SYMANSIS
CELL SIGNALING SCIENCE

Product Data Sheet

Human Cell Expressed NGF R (222 aa) – Fc ^{HCX} Chimera Catalogue # 9016

Source	A DNA sequence encoding the signal peptide and extracellular domain of human NGF R (aa 1-250) was fused to the Fc region of human IgG1 (aa 93-330). The chimeric protein was expressed in modified human 293 cells.
Molecular Mass	Symansis NGF R (222aa) – Fc ^{HCX} Chimera migrates as a broad band between 75 and 100 kDa in SDS-PAGE due to post-translation modifications, in particular glycosylation. This compares with unmodified NGF R (222aa) – Fc Chimera that has a predicted molecular mass of 50.8 kDa.
pI	Symansis NGF R (222aa) – Fc ^{HCX} Chimera separates into a number of isoforms with a pI between 4.0 and 6.0 in 2D PAGE due to post-translational modifications, in particular glycosylation. This compares with the unmodified NGF R (222aa) – Fc Chimera that has a predicted pI of 4.89.
% Carbohydrate	Symansis purified NGF R (222aa) – Fc ^{HCX} Chimera consists of 30-50% carbohydrate by weight.
Glycosylation	Symansis NGF R (222aa) – Fc ^{HCX} Chimera contains N-linked and O-linked oligosaccharides.
Purity	>95%, as determined by SDS-PAGE and visualized by silver stain.
Formulation	When reconstituted in 0.5 ml sterile phosphate-buffered saline, the solution will contain 1% human serum albumin (HSA) and 10% trehalose.
Reconstitution	It is recommended that 0.5 ml of sterile phosphate-buffered saline be added to the vial.
Storage	Lyophilized products should be stored at 2 to 8°C. Following reconstitution short-term storage at 4°C is recommended, and longer-term storage of aliquots at -18 to -20°C. Repeated freeze thawing is not recommended.
Activity	The ED50 of Symansis NGF R (222aa) – Fc ^{HCX} Chimera is typically 0.7 - 1.0 ug/ml as measured by its ability to neutralize beta NGF mediated proliferation of the human growth-factor dependent TF-1 cell line.
Theoretical Sequence	KEACPTGLYTHSGECCKACNLGEGVAQPCGANQTVCEPCLDSVTFSDVVSATEPCKPCTE CVGLQSMSAPCVEADDAVCRCAYGYYQDETTGRCEACRVCEAGSGLVFSCQDKQNTVC EECPDGTYSDEANHVDPCLPCTVCEDTERQLRECTRWADAECEEIPGRWITRSTPPEGSD STAPSTQEPEAPPEQDLIASTVAGVVTTVMGSSQPVVTRGTTDNGSSNTKVDKKVEPKSC DKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDG VEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQ PREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGS FFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK

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Background Information

Nerve growth factor receptor (NGF R), also known as p75NTR or CD271 antigen, is a low affinity NGF receptor primarily responsible for modulating the affinity and activity of tyrosine kinases that promote neuronal survival. Ligand binding by neurotrophins, including beta NGF, brain derived neurotrophic factor (BDNF), neurotrophin-3 (NT3) and neurotrophin-5 (NT4/5), to the NGF R can promote either survival or apoptosis of neurons. NGF receptors such as TrkA, B and C, can associate with NGF R to stimulate higher affinity ligand binding, although on its own NGF R binds to all neutrophins within equal affinity. Neurotrophin-NGF R signaling mediates conditions such as pain, depression, obesity, nerve regeneration disorders, learning and memory. Additionally, NGF R is thought to play a role in neuronal death that occurs in disorders of the CNS such as Alzheimer's disease.

NGF R is a type I membrane protein that is synthesized as a 427 amino acid glycoprotein comprised of a 28 amino acid signal peptide, a 222 amino acid extracellular domain that includes four TNFR-Cys repeats (aa31-aa188), a Ser/Thr rich stalk (aa197-aa248), a 22 amino acid transmembrane region, and a 155 amino acid cytoplasmic domain. NGF R is N-glycosylated and phosphorylated on serine residues, and mass spectroscopic analysis of the NGF R stalk identified 7 sites of O-linked glycosylation that may affect the affinity of neurotrophin binding (see Chapman et al., 1996 J. Neurochem. 66, 1707-1716). Symansis Life Sciences' NGF R (222aa) contains the aforementioned stalk. In contrast to TrkA, B and C, which contain intracellular tyrosine kinase domains, NGF R lacks intracellular enzymatic activity. However NGF R does contain a type II death domain for binding TNF receptor associated factors (TRAFs) that function in mediating the effects of NGF R signaling.

For a review of NGF R and Alzheimer's disease please refer to Salehi A, *et al.* (2004) *J Neural Transm*. **111**(3): 323-45.