

Neurophysin II (V-15): sc-27093

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.
6. Gopal Rao, V.V.N., et al. 1992. The human gene for oxytocin-neurophysin I (OXT) is physically mapped to chromosome 20p13 by *in situ* hybridization. *Cytogenet. Cell Genet.* 61: 271-273.
7. Olias, G., et al. 1996. Heterologous expression of human vasopressin-neurophysin precursors in a pituitary cell line: defective transport of a mutant protein from patients with familial diabetes insipidus. *DNA Cell Biol.* 15: 929-935.
8. Insel, T.R., et al. 1997. Central oxytocin and reproductive behaviours. *Rev. Reprod.* 2: 28-37.

CHROMOSOMAL LOCATION

Genetic locus: *Avp* (mouse) mapping to 2 F1.

SOURCE

Neurophysin II (V-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Neurophysin II of mouse 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-27093 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Neurophysin II (V-15) is recommended for detection of precursor and mature Neurophysin II of mouse and rat 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).

Molecular Weight of Neurophysin II: 23 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. Koch, P., et al. 2009. Expression profile of PTP1B51 in mouse brain. *J. Comp. Neurol.* 517: 892-905.
2. Ortiz-Miranda, S.I., et al. 2010. Differential modulation of N-type calcium channels by micro-opioid receptors in oxytocinergic versus vasopressinergic neurohypophysial terminals. *J. Cell. Physiol.* 225: 276288.
3. Wang, Y.F., et al. 2013. Hyposmolality differentially and spatiotemporally modulates levels of glutamine synthetase and serine racemase in rat supraoptic nucleus. *Glia* 61: 529-538.

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 or our catalog for detailed protocols and support products.