abcam

Product datasheet

Human STAT1 ELISA Kit ab253222

Recombinant SimpleStep ELISA

5 Images

Overview

Product name	Human STAT1 ELISA Kit
Detection method	Colorimetric
Precision	

Intra-assay

Sample	n	Mean	SD	CV%
Extract	8			4.3%

Inter-assay

Sample	n	Mean	SD	CV%
Extract	3			5.5%

Sample type	Cell Lysate
Assay type	Sandwich (quantitative)
Sensitivity	375.5 pg/ml
Range	781.25 pg/ml - 50000 pg/ml
Recovery	

Sample specific recovery

Sample type	Average %	Range
Cell Lysate	101	101% - 102%

Assay time	1h 30m
Assay duration	One step assay
Species reactivity	**Reacts with:** Human
Product overview	Human STAT1 ELISA Kit (ab253222) is a single-wash 90 min sandwich ELISA designed for the quantitative measurement of STAT1 protein in cell lysate. It uses our proprietary SimpleStep ELISA® technology. Quantitate Human STAT1 with 375.5 pg/ml sensitivity.

SimpleStep ELISA® technology employs capture antibodies conjugated to an affinity tag that is recognized by the monoclonal antibody used to coat our SimpleStep ELISA® plates. This |

approach to sandwich ELISA allows the formation of the antibody-analyte sandwich complex in a single step, significantly reducing assay time. See the SimpleStep ELISA® protocol summary in the image section for further details. Our SimpleStep ELISA® technology provides several benefits:

- Single-wash protocol reduces assay time to 90 minutes or less
- High sensitivity, specificity and reproducibility from superior antibodies
- Fully validated in biological samples
- 96-wells plate breakable into 12 x 8 wells strips

A 384-well SimpleStep ELISA® microplate (**ab203359**) is available to use as an alternative to the 96-well microplate provided with SimpleStep ELISA® kits.

Notes

Signal transducer and activator of transcription 1, commonly referred as STAT1 is an intracellular transcription factor known to mediate cellular responses to interferons, cytokines, and growth factors. Gene knockout studies have shown that STAT1 plays a key role in the development and function of the immune system as well as cell viability. Phosphorylation of STAT1 protein will promote the dimerization between STAT1 and STAT2 to upregulate and increase expression of interferon stimulated genes.

The standard is affinity purified.

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.
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

Pre-coated microplate (12 x 8 well strips)

Properties

Storage instructions

Store at +4°C. Please refer to protocols.

Components	1 x 96 tests
10X Human STAT1 Capture Antibody	1 x 600µl
10X Human STAT1 Detector Antibody	1 x 600µl
10X Wash Buffer PT (ab206977)	1 x 20ml
50X Cell Extraction Enhancer Solution (ab193971)	1 x 1ml
5X Cell Extraction Buffer PTR (ab193970)	1 x 10ml
Antibody Diluent CPl2	1 x 6ml
Human STAT1 Lyophilized Recombinant Protein	2 vials
Plate Seals	1 unit
Sample Diluent NS (ab193972)	1 x 12ml

Components	1 x 96 tests
SimpleStep Pre-Coated 96-Well Microplate (ab206978)	1 unit
Stop Solution	1 x 12ml
TMB Development Solution	1 x 12ml

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Function	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.
Involvement in disease	Note=STAT1 deficiency results in impaired immune response leading to severe mycobacterial and viral diseases. In the case of complete deficiency, patients can die of viral disease. Defects in STAT1 are a cause of mendelian susceptibility to mycobacterial disease (MSMD) [MIM:209950]; also known as familial disseminated atypical mycobacterial infection. This rare condition confers predisposition to illness caused by moderately virulent mycobacterial species, such as Bacillus Calmette-Guerin (BCG) vaccine and environmental non-tuberculous mycobacteria, and by the more virulent Mycobacterium tuberculosis. Other microorganisms rarely cause severe clinical disease in individuals with susceptibility to mycobacterial infections, with the exception of Salmonella which infects less than 50% of these individuals. The pathogenic mechanism underlying MSMD is the impairment of interferon-gamma mediated immunity whose severity determines the clinical outcome. Some patients die of overwhelming mycobacterial disease with lepromatous-like lesions in early childhood, whereas others develop, later in life, disseminated but curable infections with tuberculoid granulomas. MSMD is a genetically heterogeneous disease with autosomal recessive, autosomal dominant or X-linked inheritance.
Sequence similarities	Belongs to the transcription factor STAT family. Contains 1 SH2 domain.
Post-translational modifications	Phosphorylated 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. Sumoylated by SUMO1, SUMO2 and SUMO3. Sumoylation is enhanced by IFN-gamma-induced phosphorylation on Ser-727, and by interaction with PIAS proteins. Enhances the transactivation activity. ISGylated.
Cellular localization	Cytoplasm. Nucleus. Translocated into the nucleus in response to IFN-gamma-induced tyrosine phosphorylation and dimerization.

