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SOX2 Antibody

Purified Mouse Monoclonal Antibody (Mab)
Catalog # AM2048a

Product Information

Application	IF, WB, IHC-P, FC, E
Primary Accession	P48431
Reactivity	Human, Mouse
Predicted	Rat, Bovine, Rabbit, Chicken
Host	Mouse
Clonality	Monoclonal
Isotype	IgG1
Clone Names	57CT23.3.4
Calculated MW	34310

Additional Information

Gene ID	6657
Other Names	Transcription factor SOX-2, SOX2
Target/Specificity	SOX2 recombinant protein is used to produce this monoclonal antibody.
Dilution	IF~~1:10~50 WB~~1:1000 IHC-P~~1:100 FC~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified monoclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein G column, followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	SOX2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SOX2
Function	Transcription factor that forms a trimeric complex with OCT4 on DNA and controls the expression of a number of genes involved in embryonic development such as YES1, FGF4, UTF1 and ZFP206 (By similarity). Binds to the proximal enhancer region of NANOG (By similarity). Critical for early embryogenesis and for embryonic stem cell pluripotency (PubMed:18035408). Downstream SRRT target that mediates the promotion of

	neural stem cell self-renewal (By similarity). Keeps neural cells undifferentiated by counteracting the activity of proneural proteins and suppresses neuronal differentiation (By similarity). May function as a switch in neuronal development (By similarity).
Cellular Location	Nucleus speckle {ECO:0000250|UniProtKB:Q05066}. Cytoplasm {ECO:0000250|UniProtKB:Q05738}. Nucleus {ECO:0000250|UniProtKB:Q05738}. Note=Acetylation contributes to its nuclear localization and deacetylation by HDAC3 induces a cytoplasmic delocalization (By similarity). Colocalizes in the nucleus with ZNF208 isoform KRAB-O and tyrosine hydroxylase (TH) (By similarity) Colocalizes with SOX6 in speckles. Colocalizes with CAML in the nucleus (By similarity). Nuclear import is facilitated by XPO4, a protein that usually acts as a nuclear export signal receptor (By similarity) {ECO:0000250|UniProtKB:Q05066, ECO:0000250|UniProtKB:Q05738}

Background

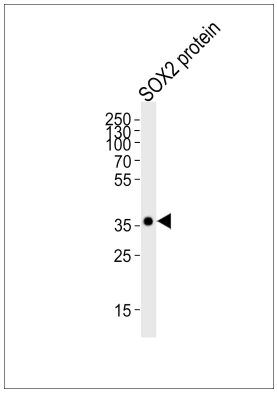
This intronless gene encodes a member of the SRY-related HMG-box (SOX) family of transcription factors involved in the regulation of embryonic development and in the determination of cell fate. The product of this gene is required for stem-cell maintenance in the central nervous system, and also regulates gene expression in the stomach. Mutations in this gene have been associated with optic nerve hypoplasia and with syndromic microphthalmia, a severe form of structural eye malformation. This gene lies within an intron of another gene called SOX2 overlapping transcript (SOX2OT).

