SANTA CRUZ BIOTECHNOLOGY, INC.

Neurophysin I (D-11): sc-393907

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The nonapeptide hormones arginine vasopressin (AVP) and oxytocin are synthesized in the supraoptic and paraventricular nuclei of the hypothalamus together with their respective "carrier" proteins, the neurophysins. Vasopressin and oxytocin are produced by separate populations of magnocellular neurons in both nuclei. Neurophysin I (NPI) and neurophysin II (NPII) function as carrier proteins for oxytocin and vasopressin, respectively. Oxytocin is a pituitary hormone which induces uterine contractions during childbirth and the ejection of milk from the mammary glands during nursing. Vasopressin is involved in the metabolism of water and electrolytes and has been identified as a vasoconstrictor. Both neurophysin genes exist as three exons, with each exon encoding a functional protein domain. Studies show that the identically conserved middle region (exon B) is involved in NP-NP homodimer formation as well as being the site for the glycine 17 to valine point mutation responsible for familial diabetes insipidus. The genes encoding neurophysin I and II map to human chromosome 20p13.

REFERENCES

1. Brownstein, M.J., et al. 1980. Synthesis, transport, and release of posterior pituitary hormones. Science 207: 373-378.
2. North, W.G., et al. 1980. Isolation and partial characterization of two human neurophysins: their use in the development of specific radioimmunoassays. J. Clin. Endocrinol. Metab. 51: 884-891.
3. Ruppert, S., et al. 1984. Recent gene conversion involving bovine vasopressin and oxytocin precursor genes suggested by nucleotide sequence. Nature 308: 554-557.
4. Doris, P.A. 1984. Vasopressin and central integrative processes. Neuroendocrinology 38: 75-85.
5. Abercrombie, D.M., et al. 1984. Cooperative interactions in neurophysin-neuropeptide hormone complexes. Analytical affinity chromatography of native and covalently-modified neurophysins. Int. J. Pept. Protein Res. 24: 218-232.

CHROMOSOMAL LOCATION

Genetic locus: Oxt (mouse) mapping to 2 F1.

SOURCE

Neurophysin I (D-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 101-127 near the C-terminus of Neurophysin I of mouse origin.

PRODUCT

Each vial contains 200 µg IgM 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-393907 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

Neurophysin I (D-11) is recommended for detection of precursor and mature Neurophysin I of mouse and rat 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 Neurophysin I siRNA (m): sc-60090, Neurophysin I shRNA Plasmid (m): sc-60090-SH and Neurophysin I shRNA (m) Lentiviral Particles: sc-60090-V.

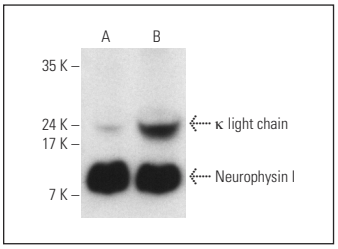
Molecular Weight of Neurophysin I: 10-19 kDa.

Positive Controls: mouse pituitary gland extract: sc-364246 or rat pituitary gland extract: sc-364807.

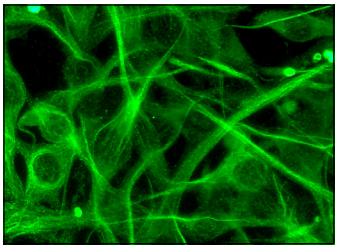
RECOMMENDED SUPPORT REAGENTS

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 L-Agarose: sc-2336 (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



Neurophysin I (D-11): sc-393907. Western blot analysis of Neurophysin I expression in mouse pituitary gland (**A**) and rat pituitary gland (**B**) tissue extracts. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



Neurophysin I (D-11): sc-393907. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing membrane and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Liu, X.Y., et al. 2019. Effects of intranasal oxytocin on pup deprivation-evoked aberrant maternal behavior and hypogalactia in rat dams and the underlying mechanisms. Front. Neurosci. 13: 122.

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.