SANTA CRUZ BIOTECHNOLOGY, INC.

OLIG1 (A-2): sc-373679

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The oligodendrocyte lineage-specific basic helix-loop-helix (OLIG) family of transcription factors include OLIG1-OLIG3, which differ in tissue expression. OLIG1 and OLIG2 are specifically expressed in nervous tissue as gene regulators of oligodendrogenesis. OLIG2 is more widely expressed in embryonic brain than OLIG1, while OLIG3 is primarily expressed in non-neural tissues. OLIG1 and OLIG2 interact with the Nkx-2.2 homeodomain protein, which is responsible for directing ventral neuronal patterning in response to graded sonic hedgehog signaling in the embryonic neural tube. These interactions between OLIG proteins and Nkx-2.2 appear to promote the formation of alternate cell types by inhibiting V3 interneuron development. OLIG1 and OLIG2 are abundantly expressed in oligodendroglioma and nearly absent in astrocytomas. Therefore, OLIG proteins are candidates for molecular markers of human glial brain tumors, which are the most common primary malignancies of the human brain.

REFERENCES

1. Briscoe, J., et al. 1999. Homeobox gene Nkx2.2 and specification of neuronal identity by graded Sonic hedgehog signalling. Nature 398: 622-627.
2. Zhou, Q., et al. 2000. Identification of a novel family of oligodendrocyte lineage-specific basic helix-loop-helix transcription factors. Neuron 25: 331-343.
3. Takebayashi, H., et al. 2000. Dynamic expression of basic helix-loop-helix OLIG family members: implication of OLIG2 in neuron and oligodendrocyte differentiation and identification of a new member, OLIG3. Mech. Dev. 99: 143-148.
4. Sun, T., et al. 2001. OLIG bHLH proteins interact with homeodomain proteins to regulate cell fate acquisition in progenitors of the ventral neural tube. Curr. Biol. 11: 1413-1420.
5. Lu, Q.R., et al. 2001. Oligodendrocyte lineage genes (OLIG) as molecular markers for human glial brain tumors. Proc. Natl. Acad. Sci. USA 98: 10851-10856.

CHROMOSOMAL LOCATION

Genetic locus: OLIG1 (human) mapping to 21q22.11; Olig1 (mouse) mapping to 16 C3.3.

SOURCE

OLIG1 (A-2) is a mouse monoclonal antibody raised against amino acids 152-260 mapping at the C-terminus of OLIG1 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

OLIG1 (A-2) is recommended for detection of OLIG1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 OLIG1 siRNA (h): sc-91434, OLIG1 siRNA (m): sc-38146, OLIG1 shRNA Plasmid (h): sc-91434-SH, OLIG1 shRNA Plasmid (m): sc-38146-SH, OLIG1 shRNA (h) Lentiviral Particles: sc-91434-V and OLIG1 shRNA (m) Lentiviral Particles: sc-38146-V.

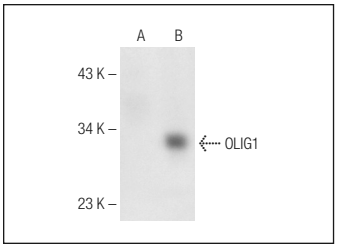
Molecular Weight of OLIG1: 30 kDa.

Positive Controls: OLIG1 (m): 293T Lysate: sc-122238 or mouse spinal cord extract: sc-395045.

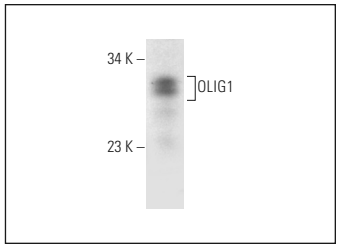
RECOMMENDED SUPPORT REAGENTS

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



OLIG1 (A-2): sc-373679. Western blot analysis of OLIG1 expression in non-transfected: sc-117752 (**A**) and mouse OLIG1 transfected: sc-122238 (**B**) 293T whole cell lysates.



OLIG1 (A-2): sc-373679. Western blot analysis of OLIG1 expression in mouse spinal cord tissue extract.

SELECT PRODUCT CITATIONS

1. Xiang, Y., et al. 2017. Fusion of regionally specified hPSC-derived organoids models human brain development and interneuron migration. Cell Stem Cell 21: 383-398.e7.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.