References

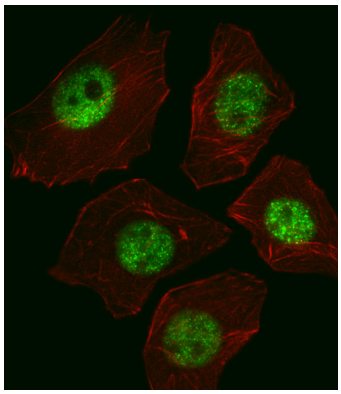
References for protein:
1.Effects of MCF2L2, ADIPOQ and SOX2 genetic polymorphisms on the development of nephropathy in type 1 Diabetes Mellitus. Zhang D, et al. BMC Med Genet, 2010 Jul 28. PMID 20667095.
2.Sox2 protein expression is an independent poor prognostic indicator in stage I lung adenocarcinoma. Sholl LM, et al. Am J Surg Pathol, 2010 Aug. PMID 20631605.
3.Sox2 is translationally activated by eukaryotic initiation factor 4E in human glioma-initiating cells. Ge Y, et al. Biochem Biophys Res Commun, 2010 Jul 9. PMID 20537983.
4.Mutational screening of CHX10, GDF6, OTX2, RAX and SOX2 genes in 50 unrelated microphthalmia-anophthalmia-coloboma (MAC) spectrum cases. Gonzalez-Rodriguez J, et al. Br J Ophthalmol, 2010 Aug. PMID 20494911.
4.Examination of SOX2 in variable ocular conditions identifies a recurrent deletion in microphthalmia and lack of mutations in other phenotypes. Reis LM, et al. Mol Vis, 2010 Apr 28. PMID 20454695.
References for SY5Y (SH-SY5Y; ATCC#CRL-2266): 1. Ross RA, et al. Coordinate morphological and biochemical interconversion of human neuroblastoma cells. J. Natl. Cancer Inst. 71: 741-749, 1983. [PubMed: 6137586];
2. Biedler JL, et al. Multiple neurotransmitter synthesis by human neuroblastoma cell lines and clones. Cancer Res. 38: 3751-3757, 1978. [PubMed: 29704].
References for MCF7 cell line:
1.Soule, HD; Vazquez J; Long A; Albert S; Brennan M. (1973). "A human cell line from a pleural effusion derived from a breast carcinoma". Journal of the National Cancer Institute 51 (5): 1409–1416. [PMID 4357757].
2.Levenson, AS; Jordan VC. (1997). "MCF-7: the first hormone-responsive breast cancer cell line". Cancer Research 57 (15): 3071–3078. [PMID 9242427].
3.Lacroix, M; Leclercq G. (2004). "Relevance of breast cancer cell lines as models for breast tumours: an update". Breast Research and Treatment 83 (3): 249–289.[PMID 14758095].

Images

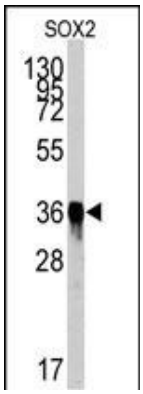
Western blot analysis of lysate from SOX2 protein, using



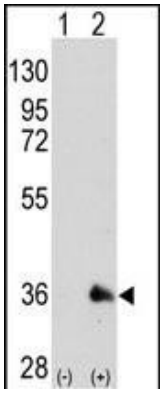
SOX2 Antibody(Cat. #AM2048a). AM2048a was diluted at 1:4000. A goat anti-mouse IgG H&L(HRP) at 1:3000 dilution was used as the secondary antibody. Lysate at 20µg.



Fluorescent image of A549 cell stained with SOX2 Antibody(Cat#AM2048a/SG110310AA).A549 cells were fixed with 4% PFA (20 min), permeabilized with Triton X-100 (0.1%, 10 min), then incubated with SOX2 primary antibody (1:25, 1 h at 37℃. For secondary antibody, Alexa Fluor® 488 conjugated donkey anti-mouse antibody (green) was used (1:400, 50 min at 37℃.Cytoplasmic actin was counterstained with Alexa Fluor® 555 (red) conjugated Phalloidin (7units/ml, 1 h at 37℃.SOX2 immunoreactivity is localized to Nucleus significantly.

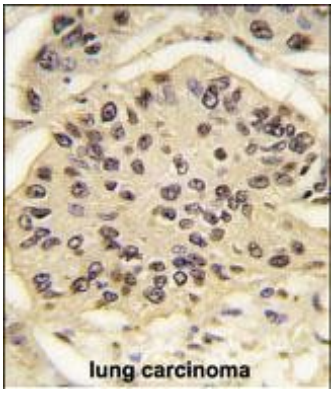


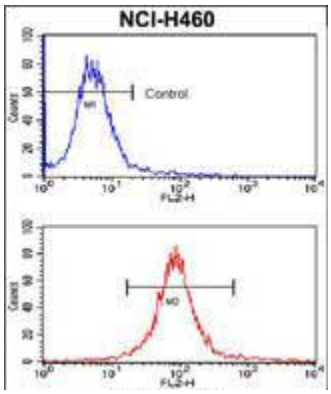
Western blot analysis of SOX2 Antibody (Cat.#AM2048a) by SOX2 recombinant protein. SOX2(arrow) was detected using the purified Mab.



