

## DESCRIPTION

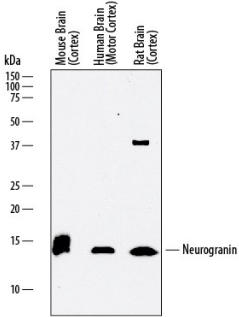
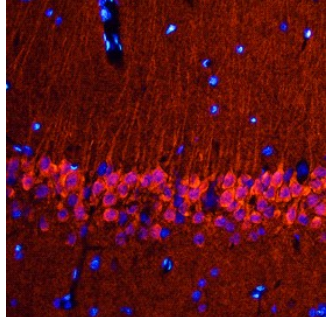
<b>Species Reactivity</b>	Human/Mouse/Rat
<b>Specificity</b>	Detects human, mouse, and rat Neurogranin Western blots.
<b>Source</b>	Polyclonal Sheep IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant human Neurogranin Met1-Asp78 Accession # Q92686
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 µm filtered solution in PBS.

## APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
<b>Western Blot</b>	0.5 µg/mL	See Below
<b>Immunohistochemistry</b>	5-15 µg/mL	See Below

## DATA

Western Blot	Immunohistochemistry
 <p><b>Detection of Human, Mouse, and Rat Neurogranin by Western Blot.</b> Western blot shows lysates of mouse brain (cortex) tissue, human brain (motor cortex) tissue, and rat brain (cortex) tissue. PVDF membrane was probed with 0.5 µg/mL of Sheep Anti-Human/Mouse/Rat Neurogranin Antigen Affinity-purified Polyclonal Antibody (Catalog # AF7947) followed by HRP-conjugated Anti-Sheep IgG Secondary Antibody (Catalog # HAF016). A specific band was detected for Neurogranin at approximately 14-16 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.</p>	 <p><b>Neurogranin in Rat Brain.</b> Neurogranin was detected in perfusion fixed frozen sections of rat brain (hippocampus) using Sheep Anti-Human/Mouse/Rat Neurogranin Antigen Affinity-purified Polyclonal Antibody (Catalog # AF7947) at 0.5 µg/mL overnight at 4 °C. Tissue was stained using the NorthernLights™ 557-conjugated Anti-Sheep IgG Secondary Antibody (red; Catalog # NL010) and counterstained with DAPI (blue). Specific staining was localized to pyramidal neurons in the hippocampus. View our protocol for <a href="#">Fluorescent IHC Staining of Frozen Tissue Sections</a>.</p>

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Sterile PBS to a final concentration of 0.2 mg/mL.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>• 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>• 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

## BACKGROUND

NRGN (Neurogranin/Ng; also RC3, p17 and BICKS) is a member of the neurogranin family of proteins. Although its predicted MW is 7.5 kDa, it runs anomalously at 15-19 kDa in SDS-PAGE. This is apparently due to the adoption of a rigid  $\alpha$ -helical structure in a negatively charged medium. NRGN has limited expression, being found principally in excitatory neurons of the telencephalon, Golgi and Purkinje cells of the cerebellum, and platelets plus B and T cells in non-nervous tissue. Intracellularly, NRGN is found associated with membranes of the ER, Golgi and mitochondria. This association is often in the form of aggregates (or granules), thus giving rise to its name ("neuro-granules"). NRGN is also found in the nucleus and associated with the postsynaptic spines of dendrites. The principal function of NRGN appears to be the binding, sequestration and concentration of CaM (calmodulin; a Ca-binding protein) in dendritic spines. Following NMDAR activation, Ca diffuses into the synaptic area, resulting in 1) the simply dissociation of CaM from NRGN, or 2) the phosphorylation of NRGN followed by its dissociation from CaM. In either case, the freed CaM is now available to activate multiple downstream signaling pathways, some involved in LTP (or memory). Human NRGN is 78 amino acids (aa) in length. It contains one IQ domain (aa 26-47) that binds CaM, and a collagen-like region at the C-terminus (aa 48-78). Regulatory phosphorylation occurs on Ser36, and the N-terminal Met is acetylated. Full-length human NRGN shares 96% aa sequence identity with both mouse and rat NRGN.