abcam

## Product datasheet

# STAT3 (pY705) ELISA Kit ab126458

2 References 5 Images

### Overview

| | |
|---|---|
| **Product name** | STAT3 (pY705) ELISA Kit |
| **Detection method** | Colorimetric |
| **Sample type** | Cell Lysate |
| **Assay type** | Semi-quantitative |
| **Assay time** | 5h 00m |
| **Assay duration** | Multiple steps standard assay |
| **Species reactivity** | **Reacts with:** Mouse, Rat, Human |
| **Product overview** | ab126458 is a very rapid, convenient and sensitive assay kit that can monitor the activation or function of important biological pathways in human, mouse and rat cell lysates. By determining phosphorylated STAT3 protein in your experimental model system, you can verify pathway activation in your cell lysates. You can simultaneously measure numerous different cell lysates without spending excess time and effort in performing a Western Blotting analysis.<br><br>This Sandwich ELISA kit is an in vitro enzyme-linked immunosorbent assay for the measurement of human, mouse and rat phospho-STAT3 (Tyr705). An anti-pan STAT3 antibody has been coated onto a 96-well plate. Samples are pipetted into the wells and STAT3 present in a sample is bound to the wells by the immobilized antibody. The wells are washed and anti-STAT3 (Tyr705) antibody is used to detect phosphorylated STAT3 (Tyr705). After washing away unbound antibody, HRP-conjugated anti-rabbit IgG is pipetted to the wells. The wells are again washed, a TMB substrate solution is added to the wells and color develops in proportion to the amount of STAT3 (Tyr705) bound. The Stop Solution changes the color from blue to yellow, and the intensity of the color is measured at 450 nm.<br><br>Get higher sensitivity in only 90 minutes with STAT3 pY705 ELISA Kit (**ab176654**) from our SimpleStep ELISA® range. |
| **Notes** | Abcam has not and does not intend to apply for the REACH Authorisation of customers' uses of products that contain European Authorisation list (Annex XIV) substances.<br>It is the responsibility of our customers to check the necessity of application of REACH Authorisation, and any other relevant authorisations, for their intended uses. |
| **Platform** | Microplate |

## Properties

**Storage instructions** Store at -20°C. Please refer to protocols.

| Components | 1 x 96 tests |
|---|---|
| 2000x HRP-conjugated anti-rabbit IgG concentrate | 1 x 25µl |
| 20X Wash Buffer | 1 x 25ml |
| 2X Cell Lysis Buffer | 1 x 5ml |
| 5X Assay Diluent | 1 x 15ml |
| Detection Antibody STAT3 (Tyr705) | 2 vials |
| Positive Control: lyophilized powder from A431 cell lysate | 1 vial |
| STAT3 Microplate (12 strips x 8 wells) coated with anti-pan STAT3 antibody | 1 unit |
| Stop Solution | 1 x 8ml |
| TMB One-Step Substrate Reagent | 1 x 12ml |

**Function** Signal transducer and transcription activator that mediates cellular responses to interleukins, KITLG/SCF, LEP and other growth factors. Once activated, recruits coactivators, such as NCOA1 or MED1, to the promoter region of the target gene (PubMed:17344214). May mediate cellular responses to activated FGFR1, FGFR2, FGFR3 and FGFR4. Binds to the interleukin-6 (IL-6)-responsive elements identified in the promoters of various acute-phase protein genes. Activated by IL31 through IL31RA. Involved in cell cycle regulation by inducing the expression of key genes for the progression from G1 to S phase, such as CCND1 (PubMed:17344214). Mediates the effects of LEP on melanocortin production, body energy homeostasis and lactation (By similarity). May play an apoptotic role by transctivating BIRC5 expression under LEP activation (PubMed:18242580). Cytoplasmic STAT3 represses macroautophagy by inhibiting EIF2AK2/PKR activity.

**Tissue specificity** Heart, brain, placenta, lung, liver, skeletal muscle, kidney and pancreas.

**Involvement in disease** Hyperimmunoglobulin E recurrent infection syndrome, autosomal dominant
Autoimmune disease, multisystem, infantile-onset

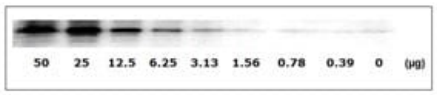
**Sequence similarities** Belongs to the transcription factor STAT family.
Contains 1 SH2 domain.

