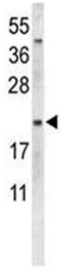
Neurophysin 1 Antibody / NEU1 / Oxytocin-neurophysin 1 / OXT (F51861)

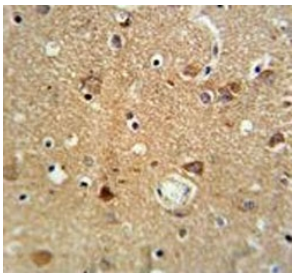
Catalog No.	Formulation	Size
F51861-0.4ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.4 ml
F51861-0.08ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.08 ml

Bulk quote request

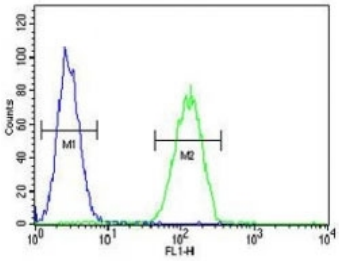
Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Purified
UniProt	P01178
Applications	Western Blot : 1:1000 IHC (Paraffin) : 1:50-1:100 Flow Cytometry : 1:10-1:50
Limitations	This Neurophysin 1 antibody is available for research use only.



Western blot analysis of Oxytocin-neurophysin 1 (OXT) protein in human MDA-MB-231 cell lysate using the Neurophysin 1 antibody. Because the immunogen corresponds to the neurophysin 1 chain of the OXT precursor, a single band is expected near ~10â€“14 kDa, consistent with the processed neurophysin 1 domain (~10 kDa) and the full prepro-OXT (~13â€“14 kDa). Under non-reducing or partially processed conditions, higher-migrating bands around ~20 kDa may also appear, reflecting neurophysin dimers or precursor intermediates. The observed size pattern is consistent with literature reports and known maturation of the OXT prohormone into the oxytocin peptide and its carrier neurophysin 1 component.



Neurophysin 1 antibody IHC analysis in formalin fixed and paraffin embedded brain tissue.



Neurophysin 1 antibody flow cytometric analysis of MDA-MB-231 cells (green) compared to a negative control (blue). FITC-conjugated goat-anti-rabbit secondary Ab was used for the analysis.

Description

Neurophysin 1 antibody detects Neurophysin 1, a carrier protein derived from the oxytocin-neurophysin I precursor encoded by the OXT gene. This protein name is sometimes abbreviated 'NEU1,' but is not to be confused with the protein Sialidase-1, with the gene name NEU1. Neurophysin 1 is synthesized as part of a larger prepropeptide that undergoes post-translational processing to produce both the oxytocin hormone and its carrier protein. The two remain associated within neurosecretory vesicles, ensuring correct folding, stability, and regulated transport of oxytocin from the hypothalamus to the posterior pituitary.

The OXT gene, located on chromosome 20p13, encodes a prepropeptide consisting of a signal sequence, oxytocin, and the Neurophysin 1 domain. Following signal peptide removal in the endoplasmic reticulum, intramolecular disulfide bonds form within Neurophysin 1 to stabilize its structure. The oxytocin and Neurophysin 1 segments are cleaved during vesicle maturation in the hypothalamo-neurohypophyseal system, where the two components remain noncovalently associated until secretion. This relationship is essential for proper hormone storage and release during physiological processes such as lactation, parturition, and stress adaptation.

Neurophysin 1 functions as a chaperone-like carrier, binding oxytocin with high affinity and preventing premature aggregation or degradation. Within magnocellular neurons of the paraventricular and supraoptic nuclei, Neurophysin 1 is packaged into dense-core granules that travel down hypothalamo-neurohypophyseal axons to the posterior pituitary, where hormone release occurs in response to neuronal depolarization. Because Neurophysin 1 is co-expressed and co-released with oxytocin, its immunoreactivity serves as a reliable marker of oxytocinergic neuron activity and distribution.

Structurally, Neurophysin 1 is a 93-amino-acid protein enriched in cysteine residues, forming multiple disulfide bonds that create a compact, globular fold. This structure enables binding of the oxytocin nonapeptide and supports vesicular transport. It is closely related to Neurophysin 2, the carrier protein associated with vasopressin, though the two are encoded by distinct but adjacent genes on chromosome 20. Immunohistochemical detection of Neurophysin 1 provides high specificity for oxytocin-producing neurons and axons within the hypothalamus and neurohypophysis.

In research, Neurophysin 1 antibody is valuable for identifying oxytocin-secreting neurons and for mapping hypothalamo-pituitary neurosecretory pathways. It is used to evaluate neuronal activity under physiological and experimental conditions, including stress, reproductive function, and social behavior studies. Because Neurophysin 1 persists in neurosecretory granules even after oxytocin release, it offers a stable immunohistochemical marker of oxytocinergic systems in the brain and pituitary.

Neurophysin 1 antibody is suitable for detecting expression of the oxytocin carrier protein in tissue sections or cell

models, providing insight into neuroendocrine regulation and hormone trafficking. NSJ Bioreagents provides Neurophysin 1 antibody validated for use in relevant research applications supporting studies in neuroendocrinology, hormone release, and hypothalamic physiology.

Application Notes

Titration of the Neurophysin 1 antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A portion of amino acids 11-40 from the human Oxytocin-neurophysin 1 protein was used as the immunogen for this Neurophysin 1 antibody.

Storage

Aliquot the Neurophysin 1 antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Copyright © NSJ Bioreagents. All rights reserved.