## Anti-SOX2 antibody ab97959

**Product name**  
Anti-SOX2 antibody

**Description**  
Rabbit polyclonal to SOX2

**Host species**  
Rabbit

**Tested applications**  
Suitable for: IHC-P, ICC/IF, IP, WB, IHC - Wholemount, IHC-Fr

**Species reactivity**  
Reacts with: Mouse, Rat, Horse, Chicken, Human, Pig, Xenopus laevis, Zebrafish, Quail, Rainbow trout, Spotted catshark, Thornback ray

**Predicted to work with:** Sheep, Cow, Rhesus monkey

**Immunogen**  
Synthetic peptide corresponding to Human SOX2 aa 300 to the C-terminus conjugated to keyhole limpet haemocyanin.  
(Peptide available as ab97974)

**Positive control**  
ICC/IF: NCCIT, NIH/3T3, mouse embryonic stem cells. IHC-P: Mouse E13 spinal cord, zebrafish developing retina, chicken E7 brain, quail developing retina - E9, spotted catshark (Eye, staining of proliferating cell nuclei), rat brain. WB: NCCIT whole cell lysate, F9 whole cell lysate, MCF7 whole cell lysate, C6 whole cell lysate, rat hippocampus tissue lysate, rat spinal cord tissue lysate, IOUD2 whole cell lysate, HUES7 whole cell lysate. IHC -Wholemount: Xenopus laevis embryo, mouse embryo. IP: ES cells

**General notes**

**Properties**

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<td>Storage instructions</td>
<td>Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C or -80°C. Avoid freeze / thaw cycle.</td>
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| Storage buffer     | pH: 7.40  
Preservative: 0.02% Sodium azide  
Constituent: PBS |

Batches of this product that have a concentration < 1 mg/ml may have BSA added as a stabilizing agent. If you would like information about the formulation of a specific lot, please contact our Scientific Support Team who will be happy to help.

**Purity**  
Immunogen affinity purified
Clonality  
Polyclonal  
Isotype  
IgG  

Applications

Our Abpromise guarantee covers the use of ab97959 in the following tested applications.
The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

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Use a concentration of 1 µg/ml. |
| ICC/IF      | ⭐⭐⭐⭐⭐    | Use a concentration of 1 µg/ml.  
We recommend Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody. |
| IP          | ⭐⭐⭐⭐⭐    | Use at an assay dependent concentration. |
| WB          | ⭐⭐⭐⭐⭐    | Use a concentration of 1 µg/ml. Detects a band of approximately 34,40 kDa (predicted molecular weight: 34 kDa).  
Recombinant Human SOX2 protein (ab80520) can be used as a positive control in WB. |
| IHC - Wholemount | ⭐⭐⭐⭐⭐    | 1/200. |
| IHC-Fr      | ⭐⭐⭐⭐⭐    | Use at an assay dependent concentration. |

Target

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). Critical for early embryogenesis and for embryonic stem cell pluripotency.

Involvement in disease  
Defects in SOX2 are the cause of microphthalmia syndromic type 3 (MCOPS3) [MIM:206900]. Microphthalmia is a clinically heterogeneous disorder of eye formation, ranging from small size of a single eye to complete bilateral absence of ocular tissues (anophthalmia). In many cases, microphthalmia/anophthalmia occurs in association with syndromes that include non-ocular abnormalities. MCOPS3 is characterized by the rare association of malformations including unil- or bilateral anophthalmia or microphthalmia, and esophageal atresia with tracheoesophageal fistula.

Sequence similarities  
Contains 1 HMG box DNA-binding domain.

Post-translational modifications  
Sumoylation inhibits binding on DNA and negatively regulates the FGF4 transactivation.

Cellular localization  
Nucleus.

Images
Cell line: NCCIT (human pluripotent embryonal carcinoma)

Target AbID: Ab97959 anti-Sox2, Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody was used.

