Tropomyosin receptor kinase C

Tropomyosin receptor kinase C (TrkC), also known as NT-3 growth factor receptor, neurotrophic tyrosine kinase receptor type 3, or TrkC tyrosine kinase is a protein that in humans is encoded by the NTRK3 gene.

TrkC is the high affinity catalytic receptor for the neurotrophin NT-3 (neurotrophin-3). As such, TrkC mediates the multiple effects of this neurotrophic factor, which includes neuronal differentiation and survival.

The TrkC receptor is part of the large family of receptor tyrosine kinases. A “tyrosine kinase” is an enzyme which is capable of adding a phosphate group to the certain tyrosines on target proteins, or “substrates”. A receptor tyrosine kinase is a “tyrosine kinase” which is located at the cellular membrane, and is activated by binding of a ligand via its extracellular domain. Other example of tyrosine kinase receptors include the insulin receptor, the IGF-1 receptor, the MuSK protein receptor, the Vascular Endothelial Growth Factor (or VEGF) receptor, etc. The “substrate” proteins which are phosphorylated by TrkC include PI3 kinase.