Sox2

Mouse Monoclonal

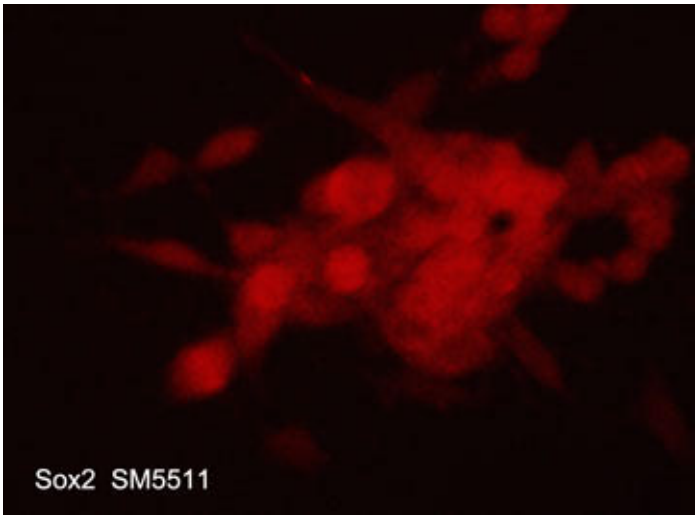
Cat. # SM5511
Size 100 µl

Background

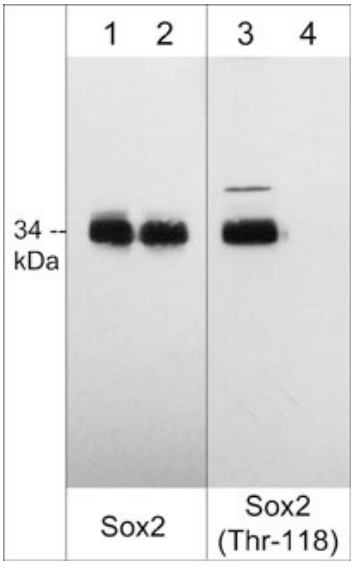
Embryonic stem cells can maintain a pluripotent state that is controlled by a set of transcription factors that include Oct-4, Sox2, and Nanog. Chromatin immunoprecipitation experiments show that Sox2 and Oct-4 bind to thousands of gene regulatory sites, many of which regulate cell pluripotency and early embryonic development. siRNA knockdown of either Sox2 or Oct-4 results in loss of pluripotency, while overexpression of Oct-4 and Sox2, along with additional transcription factors Klf4 and c-Myc, can reprogram somatic cells to a pluripotent state. Sox2 also regulates adult multipotent progenitors in various epithelial tissues, and may be important for survival and regeneration of these tissues. The activity of Sox2 may be regulated by phosphorylation and methylation. Akt1 phosphorylates Thr-118 and enhances Sox2 transcriptional activity, while Set7 can monomethylate Lys-119 leading to inhibition of Sox2 transcriptional activity, as well as Sox2 ubiquination and degradation. In addition, Sox2 Thr-128 is constituitively phoshorylated in the F9 mouse stem cell line.

Background References

Boyer, L.A. et al. (2005) Cell. 122:947.
Loh, Y.H. et al. (2006) Nat Genet. 38:431.
Jeong, C.H. et al. (2010) Stem Cells. 28(12):2141.
Fang, L.. et al. (2014) Mol Cell. 55(4):537.



Immunocytochemical labeling of Sox2 in aldehyde fixed and NP-40 permeabilized human NCI-H446 lung carcinoma cells. The cells were labeled with mouse monoclonal anti-Sox2 (SM5511). The antibody was detected using goat anti-mouse DyLight® 594.



Western blot image of mouse F9 stem cells treated with with calyculin A (100 nM, 30 min.) (lanes 1-4) then Sox2 was dephosphorylated with lambda phosphatase (lanes 2 & 4). The blot was probed with mouse monoclonal Sox2 (lanes 1 & 2) and rabbit polyclonal anti-Sox2 (Thr-118) phospho-specific antibody (lanes 3 & 4).

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Immunogen

Uniprot ID: P48431

Clone M551 was generated from a recombinant protein corresponding to the full length sequence from human Sox2. This sequence is highly conserved in rat and mouse Sox2.

Buffer and Storage

Mouse monoclonal purified with protein G chromatography is supplied in 100µl phosphate-buffered saline, 50% glycerol, 1 mg/ml BSA, and 0.05% sodium azide. Store at –20°C. Stable for 1 year.

Applications

WB	1:500
ELISA	1:2000
ICC	1:50

Species Reactivity

Hu, Rt, Ms, Ck, F

Isotype: IgG2b

End user should determine optimal dilution for their particular applications and experiments.
Western blot membranes were incubated with diluted antibody in 5% non-fat milk, Tris buffer, 0.04% Tween20 for 1 hour at room temperature.
Abbreviations: E = ELISA, ICC = immunocytochemistry, IHC = immunohistochemistry, IP = immunoprecipitation, MS = mass spectrometry, WB = western blot
Hu = Human, Ms = Mouse, Rt = Rat, Ck = Chicken, F = Frog, B = Bovine

Specificity

The antibody was purified by Protein G chromatography. This antibody antibody detects a 34 kDa* protein on SDS-PAGE immunoblots of mouse F9 stem cells, and detects a full length recombinant human Sox2 protein.

*All molecular weights (MW) are confirmed by comparison to MW standards and to western blot mobilities of known proteins with similar MW.
"Native" western blot utilizes non-reducing sample buffer (no mercaptoethanol or SDS), normal SDS-PAGE gel electrophoresis, and no methanol in transfer buffers.

Related Products

SP5521 Sox2 (Thr-118), phospho-specific Rabbit Polyclonal
SP5531 Sox2 (Lys-119), methyl-specific Rabbit Polyclonal
SP0381 Sox2 (Thr-128), phospho-specific Rabbit Polyclonal
AM1141 Akt (Ser-473), phospho-specific Mouse Monoclonal
HP5551 Histone H4 (Tyr-72), phospho-specific Rabbit Polyclonal
HP4331 Histone H2B (Ser-36), phospho-specific Rabbit Polyclonal

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