Images

Other - Human STAT1 ELISA Kit (ab253222)
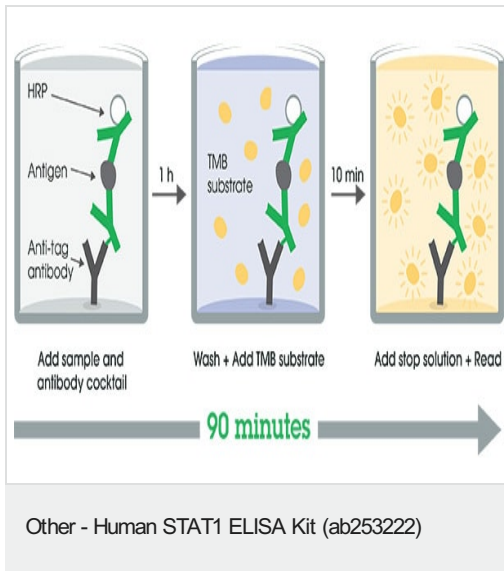
SimpleStep ELISA technology allows the formation of the antibody-antigen complex in one single step, reducing assay time to 90 minutes. Add samples or standards and antibody mix to wells all at once, incubate, wash, and add your final substrate. See protocol for a detailed step-by-step guide.

Example of human STAT1 standard curve in 1X Cell Extraction Buffer PTR.
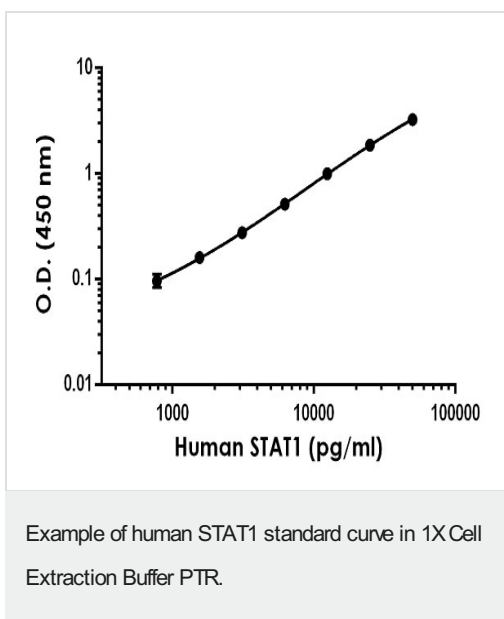
The STAT1 standard curve was prepared as described in Section 10. Raw data values are shown in the table. Background-subtracted data values (mean +/- SD) are graphed.
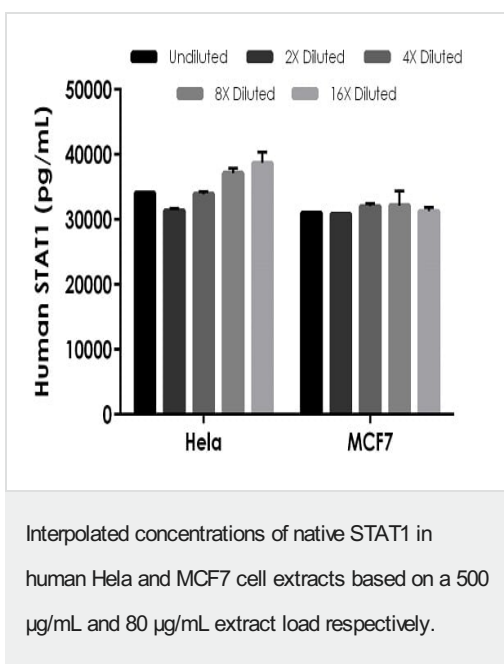
Interpolated concentrations of native STAT1 in human Hela and MCF7 cell extracts based on a 500 μg/mL and 80 μg/mL extract load respectively.

The concentrations of STAT1 were measured in duplicate and interpolated from the STAT1 standard curve and corrected for sample dilution. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean STAT1 concentration was determined to be 35,051 pg/mL in Hela and 31,450 pg/mL in MCF7.

The concentrations of STAT1 were measured in duplicate and interpolated from the STAT1 standard curve and corrected for sample dilution. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean STAT1 concentration was determined to be 34,119 pg/mL in Hela, 3398.5 pg/mL in NIH/3T3, and 6977.9 pg/mL in C6.
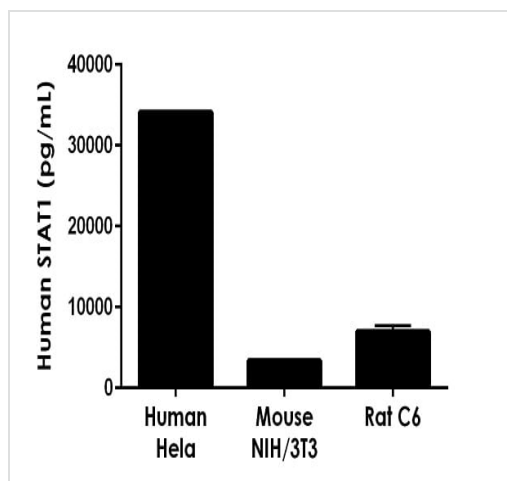
Interpolated concentrations of native STAT1 in human Hela, mouse NIH/3T3, and Rat C6 cell extracts based on a 500 µg/mL extract load.

Powered by recombinant antibodies

Research with confidence
Consistent and reproducible results

Long-term and scalable supply
Recombinant technology

Success from the first experiment
Confirmed specificity

Ethical standards compliant
Animal-free production

To learn more about the advantages of recombinant antibodies see **here**.

Sandwich ELISA - Human STAT1 ELISA Kit (ab253222)

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