Anti-Sp7 / Osterix Antibody [PSH07-29]

HA722817

Product Type:	Recombinant Rabbit monoclonal IgG, primary antibodies
Species reactivity:	Human, Mouse, Rat
Applications:	WB, IHC-P, IF-Tissue, IHC-Fr
Molecular Wt:	Predicted band size: 45 kDa
Clone number:	PSH07-29

Description: Transcription factor Sp7, also called osterix (Osx), is a protein that in humans is encoded by the SP7 gene. It is a member of the Sp family of zinc-finger transcription factors It is highly conserved among bone-forming vertebrate species. It plays a major role, along with Runx2 and Dlx5 in driving the differentiation of mesenchymal precursor cells into osteoblasts and eventually osteocytes. Sp7 also plays a regulatory role by inhibiting chondrocyte differentiation maintaining the balance between differentiation of mesenchymal precursor cells into ossified bone or cartilage. Mutations of this gene have been associated with multiple dysfunctional bone phenotypes in vertebrates. During development, a mouse embryo model with Sp7 expression knocked out had no formation of bone tissue. Through the use of GWAS studies, the Sp7 locus in humans has been strongly associated with bone mass density. In addition there is significant genetic evidence for its role in diseases such as Osteogenesis imperfecta (OI).

Immunogen: Recombinant protein within human Sp7 aa 1-300.

Positive control: Saos-2 cell lysates, human osteosarcoma tissue, mouse embryo tissue, rat embryo tissue, E14.5 mouse embryo tissue.

Subcellular location: Nucleus.

Database links: SwissProt: Q8TDD2 Human | Q8VI67 Mouse
Entrez Gene: 300260 Rat

Recommended Dilutions:

WB	1:2,000
IHC-P	1:200-1:1,000
IF-Tissue	1:500
IHC-Fr	1:200

Storage Buffer: PBS (pH7.4), 0.1% BSA, 40% Glycerol. Preservative: 0.05% Sodium Azide.

Storage Instruction: Store at +4℃ after thawing. Aliquot store at -20℃. Avoid repeated freeze / thaw cycles.

Purity: Protein A affinity purified.

Images

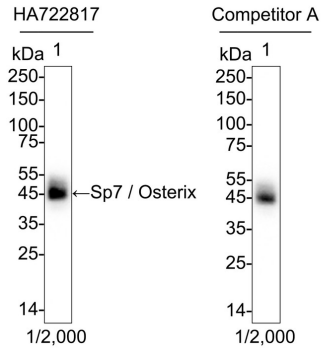

Fig1: Western blot analysis of Sp7 / Osterix on Saos-2 cell lysates (30 µg/Lane) with Rabbit anti-Sp7 / Osterix antibody (HA722817) at 1/2,000 dilution and competitor's antibody at 1/2,000 dilution.

Predicted band size: 45 kDa
Observed band size: 45 kDa

Exposure time: 10 seconds; ECL: K1801;
4-20% SDS-PAGE gel.

Proteins were transferred to a PVDF membrane and blocked with 5% NFDM/TBST for 1 hour at room temperature. The primary antibody (HA722817) at 1/2,000 dilution and competitor's antibody at 1/2,000 dilution were used in 5% NFDM/TBST at 4℃ overnight. Goat Anti-Rabbit IgG - HRP Secondary Antibody (HA1001) at 1/50,000 dilution was used for 1 hour at room temperature.

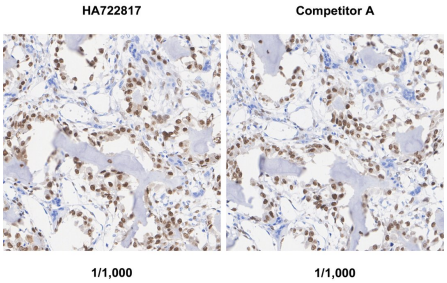

Fig2: Immunohistochemical analysis of paraffin-embedded human osteosarcoma tissue with Rabbit anti-Sp7 / Osterix antibody (HA722817) at 1/1,000 dilution and competitor's antibody at 1/1,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0) for 2 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (HA722817) at 1/1,000 dilution and competitor's antibody at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

