

Product datasheet

Anti-SP1 antibody ab13405

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Overview

Product name	Anti-SP1 antibody
Description	Rabbit polyclonal to SP1
Host species	Rabbit
Tested applications	Suitable for: WB, IP, ICC/IF, IHC-P
Species reactivity	Reacts with: Mouse, Human Predicted to work with: Rat, Goat, Cow, Pig, Chimpanzee, Rhesus monkey, Chinese hamster, Orangutan, Elephant 
Immunogen	Synthetic peptide corresponding to Human SP1 aa 700-740. Database link: P08047

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Upon delivery aliquot and store at -20°C. Avoid freeze / thaw cycles.
Storage buffer	Preservative: 0.1% Sodium azide Constituents: 0.021% PBS, 1.764% Sodium citrate, 1.815% Tris
Purity	Immunogen affinity purified
Clonality	Polyclonal
Isotype	IgG

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab13405 in the following tested applications. The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
WB		1/10000 - 1/25000. Detects a band of approximately 90 kDa (predicted molecular weight: 90 kDa).
IP		Use at 1-4 µg/mg of lysate.

Application	Abreviews	Notes
ICC/IF		1/250 - 1/1000.
IHC-P		1/500 - 1/2000. Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Target

Function

Transcription factor that can activate or repress transcription in response to physiological and pathological stimuli. Binds with high affinity to GC-rich motifs and regulates the expression of a large number of genes involved in a variety of processes such as cell growth, apoptosis, differentiation and immune responses. Highly regulated by post-translational modifications (phosphorylations, sumoylation, proteolytic cleavage, glycosylation and acetylation). Binds also the PDGFR-alpha G-box promoter. May have a role in modulating the cellular response to DNA damage. Implicated in chromatin remodeling. Plays a role in the recruitment of SMARCA4/BRG1 on the c-FOS promoter. Plays an essential role in the regulation of FE65 gene expression. In complex with ATF7IP, maintains telomerase activity in cancer cells by inducing TERT and TERC gene expression.

Tissue specificity

Up-regulated in adenocarcinomas of the stomach (at protein level).

Sequence similarities

Belongs to the Sp1 C2H2-type zinc-finger protein family.
Contains 3 C2H2-type zinc fingers.

Post-translational modifications

Phosphorylated on multiple serine and threonine residues. Phosphorylation is coupled to ubiquitination, sumoylation and proteolytic processing. Phosphorylation on Ser-59 enhances proteolytic cleavage. Phosphorylation on Ser-7 enhances ubiquitination and protein degradation. Hyperphosphorylation on Ser-101 in response to DNA damage has no effect on transcriptional activity. MAPK1/MAPK3-mediated phosphorylation on Thr-453 and Thr-739 enhances VEGF transcription but, represses FGF2-triggered PDGFR-alpha transcription. Also implicated in the repression of RECK by ERBB2. Hyperphosphorylated on Thr-278 and Thr-739 during mitosis by MAPK8 shielding SP1 from degradation by the ubiquitin-dependent pathway. Phosphorylated in the zinc-finger domain by calmodulin-activated PKCzeta. Phosphorylation on Ser-641 by PKCzeta is critical for TSA-activated LHR gene expression through release of its repressor, p107. Phosphorylation on Thr-668, Ser-670 and Thr-681 is stimulated by angiotensin II via the AT1 receptor inducing increased binding to the PDGF-D promoter. This phosphorylation is increased in injured artery wall. Ser-59 and Thr-681 can both be dephosphorylated by PP2A during cell-cycle interphase. Dephosphorylation on Ser-59 leads to increased chromatin association during interphase and increases the transcriptional activity. On insulin stimulation, sequentially glycosylated and phosphorylated on several C-terminal serine and threonine residues.

Acetylated. Acetylation/deacetylation events affect transcriptional activity. Deacetylation leads to an increase in the expression the 12(s)-lipooxygenase gene though recruitment of p300 to the promoter.

Ubiquitinated. Ubiquitination occurs on the C-terminal proteolytically-cleaved peptide and is triggered by phosphorylation.

