

**SATB1 Antibody**  
Catalog # ASC10705**Specification****SATB1 Antibody - Product Information**

Application	WB, IHC, IF
Primary Accession	<a href="#">Q01826</a>
Other Accession	<a href="#">Q01826</a> , <a href="#">417747</a>
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Application Notes	SATB1 antibody can be used for detection of SATB1 by Western blot at 2 - 4 µg/mL. Antibody can also be used for immunohistochemistry starting at 5 µg/mL. For immunofluorescence start at 20 µg/mL.

**SATB1 Antibody - Additional Information**

Gene ID	6304
Target/Specificity	SATB1;

**Reconstitution & Storage**

SATB1 antibody can be stored at 4°C for three months and -20°C, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.

**Precautions**

SATB1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

**SATB1 Antibody - Protein Information**

Name SATB1 ([HGNC:10541](#))

**Function**

Crucial silencing factor contributing to the initiation of X inactivation mediated by Xist RNA that occurs during embryogenesis and in lymphoma (By similarity). Binds to DNA at special AT-rich sequences, the consensus SATB1-binding sequence (CSBS), at nuclear matrix- or scaffold-associated regions. Thought to recognize the sugar-phosphate structure of double-stranded DNA. Transcriptional repressor controlling nuclear and viral gene expression in a phosphorylated and acetylated status-dependent manner, by binding to matrix attachment regions (MARs) of DNA and inducing a local chromatin-loop remodeling. Acts as a docking site for several chromatin remodeling enzymes (e.g. PML at the MHC-I locus) and also by recruiting corepressors (HDACs) or coactivators (HATs) directly to promoters and enhancers. Modulates genes that are essential in the maturation of the immune T-cell CD8SP from thymocytes. Required for the switching of fetal globin species, and beta- and gamma-globin genes regulation during

erythroid differentiation. Plays a role in chromatin organization and nuclear architecture during apoptosis. Interacts with the unique region (UR) of cytomegalovirus (CMV). Alu-like motifs and SATB1-binding sites provide a unique chromatin context which seems preferentially targeted by the HIV-1 integration machinery. Moreover, HIV-1 Tat may overcome SATB1-mediated repression of IL2 and IL2RA (interleukin) in T-cells by binding to the same domain than HDAC1. Delineates specific epigenetic modifications at target gene loci, directly up-regulating metastasis-associated genes while down-regulating tumor-suppressor genes. Reprograms chromatin organization and the transcription profiles of breast tumors to promote growth and metastasis. Promotes neuronal differentiation of neural stem/progenitor cells in the adult subventricular zone, possibly by positively regulating the expression of NEUROD1 (By similarity).

#### Cellular Location

Nucleus matrix. Nucleus, PML body. Note=Organized into a cage-like network anchoring loops of heterochromatin and tethering specialized DNA sequences (PubMed:12692553). When sumoylated, localized in promyelocytic leukemia nuclear bodies (PML NBs) (PubMed:18408014)

#### Tissue Location

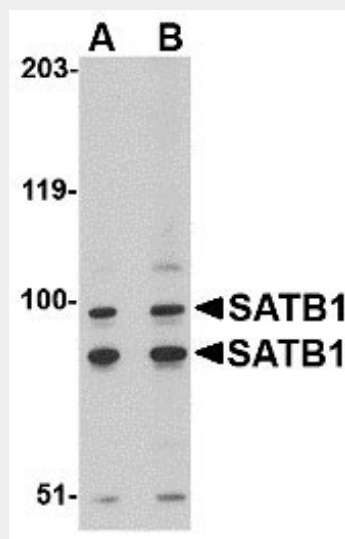
Expressed predominantly in thymus.

#### SATB1 Antibody - Protocols

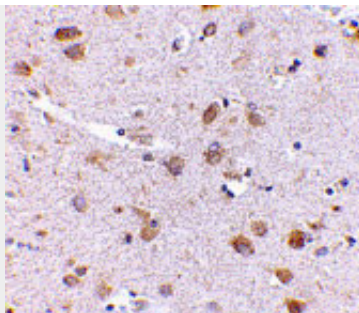
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

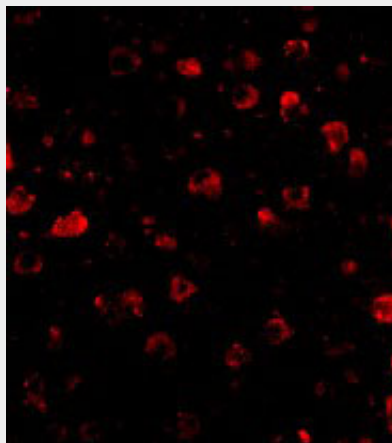
#### SATB1 Antibody - Images



Western blot analysis of SATB1 in A20 cell lysate with SATB1 antibody at (A) 2 and (B) 4 µg/mL.



Immunohistochemistry of SATB1 in human brain with SATB1 antibody at 5 µg/mL.



Immunofluorescence of SATB1 in Human Brain cells with SATB1 antibody at 20 µg/mL.

### **SATB1 Antibody - Background**

**SATB1 Antibody:** Human special AT-rich sequence-binding protein-1 (SATB1) is a nuclear matrix/scaffold-associated region DNA-binding protein, predominantly expressed in the thymus and pre-B cells. Like its homolog SATB2, SATB1 selectively binds double-stranded, special AT-rich DNA sequences in which one strand exclusively consists of well-mixed A, T, and C nucleotides. SATB1 contains a dimerization domain that shares similarity with the PDZ motif, identified as an indispensable element for high-affinity binding of SATB1 to DNA. SATB1 constitutes a functional nuclear architecture that has a 'cage-like' protein distribution surrounding heterochromatin and regulates gene expression through chromatin remodeling/HDAC (histone deacetylase complex) and transcription factors recruitment. SATB1 functions as a 'genome organizer' essential for proper T-cell development. Recent studies show that SATB1 is necessary for breast cancer cells to become metastatic, and when ectopically expressed in non-metastatic cells, can induce invasive activity in vivo. At least two isoforms of SATB1 are known to exist.

### **SATB1 Antibody - References**

Dickinson LA and Kohwi-Shigematsu T. Nucleolin is a matrix attachment region DNA-binding protein that specifically recognizes a region with high base-unpairing potential. *Mol. Cell. Biol.*1995; 15:456-65.

Szemes M, Gyorgy A, Pawaletz C, et al. Isolation and characterization of SATB2, a novel AT-rich DNA binding protein expressed in development- and cell-specific manner in the rat brain. *Neurochem. Res.*2006; 31:237-46.

Purbey PK, Singh S, Kumar PP, et al. PDZ domain-mediated dimerization and homeodomain-directed specificity are required for high-affinity DNA binding by SATB1. *Nucleic Acids Res.*2008; 36:2107-22.

Cai S, Han HJ and Kohwi-Shigematsu T. Tissue-specific nuclear architecture and gene expression regulated by SATB1. *Nat. Genet.*2003; 34:42-50.