Counterstain AbID: Ab7291 anti-Tubulin (Rabbit mAb), 97959

Fixative: 4% PFA

Permeabilisation: 0.1% Triton-X

Nuclear counter stain: DAPI

Comments: Confocal image showing negative staining on NCCIT cells

Target primary antibody dilution: 1:500

Target secondary antibody dilution: 1:1000 (2ug/mL)

Counterstain primary antibody dilution: 1:1000 (1ug/mL)

Counterstain secondary antibody dilution: 1:1000 (2ug/mL)

Negative control 1 primary antibody dilution: 1:500 (Ab97959)

Negative control 1 secondary antibody dilution: 1:1000 (2ug/mL) (Ab150120)

Negative control 2 primary antibody dilution: 1:1000 (1ug/mL) (Ab7291)

Negative control 2 secondary antibody dilution: 1:1000 (2ug/mL) (Ab150077)

IHC-P image of SOX2 (ab97959) on E13 mouse spinal cord sections. The sections were fixed in formaldehyde and underwent heat mediated antigen retrieval using citric acid (pH 6). The sections were then blocked in 1% BSA solution for 10 mins at 21°C.
Western blot - Anti-SOX2 antibody (ab97959)

All lanes: Anti-SOX2 antibody (ab97959) at 1 µg

Lane 1: NCCIT (Human embryonic carcinoma cell line) Whole Cell Lysate
Lane 2: F9 (Mouse embryonic carcinoma cell line) Whole Cell Lysate
Lane 3: MCF7 (Human breast adenocarcinoma cell line) Whole Cell Lysate
Lane 4: C6 (Rat glioma cell line) Whole Cell Lysate
Lane 5: Hippocampus (Rat) Tissue Lysate
Lane 6: Spinal Cord (Rat) Tissue Lysate

Lysates/proteins at 10 µg per lane.

Secondary

All lanes: Blots were developed with goat anti-rabbit IgG (H+L) and goat anti-mouse IgG (H+L) secondary antibodies at 1/10,000 dilution for 1 h at room temperature before imaging.

Performed under reducing conditions.

Predicted band size: 34 kDa
Observed band size: 40 kDa
why is the actual band size different from the predicted?

Green signal from target - ab97959 observed at 40 kDa
Red signal from loading control ab9484 (GAPDH) observed at 37 kDa

IHC - Wholemount of *Xenopus laevis* embryo labelling SOX2 with ab97959. Sample was incubated with primary antibody (1/250) for 12 hours at 4°C. An Alkaline Phosphatase-conjugated mouse anti-rabbit IgG monoclonal (1/1000) was used as the secondary antibody.
Incubation time: 16 hours. Temperature: 4°C. Diluent: 50 mM Tris, 150 mM NaCl. Immuno-precipitation step: Covalently coupled to protein G beads. 1 µg of ab97959 was used per 50 µl of protein G beads suspension. Treatment: DMSO or GlcNAcstatin C (Oga inhibitor) for 24h. Total protein in input: 100 µg.

**All lanes:** Anti-SOX2 antibody (ab97959) at 1/1000 dilution

- **Lane 1:** ES cells + DMSO (0.01%)
- **Lane 2:** ES cells + Oga inhibitor (GlcNAcstatin C, 1uM)
- **Lane 3:** Differentiated ES cells + DMSO (0.01%)
- **Lane 4:** Differentiated ES cells + Oga inhibitor (GlcNAcstatin C, 1uM)
- **Lane 5:** ES cells + Oga inhibitor (GlcNAcstatin C, 1uM), Mock IP

Cell line: NIH/3T3 (mouse embryonic fibroblast cell line)

Target AbID: Ab97959 anti-Sox2, used Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody

Counterstain AbID: Ab7291 anti-Tubulin (Rabbit mAb), Ab150120 AlexaFluor®594 Goat anti-Mouse secondary

Fixative: 4% PFA

Permeabilisation: 0.1% Triton-X

Nuclear counter stain: DAPI

Comments: Confocal image showing negative staining on NIH/3T3 cells

Target primary antibody dilution: 1:500

Target secondary antibody dilution: 1:1000 (2ug/mL)

