

# NIS (N-15): sc-48055

## 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 orbitalis externa and glandula infraorbitalis of animals of different age. *Beitr. Pathol.* 156: 65-74.
2. Boismare, F., et al. 1976. The treatment, by imipramine, of the hemodynamic, functional and biochemical consequences of an experimental cranio-cervical trauma in rats. *C. R. Seances Soc. Biol. Fil.* 170: 1110-1117.
3. Partona, F., et al. 1977. Filariasis in West Kalimantan (Borneo), Indonesia. *Southeast Asian J. Trop. Med. Public Health* 8: 459-463.
4. Osteen, K.G. and Mills, T.M. 1979. 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 MCF7 breast cancer cells. *Endocrinology* 146: 3059-3069.
6. Miyagawa, M., et al. 2005. Non-invasive imaging of cardiac transgene expression with PET: comparison of 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 (human) mapping to 19p13.11.

## SOURCE

NIS (N-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an N-terminal extracellular domain of NIS of human origin.

## PRODUCT

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

Blocking peptide available for competition studies, sc-48055 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

NIS (N-15) is recommended for detection of NIS of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 (h): sc-61199, NIS shRNA Plasmid (h): sc-61199-SH and NIS shRNA (h) Lentiviral Particles: sc-61199-V.

Molecular Weight of non-glycosylated NIS: 50 kDa.

Molecular Weight of glycosylated NIS: 87-110 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## SELECT PRODUCT CITATIONS

1. Li, W., et al. 2011. Cotransfected sodium iodide symporter and human tyroperoxidase genes following human telomerase reverse transcriptase promoter for targeted radioiodine therapy of malignant glioma cells. *Cancer Biother. Radiopharm.* 26: 443-451.
2. Li, W., et al. 2013. The glial fibrillary acidic protein promoter directs sodium/iodide symporter gene expression for radioiodine therapy of malignant glioma. *Oncol. Lett.* 5: 669-674.
3. Li, W., et al. 2015. Glial fibrillary acidic protein promoters direct adenovirus early 1A gene and human telomerase reverse transcriptase promoters direct sodium iodide symporter expression for malignant glioma radioiodine therapy. *Mol. Cell. Biol.* 39: 279-289.

## 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.