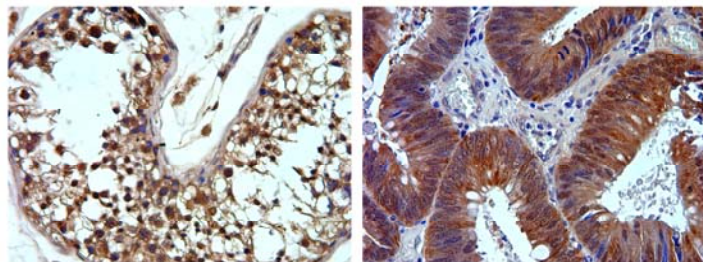
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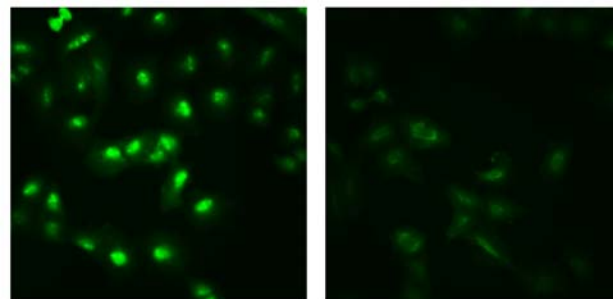
Flow cytometry of Jurkat cells labeled with rabbit anti-STAT4 (Cat. No. 700185).

Jurkat cells were fixed and permeabilized using FIX & PERM® (Cat. No. GAS004) reagents. Cells were then stained with (black trace) or without (gray trace) 0.5 µg anti-STAT4 followed by Alexa Fluor® 488 goat anti-rabbit Ig (Cat. No. A11008). Pre-incubation with the immunogenic peptide decreased the signal (red trace).



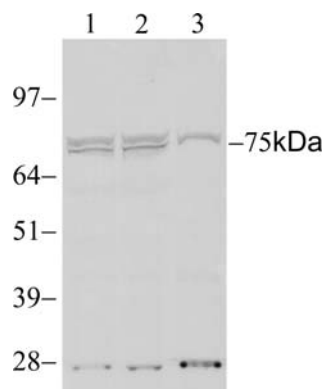
Immunohistochemistry of human normal testes and colon carcinoma tissue labeled with rabbit anti-STAT4 (Cat. No. 700185).

FFPE human normal testes (left) and colon carcinoma (right) tissues were labeled with rabbit anti-STAT4 (5 µg/ml). Tissues were pretreated with EDTA and detected with SuperPicTure™ Polymer DAB (Cat. No.87-8963). Images were taken at 40x magnification. Note cytoplasmic and nuclear staining in spermatocytes (left) and tumor cells (right).



Immunocytochemistry of A549 cells labeled with rabbit anti-STAT4 (Cat. No. 700185).

A549 cells labeled with rabbit anti-STAT4 (2.5 µg/ml) in the absence of peptides (left) or in the presence of peptide used as immunogen (right). Alexa Fluor® 488 goat anti-rabbit (Cat. No. A11008) at 1:1000 was used as secondary antibody.



Western blot of multiple lysates labeled with rabbit anti-STAT4 (Cat. No. 700185).

Rabbit anti-STAT4 (3 µg/ml) was used to label STAT4 in mouse testes (lane 1), rat testes (lane 2), and A549 cells (lane 3).

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