SYMANSIS
CELL SIGNALING SCIENCE

Product Data Sheet

human cell expressed Neurotrophin-3^{HCX}

Source	A DNA sequence encoding the human NT-3 protein sequence (containing the signal peptide and the mature NT-3 sequence) was expressed in modified human 293 cells.
Molecular Mass	Symansis NT-3^{HCX} migrates at approximately 14-15 kDa in SDS-PAGE. This compares with the predicted molecular mass of 13.6 kDa.
pI	Symansis NT-3^{HCX} separates into a number of isoforms with a pI from 6.6 to at least 10 in 2D PAGE due to post-translational modifications. This compares with the unmodified NT-3 that has a predicted pI of 9.2.
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 ED_{50} of NT-3^{HCX} is typically 0.1-0.2 ng/ml as measured in a cell proliferation assay using a TrkB transfected PC12 cell line.
Theoretical Sequence	YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEAR PVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT N-terminal confirmed by Edman Sequencing
Background Information	Neurotrophin-3 (NT-3), also known as nerve growth factor-2 (NGF2) or hippocampus-derived neurotrophic factor (HDNF), is a 257 amino acid precursor protein with a secretory signal sequence of 16 amino acids, a pro-peptide of 122 amino acids and a mature protein of 119 amino acids. NT-3 is found in neurons of the central nervous system and is secreted by many human gliomas. NT-3 is also expressed in muscles and its expression is down regulated in denervated muscles. NT-3 selectively supports the survival of certain neuronal cell populations, for example, cultured embryonic rat spinal motor neurons, enhances axon sprouting following adult spinal cord lesions and is involved in the regulation of developing neuromuscular synapses. NT-3 is a useful growth factor, differentiation factor and survival factor for cultured stem cells e.g. neural stem cells, cardiomyocytes and embryonic stem cells as well as various types of differentiated neural cells such as oligodendrocytes. NT-3 acts as a mitogen for cells of the neural crest in serum-free media. The biological activities of NT-3 are mediated by receptors belonging to the Trk family of receptors with intrinsic tyrosine-specific protein kinase activity. NT-3 binds to TrkA, TrkB and TrkC, the first two of which are the high-affinity receptors for NGF and BDNF, respectively. NT-3 also binds to the low affinity nerve growth factor receptor (LAN R). For a recent review please refer to Chao MV, Rajagopal R, and Lee FS (2006) *Clin. Sci (Lond)* **110**(2): 167-173.