**Post-translational modifications** Tyrosine phosphorylated upon stimulation with EGF. Tyrosine phosphorylated in response to constitutively activated FGFR1, FGFR2, FGFR3 and FGFR4 (By similarity). Activated through tyrosine phosphorylation by BMX. Tyrosine phosphorylated in response to IL6, IL11, LIF, CNTF, KITLG/SCF, CSF1, EGF, PDGF, IFN-alpha, LEP and OSM. Activated KIT promotes phosphorylation on tyrosine residues and subsequent translocation to the nucleus. Phosphorylated on serine upon DNA damage, probably by ATM or ATR. Serine phosphorylation is important for the formation of stable DNA-binding STAT3 homodimers and maximal transcriptional activity. ARL2BP may participate in keeping the phosphorylated state of STAT3 within the nucleus. Upon LPS challenge, phosphorylated within the nucleus by IRAK1. Upon erythropoietin treatment, phosphorylated on Ser-727 by RPS6KA5. Phosphorylation at Tyr-705 by PTK6 or FER leads to an increase of its transcriptional activity. Dephosphorylation on tyrosine residues by PTPN2 negatively regulates IL6/interleukin-6 signaling.

**Cellular localization**

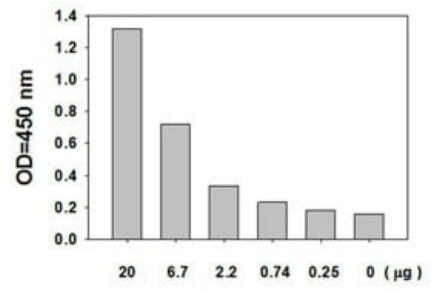
Cytoplasm. Nucleus. Shuttles between the nucleus and the cytoplasm. Translocated into the nucleus upon tyrosine phosphorylation and dimerization, in response to signaling by activated FGFR1, FGFR2, FGFR3 or FGFR4. Constitutive nuclear presence is independent of tyrosine phosphorylation. Predominantly present in the cytoplasm without stimuli. Upon leukemia inhibitory factor (LIF) stimulation, accumulates in the nucleus. The complex composed of BART and ARL2 plays an important role in the nuclear translocation and retention of STAT3. Identified in a complex with LYN and PAG1.

## Images



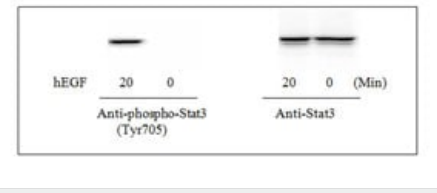

Western blot - STAT3 (pY705) ELISA Kit (ab126458)

The A431 cells were treated with 100 ng/ml recombinant human EGF for 20 minutes. Serial dilutions of lysates were analyzed by Western blot. Immunoblots were incubated with anti-phospho-STAT3 (Tyr705).



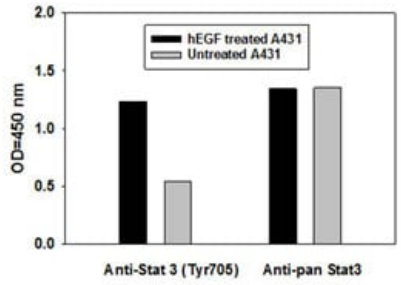

Sandwich ELISA - STAT3 (pY705) ELISA Kit (ab126458)

The A431 cells were treated with 100 ng/ml recombinant human EGF for 20 minutes. Serial dilutions of lysates were analyzed in this ELISA.



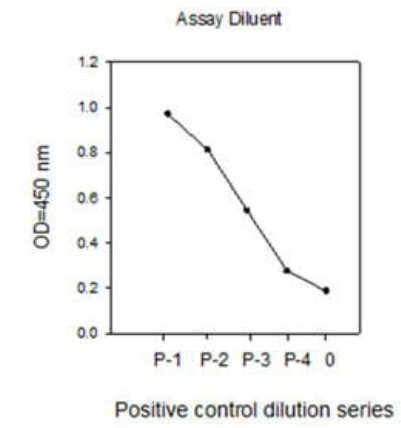

Western blot - STAT3 (pY705) ELISA Kit (ab126458)

A431 cells were treated or untreated with 100 ng/ml recombinant human EGF for 20 min. Cell lysates were analyzed using Western Blot.




A431 cells were treated or untreated with 100 ng/ml recombinant human EGF for 20 min. Cell lysates were analyzed using this phosphoELISA.

Sandwich ELISA - STAT3 (pY705) ELISA Kit (ab126458)




A431 cells were treated with recombinant human EGF at 37°C for 20 min. Solubilize cells at 4 x $10^7$ cells/ml in Cell Lysate Buffer. Serial dilutions of lysates were analyzed in this ELISA.

Sandwich ELISA - STAT3 (pY705) ELISA Kit (ab126458)



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