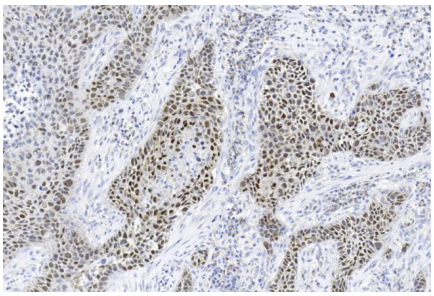
Western blot analysis of SOX2 (arrow) using mouse monoclonal SOX2 antibody (Cat.#AM2048a). 293 cell lysates (2 µg/lane) either nontransfected (Lane 1) or transiently transfected with the SOX2 gene (Lane 2) (Origene Technologies)

Formalin-fixed and paraffin-embedded human lung carcinoma tissue reacted with SOX2 Antibody (Cat.#AM2048a), which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.

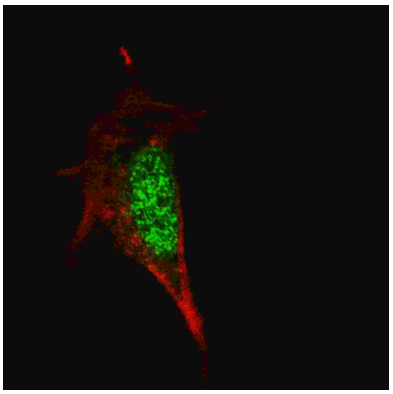




Flow cytometric analysis of NCI-H460 cells using SOX2 Monoclonal Antibody (bottom histogram) compared to a negative control cell (top histogram). PE-conjugated goat-anti-mouse secondary antibodies were used for the analysis.



Immunohistochemical analysis of paraffin-embedded Human Lung squamous cell carcinoma section using Pink1(Cat#am2048a). am2048a was diluted at 1:100 dilution. A undiluted biotinylated goat polyvalent antibody was used as the secondary, followed by DAB staining.



Fluorescent confocal image of SY5Y cells stained with SOX2 antibody. SY5Y cells were fixed with 4% PFA (20 min), permeabilized with Triton X-100 (0.2%, 30 min). Cells were then incubated with AM2048a SOX2 primary antibody (1:100, 2 h at room temperature). For secondary antibody, Alexa Fluor® 488 conjugated donkey anti-mouse antibody (green) was used (1:1000, 1h). Note the highly specific localization of the SOX2 mainly to the nucleus.

Citations

- Generation of pancreatic β cells from CD177 anterior definitive endoderm
- Targeting the Sonic Hedgehog Pathway to Suppress the Expression of the Cancer Stem Cell (CSC)-Related Transcription Factors and CSC-Driven Thyroid Tumor Growth
- Hyperthermia depletes Oct4 in mouse blastocysts and stem cells
- Generation of four induced pluripotent stem cell lines, GZWWTi001-A, GZWTZi001-A, GZWXYi001-A, and GZWXDi001-A, derived from peripheral blood mononuclear cells from a family with asparagine synthetase deficiency
- ROCK Inhibition Facilitates In Vitro Expansion of Glioblastoma Stem-Like Cells.
- CRISPR/Cas9 targeted deletion of polyglutamine in spinocerebellar ataxia type 3 derived induced pluripotent stem cells.
- Physiological genomics identifies genetic modifiers of long QT syndrome type 2 severity.

- Generation of GZKHQi001-A and GZWWTi001-A, two induced pluripotent stem cell lines derived from peripheral blood mononuclear cells of Duchenne muscular dystrophy patients.
- Generation of integration-free induced pluripotent stem cells (GZHMUi001-A) by reprogramming peripheral blood mononuclear cells from a 47, XXX syndrome patient.
- Melatonin Inhibits Glioblastoma Stem-like cells through Suppression of EZH2-NOTCH1 Signaling Axis.
- Brother of the regulator of the imprinted site (BORIS) variant subfamily 6 is a novel target of lung cancer stem-like cell immunotherapy.
- BCOR Internal Tandem Duplication Expression in Neural Stem Cells Promotes Growth, Invasion, and Expression of PRC2 Targets

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