**DESCRIPTION**

**Source** Spodoptera frugiperda, Sf 21 (baculovirus)-derived

**Rat Nogo-A (Arg1026-Leu1090)**

<table>
<thead>
<tr>
<th>N-terminus</th>
<th>IEGRMDP</th>
<th>C-terminus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accession #Q9JK11</td>
<td>Mouse IgG₂A (Glu98-Lys330)</td>
<td></td>
</tr>
</tbody>
</table>

**N-terminal Sequence Analysis** Arg1026

**Structure / Form** Disulfide-linked homodimer

**Predicted Molecular Mass** 34.5 kDa (monomer)

**SPECIFICATIONS**

**Activity** Measured by its ability to inhibit neurite outgrowth of dissociated E13 chick embryonic dorsal root ganglia (DRG) neurons. Able to significantly inhibit neurite outgrowth when immobilized as a 3 μL droplet containing 200 ng on a nitrocellulose-coated microplate.

**Endotoxin Level** <0.10 EU per 1 μg of the protein by the LAL method.

**Purity** >90%, by SDS-PAGE under reducing conditions and visualized by silver stain.

**Formulation** Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

**Reconstitution** Reconstitute at 100 µg/mL in sterile PBS.

**Shipping** The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage** Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

**BACKGROUND**

Rat Nogo-A is a member of the reticulon family of transmembrane proteins. This family is characterized by the presence of a nonsignal sequence-containing N-terminus, a topologically conserved approximately 200 amino acid (aa) C-terminus that contains two transmembrane domains and an ER-retention motif, and a punctate intracellular distribution within the ER that is reminiscent of a reticulum (1, 2). Nogo-A in rat exists in four isoforms (3 - 5). The full length rat Nogo-A is 1163 aa in length and contains a 989 aa N-terminus, a 21 aa transmembrane segment, a 94 aa connecting “loop”, a second 21 aa transmembrane segment, and a 38 aa C-terminus. Three areas are of particular interest. One is a stretch of 66 aa within the 94 aa transmembrane connecting loop (SWISSPROT defines this region as being 66 aa in length). This segment is reported to bind to the GPI-linked Nogo receptor/p75 complex on axons and induce growth cone collapse (6 - 8). Two other areas in the N-terminus have also been discovered to have bioactivity (6, 9, 10). Amino acids 59 - 172 are reported to block fibroblast spreading, while aa 544 - 725 block neurite outgrowth and block fibroblast spreading (6, 10). The exact topology of Nogo-A is unclear. With two transmembrane segments, the N- and C-termini may be extracellular with the “loop” region intracellular, or the situation could be reversed (11, 12). Alternatively, the loop region and N-terminus may be on the same side of the membrane (6). Nogo-A is expressed in neurons, endothelial cells, oligodendrocytes, fibroblasts and myoblasts (10, 13, 14). Rat Nogo-A is 78% aa identical to human Nogo-A overall, with 98% aa identical in the loop region and 81% aa identity in the 544 - 725 aa segment.

**References:**