

Neurogenin 3 (7): sc-136002

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 neurogenin gene promoter. Neurogenin 3 is involved in the initial differentiation of the four islets cell types, while a network of transcription factors, including Hlx9, 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

- Huang, H.P., Liu, M., El-Hodiri, H.M., Chu, K., Jamrich, M. and Tsai, M.J. 2000. Regulation of the pancreatic islet-specific gene $\beta 2$ (Neuro D) by Neurogenin 3. *Mol. Cell. Biol.* 20: 3292-3307.
- Jacquemin, P., Durvieux, S.M., Jensen, J., Godfraind, C., Gradwohl, G., Guillemot, F., Madsen, O.D., Carmeliet, P., Dewerchin, M., Collen, D., Rousseau, G.G. and Lemaigre, F.P. 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.
- Gradwohl, G., Dierich, A., LeMeur, M. and Guillemot, F. 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.
- Schwitzgebel, V.M., Scheel, D.W., Connors, J.R., Kalamaras, J., Lee, J.E., Anderson, D.J., Sussel, L., Johnson, J.D. and German, M.S. 2000. Expression of Neurogenin 3 reveals an islet cell precursor population in the pancreas. *Development* 127: 3533-3542.
- Jensen, J., Heller, R.S., Funder-Nielsen, T., Pedersen, E.E., Lindsell, C., Weinmaster, F., Madsen, O.D. and Serup, P. 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.

CHROMOSOMAL LOCATION

Genetic locus: *NEUROG3* (human) mapping to 10q22.1; *Neurog3* (mouse) mapping to 10 B4.

SOURCE

Neurogenin 3 (7) is a mouse monoclonal antibody raised against amino acids 9-148 of Neurogenin 3 of mouse origin.

PRODUCT

Each vial contains 50 μ g IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

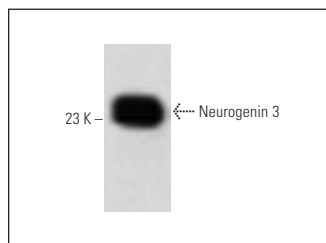
Neurogenin 3 (7) is recommended for detection of Neurogenin 3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500); not recommended for immunoprecipitation.

Suitable for use as control antibody for Neurogenin 3 siRNA (h): sc-42079, Neurogenin 3 siRNA (m): sc-42080, Neurogenin 3 shRNA Plasmid (h): sc-42079-SH, Neurogenin 3 shRNA Plasmid (m): sc-42080-SH, Neurogenin 3 shRNA (h) Lentiviral Particles: sc-42079-V and Neurogenin 3 shRNA (m) Lentiviral Particles: sc-42080-V.

Molecular Weight of Neurogenin 3: 27 kDa.

Positive Controls: PC-12 cell lysate: sc-2250.

DATA



Neurogenin 3 (7): sc-136002. Western blot analysis of Neurogenin 3 expression in PC-12 whole cell lysate.

SELECT PRODUCT CITATIONS

- Kim, J.H., Park, B.G., Kim, S.K., Lee, D.H., Lee, G.G., Kim, D.H., Choi, B.O., Lee, K.B. and Kim, J.H. 2019. Nanotopographical regulation of pancreatic islet-like cluster formation from human pluripotent stem cells using a gradient-pattern chip. *Acta Biomater.* 95: 337-347.
- Karimi, S., Khorsandi, L.S. and Ai, J. 2022. Fabrication of bioartificial pancreas using decellularized rat testicular tissue. *Acta Histochem.* 124: 151928.
- Liu, F., Cai, Z., Yang, Y., Plasko, G., Zhao, P., Wu, X., Tang, C., Li, D., Li, T., Hu, S., Song, L., Yu, S., Xu, R., Luo, H., Fan, L., Wang, E., Xiao, Z., Ji, Y., Zeng, R., Li, R., Bai, J., Zhou, Z., Liu, F. and Zhang, J. 2022. The adipocyte-enriched secretory protein tetranectin exacerbates type 2 diabetes by inhibiting Insulin secretion from β cells. *Sci. Adv.* 8: eabq1799.

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.