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SATB2 Antibody

Catalog # ASC10703

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	Q9UPW6
Other Accession	Q9UPW6, 13634020
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	82555
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	SATB2 antibody can be used for detection of SATB2 by Western blot at 2 - 4 g/mL. Antibody can also be used for immunohistochemistry starting at 5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	23314
Other Names	DNA-binding protein SATB2, Special AT-rich sequence-binding protein 2, SATB2, KIAA1034
Target/Specificity	SATB2; At least two isoforms of SATB2 are known to exist. This SATB2 antibody will not cross-react with SATB1.
Reconstitution & Storage	SATB2 antibody can be stored at 4℃ for three months and -20℃, 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	SATB2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SATB2
Synonyms	KIAA1034
Function	Binds to DNA, at nuclear matrix- or scaffold-associated regions. Thought to recognize the sugar-phosphate structure of double- stranded DNA. Transcription factor controlling nuclear gene expression, 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 and also by recruiting corepressors (HDACs) or coactivators (HATs) directly to

	promoters and enhancers. Required for the initiation of the upper-layer neurons (UL1) specific genetic program and for the inactivation of deep-layer neurons (DL) and UL2 specific genes, probably by modulating BCL11B expression. Repressor of Ctip2 and regulatory determinant of corticocortical connections in the developing cerebral cortex. May play an important role in palate formation. Acts as a molecular node in a transcriptional network regulating skeletal development and osteoblast differentiation.
Cellular Location	Nucleus matrix {ECO:0000255|PROSITE- ProRule:PRU00108, ECO:0000255|PROSITE-ProRule:PRU00374, ECO:0000269|PubMed:14701874}
Tissue Location	High expression in adult brain, moderate expression in fetal brain, and weak expression in adult liver, kidney, and spinal cord and in select brain regions, including amygdala, corpus callosum, caudate nucleus, and hippocampus.

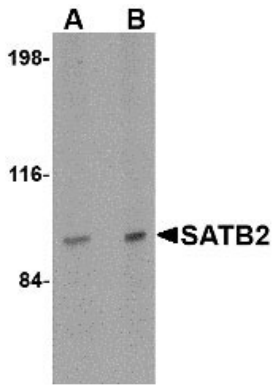
Background

SATB2 Antibody: Human special AT-rich sequence-binding protein-2 (SATB2) is a nuclear matrix/scaffold-associated region DNA-binding protein. Like its homolog SATB1, SATB2 selectively binds double-stranded, special AT-rich DNA sequences, but is expressed primarily in a subset of postmitotic, differentiating neurons in the neocortex. Mice deficient in SATB exhibit craniofacial abnormalities and defects in osteoblast differentiation and function. SATB2 also interacts with and enhances the activity of Runx2 and ATF4, two transcription factors that regulate osteoblast differentiation, indicating that SATB2 acts as a molecular node in a transcriptional network regulating skeletal development and osteoblast differentiation. Recent experiments have shown that SATB2 interacts with histone deacetylase 1 and metastasis-associated protein 2, two proteins that are involved in chromatin remodeling, suggesting that SATB2 may also be involved in mediating epigenetic influences during cortical development.

References

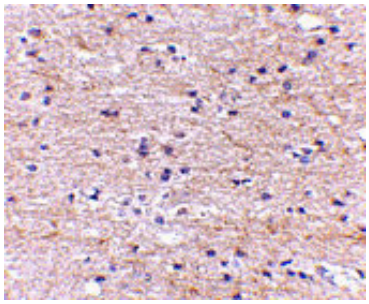
Dickinson LA and Kohwi-Shigematsu T. Nucleolin is a matrix attachment region DNA-binding protein that specifically recognizes a region with high base-unpairing potential. Mol. Cell. Biol.1995; 15:456-65.
Szemes M, Gyorgy A, Pawaletz C, et al. Isolation and characterization of SATB2, a novel AT-rich DNA binding protein expressed in development- and cell-specific manner in the rat brain. Neurochem. Res.2006; 31:237-46.
Dobreva G, Chahour M, Dautzenberg M, et al. SATB2 is a multifunctional determinant of craniofacial patterning and osteoblast differentiation. Cell2006; 125:971-86.
Gyorgy AB, Szemes M, de Jaun Romero C, et al. SATB2 interacts with chromatin-remodeling molecules in differentiating cortical neurons. Eur. J. Neurosci.2008; 27:865-73.

Images

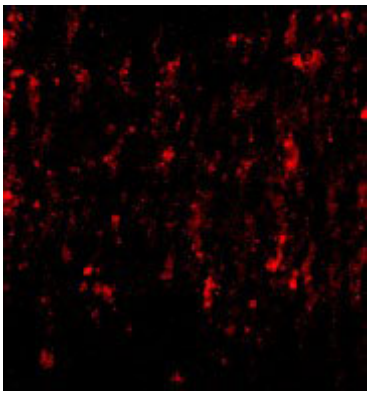


Western blot analysis of SATB2 in mouse brain tissue lysate with SATB2 antibody at (A) 2 and (B) 4 µg/mL.

Immunohistochemistry of SATB2 in human brain with



SATB2 antibody at 5 µg/mL.



Immunofluorescence of SATB2 in Human Brain cells with SATB2 antibody at 20 µg/mL.