abcam

Product datasheet

Anti-SP1 antibody ab13370

13 Abreviews 90 References 5 Images

Overview

Product name	Anti-SP1 antibody
Description	Rabbit polyclonal to SP1
Host species	Rabbit
Tested applications	**Suitable for:** IP, WB, IHC-P
Species reactivity	**Reacts with:** Human **Predicted to work with:** Rabbit, Goat, Horse, Chicken, Cow, Dog, Pig, Xenopus laevis, Chimpanzee, Rhesus monkey, Gorilla, Orangutan, Zebra finch, Xenopus tropicalis
Immunogen	Synthetic peptide corresponding to Human SP1 (C terminal). Database link: **P08047**
General notes	The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing. If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&As

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C. Avoid freeze / thaw cycle.
Storage buffer	pH: 7 Preservative: 0.09% Sodium azide Constituents: 1.764% Sodium citrate, 1.815% Tris, 0.88% Sodium chloride, 0.07% Sodium hydroxide, 0.27% Phosphoric acid pH 7 to 8.
Purity	Immunogen affinity purified
Clonality	Polyclonal
Isotype	IgG

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab13370 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
IP	★★★★☆ **(1)**	Use at 1-4 µg/mg of lysate.
WB	★★★★☆ **(8)**	1/2500 - 1/10000. Detects a band of approximately 90 kDa (predicted molecular weight: 90 kDa).
IHC-P		1/5000.

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.

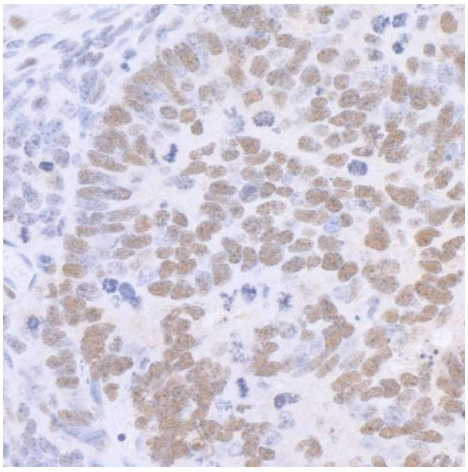
Post-translational modifications Phosphorylated on multiple serine and threonine residues. Phosphorylation is coupled to ubiquitination, sumoylation and proteolytic processing. Phosphorylation on Ser-59 enhances proteolytic cleavage. Phosphorylation on Ser-7 enhances ubiquitination and protein degradation. 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 artey 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 peroxisomome proliferator receptor gamma (PPARgamma).

Cellular localization

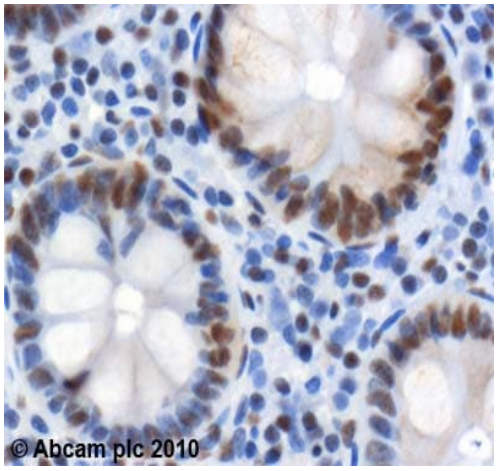
Nucleus. Cytoplasm. Nuclear location is governed by glycosylated/phosphorylated states. Insulin promotes nuclear location, while glucagon favors cytoplasmic location.

