

PRODUCT INFORMATION



Ninjurin-1 Extracellular Domain (rat, recombinant)

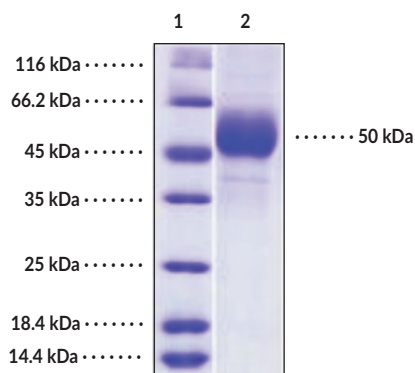
Item No. 41069

Overview and Properties

Synonyms: Nerve Injury-induced Protein 1, NINJ1
Source: Recombinant N-terminal human IgG1 Fc-tagged rat ninjurin-1 extracellular domain expressed in HEK293 cells
Amino Acids: 1-79
Uniprot No.: P70617
Molecular Weight: 37 kDa
Storage: -80°C (as supplied)
Stability: ≥1 year
Purity: ≥95% estimated by SDS-PAGE
Supplied in: Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing: <1.0 EU/μg, determined by the LAL endotoxin assay
Protein
Concentration: *batch specific* mg/ml

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers

Lane 2: Ninjurin-1 Extracellular Domain (rat, recombinant)

SDS-PAGE Analysis of Ninjurin-1 Extracellular Domain (rat, recombinant). This protein has an apparent molecular weight of 50 kDa by SDS-PAGE under reducing conditions due to glycosylation.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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Description

Ninjurin-1 is a type 3b transmembrane protein and adhesion molecule.¹ It is composed of an N-terminal extracellular domain containing a region required for homophilic binding, two transmembrane domains, a short intracellular region, and a second extracellular domain at the C-terminal.^{1,2} The N-terminal extracellular domain can be cleaved by matrix metalloprotease-9 (MMP-9) to release soluble ninjurin-1 (sNinj1).³ Ninjurin-1 is expressed in Schwann cells, neurons, and certain activated immune cells, including macrophages and T cells, as well as embryonic and adult epithelial tissues.^{1,4} It is involved in cell adhesion, axonal growth, and chemotaxis, as well as cell lysis and damage-associated molecular pattern (DAMP) molecule release during pyroptosis, among other activities.^{2,4} *NINJ1* knockout reduces disease severity in a mouse model of experimental autoimmune encephalomyelitis (EAE).⁵ The expression of *Ninj1* is increased in Schwann cells and dorsal root ganglion neurons after nerve injury in rats, and ninjurin-1 is involved in peripheral nerve regeneration after sciatic nerve injury in mice.^{4,6} An A-C reversal in the third exon of *NINJ1*, which results in an aspartate-to-alanine mutation, increases the likelihood of developing nerve damage in patients with leprosy.⁴ Serum levels of sNinj1 are increased in patients with hepatocellular carcinoma and are positively correlated with tumor size, cancer stage, and metastasis.³ Cayman's Ninjurin-1 Extracellular Domain (rat, recombinant) protein is a disulfide-linked homodimer. The reduced monomer, composed of ninjurin-1 (amino acids 1-79) fused to human IgG1 Fc at its N-terminus, consists of 340 amino acids and has a calculated molecular weight of 37 kDa. As a result of glycosylation, the monomer migrates at approximately 50 kDa by SDS-PAGE under reducing conditions.

References

1. Araki, T. and Milbrandt, J. Ninjurin, a novel adhesion molecule, is induced by nerve injury and promotes axonal growth. *Neuron* **17**(2), 353-361 (1996).
2. Ahn, B.J., Le, H., Shin, M.W., *et al.* Ninjurin1 enhances the basal motility and transendothelial migration of immune cells by inducing protrusive membrane dynamics. *J. Biol. Chem.* **289**(32), 21926-21936 (2014).
3. Yan, L., Su, W., Gan, D., *et al.* Circulating sNinj1 as a novel predictor of prognosis and severity in hepatocellular carcinoma. *Clin. Chim. Acta* **550**, 117581 (2023).
4. Liu, K., Wang, Y., and Li, H. The role of Ninjurin1 and its impact beyond the nervous system. *Dev. Neurosci.* **42**(5-6), 159-169 (2020).
5. Ahn, B.J., Le, H., Shin, M.W., *et al.* Ninjurin1 deficiency attenuates susceptibility of experimental autoimmune encephalomyelitis in mice. *J. Biol. Chem.* **289**(6), 3328-3338 (2014).
6. Tomita, Y., Horiuchi, K., Kano, K., *et al.* Ninjurin 1 mediates peripheral nerve regeneration through Schwann cell maturation of NG2-positive cells. *Biochem. Biophys. Res. Commun.* **519**(3), 462-468 (2019).

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