Sumoylated by SUMO1. Sumoylation modulates proteolytic cleavage of the N-terminal repressor domain. Sumoylation levels are attenuated during tumorigenesis. Phosphorylation mediates SP1 desumoylation.

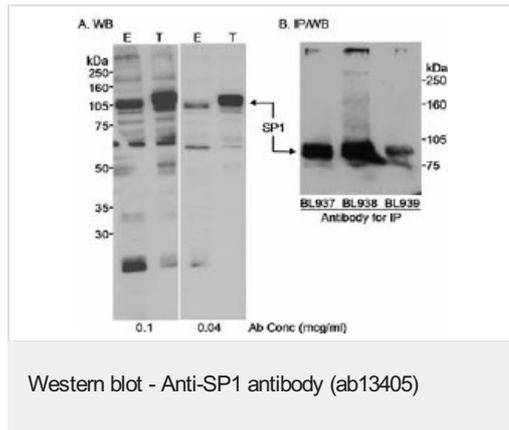
Proteolytic cleavage in the N-terminal repressor domain is prevented by sumoylation. The C-terminal cleaved product is susceptible to degradation.

O-glycosylated; contains at least 8 N-acetylglucosamine side chains. Levels are controlled by insulin and the SP1 phosphorylation states. Insulin-mediated O-glycosylation locates SP1 to the nucleus, where it is sequentially deglycosylated and phosphorylated. O-glycosylation affects transcriptional activity through disrupting the interaction with a number of transcription factors including ELF1 and NFYA. Also inhibits interaction with the HIV1 promoter. Inhibited by peroxisome proliferator receptor gamma (PPARgamma).

Cellular localization

Nucleus. Cytoplasm. Nuclear location is governed by glycosylated/phosphorylated states. Insulin promotes nuclear location, while glucagon favors cytoplasmic location.

Images

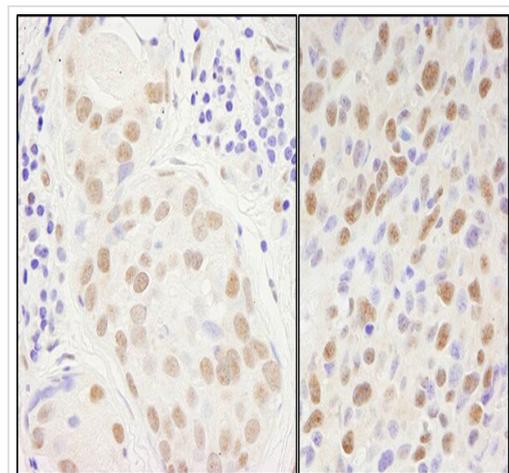


Western blot - Anti-SP1 antibody (ab13405)

Detection of Human SP1 by Western Blot and Immunoprecipitation.

Samples: A. Whole cell lysate (50 mcg for E; 10 mcg for T) from HEK 293T cells that were mock transfected (E) or transfected with a Sp1 expression construct (T). B. Whole cell lysate (700 mcg) from HEK 293T cells. Antibody: A. ab13405 used at the indicated concentrations. B. SP1 was immunoprecipitated using affinity purified rabbit anti-SP1 antibodies ab13405 or **ab13370**. Each antibody was used at 3.75 mcg/mg lysate. Subsequently, ab13405 was used at 0.04 mcg/ml for WB. Detection: Chemiluminescence with an exposure time of 10 seconds (A) or 1 min (B).

Detection of Human SP1 by Western Blot and Immunoprecipitation. Samples: A. Whole cell lysate (50 mcg for E; 10 mcg for T) from HEK 293T cells that were mock transfected (E) or transfected with a Sp1 expression construct (T). B. Whole cell lysate (700 mcg) from HEK 293T cells. Antibody: A. ab13405 used at the indicated concentrations. B. SP1 was immunoprecipitated using



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SP1 antibody (ab13405)

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human breast carcinoma (left) and mouse squamous cell carcinoma (right) tissues labelling SP1 with ab13405 at 1/1000 (1µg/ml). Detection: DAB.

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