Counterstain primary antibody dilution: 1:1000 (1ug/mL)

Counterstain secondary antibody dilution: 1:1000 (2ug/mL)

Negative control 1 primary antibody dilution: 1:500 (Ab97959)

Negative control 1 secondary antibody dilution: 1:1000 (2ug/mL) (Ab150120)

Negative control 2 primary antibody dilution: 1:1000 (1ug/mL) (Ab7291)

Negative control 2 secondary antibody dilution: 1:1000 (2ug/mL) (Ab150077)
ICC/IF analysis of dissociated induced pluripotent stem cells from mouse embryonic fibroblasts stained for SOX-2 (Red) using ab97959. TOPRO (purple). Scale bar=100 μm

ICC/IF image of ab97959 stained mouse embryonic stem cells. The cells were 4% formaldehyde fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab97959, 1μg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-rabbit IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43μM.
IHC-P image of SOX2 (ab97959) on zebrafish developing retina sections. The sections were fixed in formaldehyde and underwent heat mediated antigen retrieval using citric acid (pH 6). The sections were then blocked in 1% BSA solution for 10 mins at 21°C. The upper section used Abcam's EXPOSE HRP-DAB polyvalent kit (ab80436). The lower section was immunostained using stABCpx-DAB method.

IHC-P image of SOX2 (ab97959) on E7 chicken brain sections. The sections were fixed in formaldehyde and underwent heat mediated antigen retrieval using citric acid (pH 6). The sections were then blocked in 1% BSA solution for 10 mins at 21°C. The upper section used Abcam's EXPOSE HRP-DAB polyvalent kit (ab80436). The lower section was immunostained using stABCpx-DAB method.
IHC-P image of SOX2 (ab97959) on E9 quail developing retina sections. The sections were fixed in formaldehyde and underwent heat mediated antigen retrieval using citric acid (pH 6). The sections were then blocked in 1% BSA solution for 10 mins at 21°C.

ab97959 staining SOX2 in spotted catshark (Scyliorhinus canicula) eye tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections).

Tissue was fixed with paraformaldehyde and antigen retrieval was by heat mediation in citrate buffer. Samples were incubated with primary antibody (1/500 in TBS + 1% BSA) for 12 hours at 4°C. An HRP-conjugated goat anti-rabbit polyclonal IgG (1/200) was used as the secondary antibody.

IHC-P image of SOX2 (ab97959) on adult rat brain sections. The sections were fixed in formaldehyde and underwent heat mediated antigen retrieval using citric acid (pH 6). The sections were then blocked in 1% BSA solution for 10 mins at 21°C. Upper image using EXPOSE HRP-DAB polyvalent kit (ab80436) shows strong, clear immunostaining of many nuclei in the subventricular region of the lateral ventricle (double-red arrowhead) and also of the ependymal cells lining the ventricle (black arrowheads). Direction of migration indicated by green arrows.
IHC: Wholemount image of anti-Sox2 antibody (ab97959) staining on a mouse embryo. This embryo was stained with anti-Sox2 antibody (green) for 48 hours at 4°C. Nuclei stained with DAPI (grey).

**Western blot**:

**All lanes**: Anti-SOX2 antibody (ab97959) at 1 µg/ml

**Lane 1**: IOUD2 (Mouse embryonic stem cell) Whole Cell Lysate

**Lane 2**: HUES7 (Human embryonic stem cell line) Whole Cell Lysate

Lysates/proteins at 10 µg per lane.

**Secondary**

**All lanes**: Goat polyclonal to Rabbit IgG - H&L - Pre-Adsorbed (HRP) at 1/3000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

**Predicted band size**: 34 kDa

**Observed band size**: 43 kDa. Why is the actual band size different from the predicted?

**Additional bands at**: 37 kDa, 39 kDa. We are unsure as to the identity of these extra bands.

**Exposure time**: 3 minutes

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