

MATH-3 (D-10): sc-393724

BACKGROUND

The Neurogenin family of proteins belongs to the basic helix-loop-helix (bHLH) superfamily and consists of Neurogenin 1, Neurogenin 2 and Neurogenin 3 (also designated Ngn3). bHLH members are transcriptional regulators that determine cell fate. During mouse neurogenesis, Neurogenin 1 and Neurogenin 2 are expressed in distinct progenitor populations in the central and peripheral nervous systems. Targeted mutation analyses showed that Neurogenin 1 is essential for the determination of neuronal precursors for proximal cranial sensory ganglia and that Neurogenin 2 is essential for the determination of precursors for epibranchial placode-derived sensory neurons. The gene which encodes Neurogenin 1 maps to human chromosome 5q31.1. The *Drosophila* "atonal" gene is a proneural gene that produces a protein with basic helix-loop-helix (bHLH) domains which plays an essential role in the development of the *Drosophila* nervous system. MATH-2 and MATH-3 are expressed in the dorsal regions of the hindbrain and spinal cord. The human atonal protein homolog (HATH-1) shows 89% sequence identity with the mouse atonal protein homolog (MATH-1). The gene which encodes HATH-1 maps to human chromosome 4q22. The genes which encode MATH-2 and MATH-3 map to mouse chromosome 6 B3 and 10 D3, respectively.

REFERENCES

1. Ben-Arie, N., et al. 1996. Evolutionary conservation of sequence and expression of the bHLH protein atonal suggests a conserved role in neurogenesis. *Hum. Mol. Genet.* 5: 1207-1216.
2. Tamimi, R.M., et al. 1997. NEUROD2 and NEUROD3 genes map to human chromosomes 17q12 and 5q23-q31 and mouse chromosomes 11 and 13, respectively. *Genomics* 40: 355-357.

CHROMOSOMAL LOCATION

Genetic locus: NEUROD4 (human) mapping to 12q13.2; Neurod4 (mouse) mapping to 10 D3.

SOURCE

MATH-3 (D-10) is a mouse monoclonal antibody raised against amino acids 75-286 mapping within an internal region of MATH-3 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MATH-3 (D-10) is available conjugated to agarose (sc-393724 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393724 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393724 PE), fluorescein (sc-393724 FITC), Alexa Fluor® 488 (sc-393724 AF488), Alexa Fluor® 546 (sc-393724 AF546), Alexa Fluor® 594 (sc-393724 AF594) or Alexa Fluor® 647 (sc-393724 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393724 AF680) or Alexa Fluor® 790 (sc-393724 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

MATH-3 (D-10) is recommended for detection of MATH-3 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 MATH-3 siRNA (h): sc-106204, MATH-3 siRNA (m): sc-149295, MATH-3 shRNA Plasmid (h): sc-106204-SH, MATH-3 shRNA Plasmid (m): sc-149295-SH, MATH-3 shRNA (h) Lentiviral Particles: sc-106204-V and MATH-3 shRNA (m) Lentiviral Particles: sc-149295-V.

Molecular Weight (predicted) of MATH-3: 37 kDa.

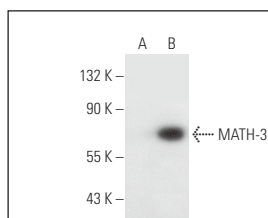
Molecular Weight (observed) of MATH-3: 48-70 kDa.

Positive Controls: MATH-3 (h): 293T Lysate: sc-115857 or MATH-3 (m): 293T Lysate: sc-121528.

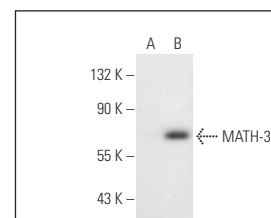
RECOMMENDED SUPPORT REAGENTS

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



MATH-3 (D-10): sc-393724. Western blot analysis of MATH-3 expression in non-transfected: sc-117752 (A) and human MATH-3 transfected: sc-115857 (B) 293T whole cell lysates.



MATH-3 (D-10): sc-393724. Western blot analysis of MATH-3 expression in non-transfected: sc-117752 (A) and mouse MATH-3 transfected: sc-121528 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Zhou, Y., et al. 2022. Molecular landscapes of human hippocampal immature neurons across lifespan. *Nature* 607: 527-533.

RESEARCH USE

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

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