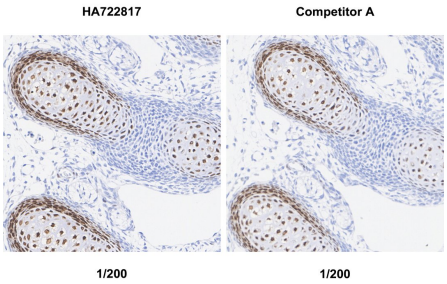

Fig3: Immunohistochemical analysis of paraffin-embedded mouse embryo tissue with Rabbit anti-Sp7 / Osterix antibody (HA722817) at 1/200 dilution and competitor's antibody at 1/200 dilution.

The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0) for 2 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (HA722817) at 1/200 dilution and competitor's antibody at 1/200 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

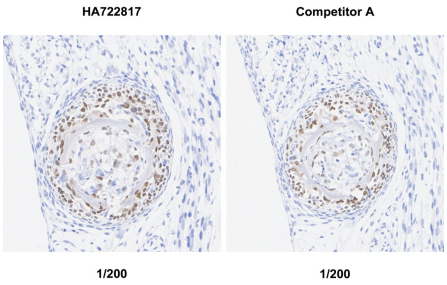

Fig4: Immunohistochemical analysis of paraffin-embedded rat embryo tissue with Rabbit anti-Sp7 / Osterix antibody (HA722817) at 1/200 dilution and competitor's antibody at 1/200 dilution.

The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0) for 2 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (HA722817) at 1/200 dilution and competitor's antibody at 1/200 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

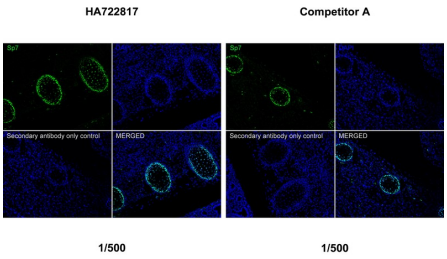

Fig5: Immunofluorescence analysis of paraffin-embedded E14.5 mouse embryo tissue labeling Sp7 / Osterix with Rabbit anti-Sp7 / Osterix antibody (HA722817) at 1/500 dilution and competitor's antibody at 1/500 dilution.

The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0) for 2 minutes. The tissues were blocked in 10% negative goat serum for 1 hour at room temperature, washed with PBS, and then probed with the primary antibody (HA722817, green) at 1/500 dilution and competitor's antibody at 1/500 dilution overnight at 4 ℃, washed with PBS. Goat Anti-Rabbit IgG H&L (iFluor™ 488, HA1121) was used as the secondary antibody at 1/1,000 dilution. Nuclei were counterstained with DAPI (blue).

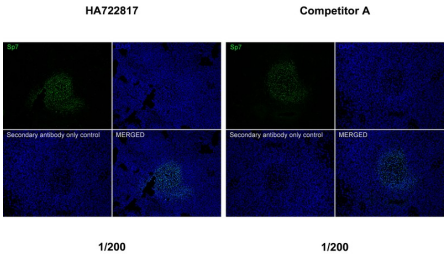

Fig6: Immunofluorescence analysis of frozen E14.5 mouse embryo tissue with Rabbit anti-Sp7 / Osterix antibody (HA722817) at 1/200 dilution and competitor's antibody at 1/200 dilution.

The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0) for about 2 minutes in microwave oven. The tissues were blocked in 10% negative goat serum for 1 hour at room temperature, washed with PBS, and then probed with the primary antibody (HA722817, green) at 1/200 dilution and competitor's antibody at 1/200 dilution overnight at 4 ℃, washed with PBS. Goat Anti-Rabbit IgG H&L (iFluor™ 488, HA1121) was used as the secondary antibody at 1/1,000 dilution. Nuclei were counterstained with DAPI (blue).

Background References

1. Wang JS et al. SP7: from Bone Development to Skeletal Disease. Curr Osteoporos Rep. 2023 Apr
2. Hojo H et al. Sp7 Action in the Skeleton: Its Mode of Action, Functions, and Relevance to Skeletal Diseases. Int J Mol Sci. 2022 May