SANTA CRUZ BIOTECHNOLOGY, INC.

NIS (G-5): sc-514487

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The sodium/iodide symporter (NIS) is an integral plasma membrane glycoprotein that mediates active iodide transport in the thyroid and other tissues, including salivary glands, gastric mucosa, and lactating mammary gland. In the lactating mammary gland, NIS transports iodide into the milk, thereby allowing the nursing newborn to use the iodide for thyroid hormone biosynthesis. NIS is expressed in some breast cancers, but exhibits decreased expression in the majority of thyroid cancers, most likely due to alterations in the binding activity of AP2 and Sp1 transcription factors to the NIS promoter. NIS is a prerequisite for radioiodide treatment of thyroid cancer and a promising diagnostic and therapeutic tool for breast cancer.

REFERENCES

1. Paulini, K. and Mohr, W. 1975. Hormone-dependent Polyploidy in the glandula orb infraorbitalis of animals of different age. Beitr. Pathol. 156: 65-74.
2. Boismare, F., et al. 1977. The treatment, by imipramine, of the hemodynamic, functional and biochemical consequences of an experimental craniocervical trauma in rats. C. R. Seances Soc. Biol. Fil. 170: 1110-1117.
3. Partona, F., et al. 1978. Filariasis in West Kalimantan (Borneo), Indonesia. Southeast Asian J. Trop. Med. Public Health 8: 459-463.
4. Osteen, K.G. and Mills, T.M. 1980. Serum LH and FSH levels in the pregnant rabbit. Proc. Soc. Exp. Biol. Med. 162: 454-457.
5. Kogai, T., et al. 2005. Differential regulation of sodium/iodide symporter gene expression by nuclear receptor ligands in MCF-7 breast cancer cells. Endocrinology 146: 3059-3069.
6. Miyagawa, M., et al. 2005. Non-invasive imaging of cardiac transge the human sodium/iodide symporter gene and HSV1-tk as the reporter gene. Eur. J. Nucl. Med. Mol. Imaging 32: 1108-1114.
7. Schmitz, G., et al. 2005. Expression of the sodium iodide symporter in differentiated thyroid cancer: clinical evidence. Nuklearmedizin 44: 86-93.

CHROMOSOMAL LOCATION

Genetic locus: Slc5a5 (mouse) mapping to 8 B3.3.

SOURCE

NIS (G-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 594-617 within a C-terminal cytoplasmic domain of NIS of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-514487 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

RESEARCH USE

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

APPLICATIONS

NIS (G-5) is recommended for detection of NIS of mouse 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 NIS siRNA (m): sc-61200, NIS shRNA Plasmid (m): sc-61200-SH and NIS shRNA (m) Lentiviral Particles: sc-61200-V.

Molecular Weight of non-glycosylated NIS: 50 kDa.

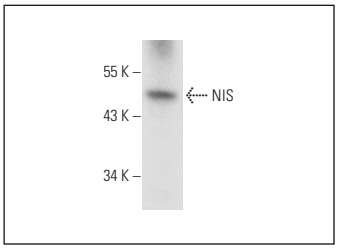
Molecular Weight of glycosylated NIS: 87-110 kDa.

Positive Controls: CSMLO whole cell lysate: sc-364369.

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



NIS (G-5): sc-514487. Western blot analysis of NIS expression in CSMLO whole cell lysate.

SELECT PRODUCT CITATIONS

1. Yuan, M.H., et al. 2017. Therapeutic effects of adenovirus-mediated CD and NIS expression combined with $Na^{131}I$/5-FC on human thyroid cancer. Oncol. Lett. 14: 7431-7436.
2. Liu, C., et al. 2019. HPT axis-independent TSHβ splice variant regulates the synthesis of thyroid hormone in mice. Mol. Med. Rep. 19: 4514-4522.

STORAGE

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

PROTOCOLS

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