Images



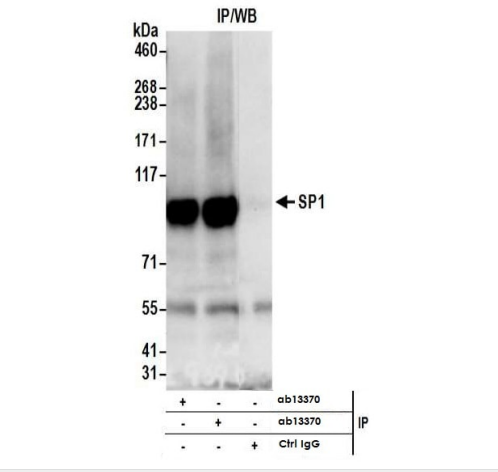
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SP1 antibody (ab13370)

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse renal cell carcinoma tissue sections labeling SP1 with ab13370 at 1/5000 dilution. DAB detection.



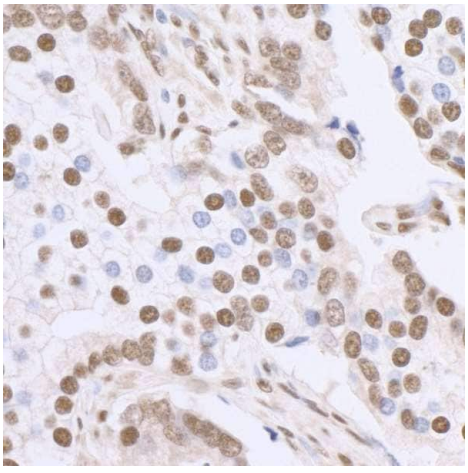
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SP1 antibody (ab13370)

ab13370 (2µg/ml) staining SP1 in human colon using an automated system (DAKO Autostainer Plus). Using this protocol there is nuclear staining.
Sections were rehydrated and antigen retrieved with the Dako 3 in 1 AR buffer EDTA pH 9.0 in a DAKO PT Link. Slides were peroxidase blocked in 3% H2O2 in methanol for 10 mins. They were then blocked with Dako Protein block for 10 minutes (containing casein 0.25% in PBS) then incubated with primary antibody for 20 min and detected with Dako Envision Flex amplification kit for 30 minutes. Colorimetric detection was completed with Diaminobenzidine for 5 minutes. Slides were counterstained with Haematoxylin and coverslipped under DePeX. Please note that, for manual staining, optimization of primary antibody concentration and incubation time is recommended. Signal amplification may be required.



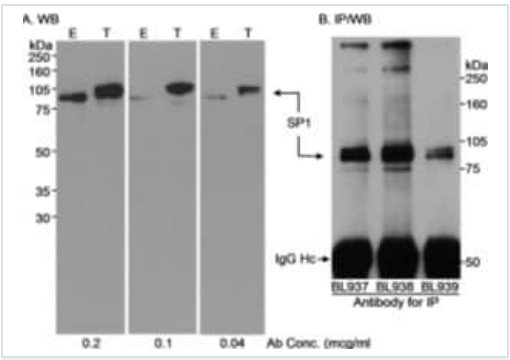
Immunoprecipitation - Anti-SP1 antibody (ab13370)

SP1 was immunoprecipitated from HeLa cells whole cell lysate with ab13370. Anti-SP1 antibody - ChIP Grade (ab13370) used at 6µg per reaction. SP1 was also immunoprecipitated by a previous lot of this antibody. For blotting immunoprecipitated SP1, ab13370 was used at 1µg/ml. Chemiluminescence with an exposure time of 10 seconds.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SP1 antibody (ab13370)

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human breast carcinoma tissue sections labeling SP1 with ab13370 at 1/5000 dilution. DAB detection.



Western blot - Anti-SP1 antibody (ab13370)

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. Affinity purified rabbit anti-Sp1 antibody (ab13370) used at the indicated concentrations. B. SP1 was immunoprecipitated using affinity purified rabbit anti-SP1 antibodies (lane 2: **ab13405**, lane 3: ab13370; lane 1: SP-1 antibody, details unknown) using each antibody at 3.75 mcg/mg lysate. Subsequently, ab13370 was used at 0.04 mcg/ml for WB. Detection: Chemiluminescence with an exposure time of 10 seconds (A) or 1 min (B).

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