Neurogenin 3 (E-8): sc-376607

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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. Neurogenin 3 is expressed in discrete regions of developing neurons and in the embryonic pancreatic islets of Langerhans. HNF-6 (hepatocyte nuclear factor 6) acts as a positive regulator of Neurogenin 3 by binding to and stimulating the nuerogenin gene promoter. Neurogenin 3 is involved in the intial differentiation of the four islets cell types, while a network of transcription factors, including Hlxb9, Isl1, Neuro D, Nkx-2.2, Nkx-6.4, Pax-4, Pax-6, PDX-1 and Mash1, are required for final differentiation. Neurogenin 3 acts upstream of Neuro D in a bHLH cascade. Neurogenin 3 activates the expression of Neuro D at the onset of islet cell differentiation through box sequences E1 and E3 in the Neuro D promoter.

REFERENCES

1. Jacquemin, P., et al. 2000. Transcription factor hepatocyte nuclear factor 6 regulates pancreatic endocrine cell differentiation and controls expression of the proendocrine gene ngn3. Mol. Cell. Biol. 20: 4445-4454.

2. Gradwohl, G., et al. 2000. Neurogenin 3 is required for the development of the four endocrine cell lineages of the pancreas. Proc. Natl. Acad. Sci. USA 97: 1607-1611.

3. Schwitzgebel, V.M., et al. 2000. Expression of Neurogenin 3 reveals an islet cell precursor population in the pancreas. Development 127: 3533-3542.

4. Jensen, J., et al. 2000. Independent development of pancreatic α- and β-cells from Neurogenin 3-expressing precursors: a role for the notch pathway in repression of premature differentiation. Diabetes 49: 163-176.

5. Huang, H.P., et al. 2000. Regulation of the pancreatic islet-specific gene BETA2 (neuroD) by Neurogenin 3. Mol. Cell. Biol. 20: 3292-3307.

CHROMOSOMAL LOCATION

Genetic locus: NEUROG3 (human) mapping to 10q22.1.

SOURCE

Neurogenin 3 (E-8) is a mouse monoclonal antibody raised against amino acids 1-80 of Neurogenin 3 of human origin.

PRODUCT

Each vial contains 200 µg IgG$_1$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Neurogenin 3 (E-8) is available conjugated to agarose (sc-376607 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-376607 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376607 PE), fluorescein (sc-376607 FITC), Alexa Fluor® 488 (sc-376607 AF488), Alexa Fluor® 546 (sc-376607 AF546), Alexa Fluor® 594 (sc-376607 AF594) or Alexa Fluor® 647 (sc-376607 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376607 AF680) or Alexa Fluor® 790 (sc-376607 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

Neurogenin 3 (E-8) is recommended for detection of Neurogenin 3 of 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 Neurogenin 3 siRNA (h): sc-42079, Neurogenin 3 shRNA Plasmid (h): sc-42079-SH and Neurogenin 3 shRNA (h) Lentiviral Particles: sc-42079-V.

Molecular Weight of Neurogenin 3: 27 kDa.

Positive Controls: MIA PaCa-2 cell lysate: sc-2285, NCI-H460 whole cell lysate: sc-364235 or human liver extract: sc-363766.

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
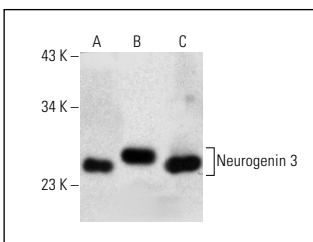
Neurogenin 3 (E-8): sc-376607. Western blot analysis of Neurogenin 3 expression in human liver (**A**), human pancreas (**B**) and human testis (**C**) tissue extracts.
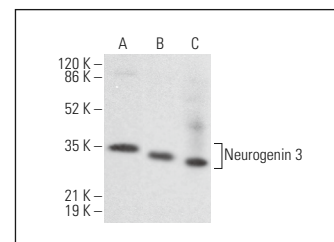
Neurogenin 3 (E-8): sc-376607. Western blot analysis of Neurogenin 3 expression in MIA PaCa-2 (**A**) and NCI-H460 (**B**) whole cell lysates and human liver tissue extract (**C**).

SELECT PRODUCT CITATIONS

1. Watanabe, A., et al. 2021. CD82 is a marker to isolate β cell precursors from human iPS cells and plays a role for the maturation of β cells. Sci. Rep. 11: 9530.

STORAGE

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

RESEARCH USE

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