ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Nogo inhibitory peptide (Nogo-P4) and Reticulon 1 (Rtn-1 or rS-Rex-b) peptide (Rtn-P4)

Cat. # Nogo-P4	Rat Nogo inhibitory Peptide	**SIZE**: 1 mg	**FORM:** Powder
Cat. # Rtn-P4	Rat Rtn 1 Peptide	**SIZE**: 1 mg	**FORM:** Powder

Many tissues such as muscle, skin, liver, and peripheral nerve, have remarkable ability to repair and regrow after injury. However, the CNS (brain and spinal cord) is limited in its ability to repair or regrowth causing permanent brain damage or paralyses. Most recently an inhibitory myelin protein, **Nogo (Neurite outgrowth**), has been cloned and characterized. It may help block the regeneration of the CNS. Nogo is the 4th member of **reticulon** (**Rtn**) family. There are three alternative isoforms of Nogo, designated **Nogo-A** (full length human protein 1192 aa; calculated mol wt 135 kDa; rat 1163 aa), an intermediate form **Nogo-B** (373 aa; ~37 K, lacks 186-1004 aa within the extracellular domain), and a shorter form **Nogo-C** (199 aa; ~25 K, similar to rat vp20 and foocen-s; lacks 186-1004 aa but which has a smaller, alternative N-terminal domain). Nogo-A has a putative extracellular domain of 1024 AA, 2-3 TM domains, and a short C-terminus of 43 AA. Nogo-A is localized to the CNS-myelin, and is highly expressed in oligodendorcytes but not by Schwann cells. Nogo-B and Nogo-C have been found in several non-neuronal tissues (skeletal muscle, kidney, skin, lung, and spleen), and it may be the 35-kDa protein recognized by IN-1 antibody.

Full length Nogo-A has the strongest inhibitory activity and it may be the 250-kDa protein recognized by the IN-1 antibody. The N-terminus of Nogo A is unique, whereas the C-terminus has sequence homology with the reticulon family. Nogo-A has endoplasmic reticulum retention signal sequence. It is not clear how Nogo-A contacts axons, and reaches the membrane of oligodendorcytes. A 66-aa hydrophilic region of Nogo, located between the two TM domains, has the most inhibitory properties of Nogo. In contrast to Nogo, Rtn 1, -2, and 3 do not inhibit axonal regeneration. A 25-aa **inhibitory peptide sequence** (designated as **Nogo-P4**; **rat Nogo 1056-1080 aa** or 31-55 AA of the 66 AA active peptide) is sufficient to produce core inhibitory properties (see GrandPre T et al (2000). This 66-aa region also has the least similarity to Rtn proteins. The corresponding **Rtn-P4** peptide sequence has no activity.

Source of Peptides

#Nogo-P4 peptide

A 25-aa inhibitory peptide sequence (designated **as Nogo-P4**; rat Nogo 1056-1080 aa or 31-55 AA of the 66 AA active peptide) is sufficient to produce core inhibitory properties (see Grandpre T et al (2000). The peptide was synthesized and purified by hplc (mo. Wt 2885, purity >90-96%).

#Rtn-P4 peptide

A 25-aa peptide sequence (designated as Rtn-P4; rat Rtn-1 or rS-rex-b protein 777 aa; 670-694 aa sequence) was synthesized and purified by hplc (mo. Wt 3111, purity >90-96%). (see GrandPre T et al (2000).

Form & Storage

All peptides are provided in 1 mg/vial. They can be dissolved in appropriate buffer. Store frozen at -20°C or below in suitable aliquots. It is not recommended to store diluted solutions. Avoid repeated freeze and thaw.

Specificity & Cross-reactivity

The rat Nogo-P4 peptide sequence is 100% conserved in all Nogo isoforms (A-C). The peptide has just 1 aa change in the corresponding human Nogo sequence. The corresponding non-inhibitory peptide from Rtn-1 or rS-rex-b protein (777 aa; 670-694 aa) is also available (**Cat# Rtn-P4**) for control experiments.

The rat Rtn-P4 peptide sequence has just 1 aa change in the corresponding human Rtn-1 sequence. The corresponding inhibitory peptide from rat Nogo (**Cat# Nogo-P4**) is also available for control experiments.

General References:

Chen MS et al (2000) Nature 403, 434-439; GrandPre T et al (2000) Nature 403; 439-444; Goldberg JL and Barres BA (2000) Nature 403; 369-370; Prinjha R et al (2000) Nature 403, 383-384; Tessier-Lavigne M and Goodman CS (2000) Science 287, 813-814; Nagase T et al (1998) DNA Res. 5, 355-364

Citations of for Nogo-P4 and Rtn-P4 (see updated list at the web site)

Atalay B 2007 Spinal Cord in press

Hasegawa Y 2004 J. Neurosci., 24: 6826 – 6832, nogo peptide in cultured cells

Yamashita T 2003 Nature Neuroscience 6, 461 – 467, neurite outgrowth assay in mice

Fujitani M 2005 J. Neurochem. 94,15-21, nogo-p4 biological activity in cell culture

*This product is for In vitro research use only.

Related material available from ADI

Anti-Nogo A, -B, -C, amyloid 1-40, 1-42, APP, Parkin, Synucleins (α, β, γ), Presenilins 1, 2

NogoP4-Rtn-P4 71212A

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