

OTX1 (3A5): sc-517000

BACKGROUND

Transcription factors OTX1 and OTX2, two murine homologs of the *Drosophila* orthodenticle (OTD), show a limited amino acid sequence divergence. OTX1 and OTX2 play an important role during early and later events required for proper brain development in that they are involved in the processes of induction, specification and regionalization of the brain. OTX1 is involved in corticogenesis, sensory organ development and pituitary functions, while OTX2 is necessary earlier in development for the correct anterior neural plate specification and organization of the primitive streak. OTX2 is also required in the early specification of the neuroectoderm, which is destined to become the fore-midbrain, and both OTX1 and OTX2 co-operate in patterning the developing brain through a dosage-dependent mechanism. A molecular mechanism depending on a precise threshold of OTX proteins is necessary for the correct positioning of the isthmus region and for anterior brain patterning. The genes which encode OTX1 and OTX2 map to human chromosomes 2p15 and 14q22.3, respectively.

REFERENCES

1. Kastury, K., et al. 1994. Chromosome locations of human EMX and OTX genes. *Genomics* 22: 41-45.
2. Acampora, D., et al. 1999. OTX genes in corticogenesis and brain development. *Cereb. Cortex* 9: 533-542.
3. Acampora, D., et al. 1999. The TINS lecture. Understanding the roles of OTX1 and OTX2 in the control of brain morphogenesis. *Trends Neurosci.* 22: 116-122.
4. Acampora, D., et al. 1999. OTX genes and the genetic control of brain morphogenesis. *Mol. Cell. Neurosci.* 13: 1-8.
5. Suda, Y., et al. 1999. Functional equivalency between OTX2 and OTX1 in development of the rostral head. *Development* 126: 743-757.
6. Acampora, D., et al. 1999. Differential transcriptional control as the major molecular event in generating OTX1^{-/-} and OTX2^{-/-} divergent phenotypes. *Development* 126: 1417-1426.
7. Morsli, H., et al. 1999. OTX1 and OTX2 activities are required for the normal development of the mouse inner ear. *Development* 126: 2335-2343.

CHROMOSOMAL LOCATION

Genetic locus: OTX1 (human) mapping to 2p15; Otx1 (mouse) mapping to 11 A3.2.

SOURCE

OTX1 (3A5) is a mouse monoclonal antibody raised against amino acids 10-116 representing partial length OTX1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

OTX1 (3A5) is recommended for detection of OTX1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

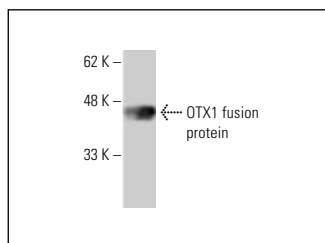
Suitable for use as control antibody for OTX1 siRNA (h): sc-38739, OTX1 siRNA (m): sc-38740, OTX1 shRNA Plasmid (h): sc-38739-SH, OTX1 shRNA Plasmid (m): sc-38740-SH, OTX1 shRNA (h) Lentiviral Particles: sc-38739-V and OTX1 shRNA (m) Lentiviral Particles: sc-38740-V.

Molecular Weight of OTX1: 37 kDa.

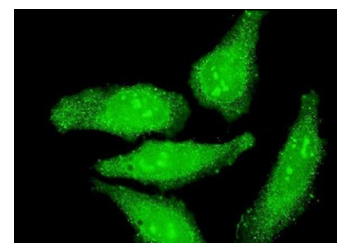
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



OTX1 (3A5): sc-517000. Western blot analysis of human recombinant OTX1 fusion protein.



OTX1 (3A5): sc-517000. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Qin, S.C., et al. 2018. Downregulation of OTX1 attenuates gastric cancer cell proliferation, migration and invasion. *Oncol. Rep.* 40: 1907-1916.
2. Wu, J., et al. 2020. Long non-coding RNA HNF1A-AS1 upregulates OTX1 to enhance angiogenesis in colon cancer via the binding of transcription factor PBX3. *Exp. Cell Res.* 393: 112025.
3. Zhou, L., et al. 2022. OTX1 promotes tumorigenesis and progression of cervical cancer by regulating the Wnt signaling pathway. *Oncol. Rep.* 48: 204.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.