

















Growth factor	References
Nerve growth factor (NGF)	Thoenen et al., 1987
	Whittemore and Sciger, 198
	Hefti et al., 1989
Brain-derived neurotrophic factor (BDNF)) Barde et al., 1982
	Leibrock et al., 1989
Neurotrophin-3 (NT-3)	Ernfors et al., 1990
	Hohn et al., 1990
	Maisonpierre et al., 1990
	Rosenthal et al., 1990
Neurotrophin-4 (NT-4)	Hallbrook et al., 1991
Neurotrophin-5 (NT-S)	Berkerneier et al., 1991
Ciliary neurotrophic factor (CNTF)	Lin et al., 1989
	Stóckli et al., 1989
Heparin-binding neurotrophic factor (HBN	NF) Kovesdi et al., 1990
Growth factors vith neurotrophic activity	
Basic fibroblast growth factor (bFGF)	Morrison et al., 1986
	Walicke, 1988
Acidic fibroblast growth factor (aFGF)	Walicke, 1988
Insulin-like growth factors (IGFs), insulin	Aizenman et al., 1986
	Baskin et al., 1987
Epidermal growth factor (EGF)	Fallon et al., 1984
	Morrison et al., 1987
Transforming growth factor cc (TGFcc)	Deryncl,, 1988
	Fallon et al., 1990
Interleukin 1	Spranger et al., 1990
Interleukin 3	Kamegai, 1990
Interleukin 6	Harna et al., 1989
Protease nexin 1 and II	Monard, 1987
	Oltersdorf et al., 1989
	Whitson et al., 1989
Cholinergic neuronal differentiation factor	Yarnarnori et al., 1989





What cellular actions have neurotrophins ?

- Neurotrophins will be taken as example because they were the first neurotrophic factors to be discovered (see next section on the discovery of NGF) and because they have a large number of cellular effects. In particular neurotrophins have a:
- 1) Trophic action as cell survival factors
- 2) Trophic action by stimulating growth of cellular processes (axons and dendrites = neurites, i.e. they promote *neuritogenesis*)
- 3) Trophic action on the cellular phenotype
- 4) Trophic/growth action on cellular dimensions
- 5) Trophic action on morphological plasticity
- 6) Trophic action on synaptic plasticity
- 7) Trophic action on cellular differentiation











































































Model linking Trk-bearing vesicles to motors.

GIPC and Tctex-1 are Trk-interacting proteins that may be involved in Trk trafficking. The interaction of these proteins with Trk has been found by yeast two-hybrid system and coimmunoprecipitation (Lou et al., 2001; Yano et al., 2001). GIPC: a PDZ domain-containing protein; Tctex-1: a dynein light chain subunit. KIF1B and myosin VI were found to bind to GIPC by yeast two-hybrid screen (Bunn et al., 1999). A functional ternary complex of Trk-GIPC-KIF1B (or myosin VI) remains to be shown. The Trk-Tctex-1-dynein motor complex was detected by immunoprecipitation from brain lysate (Yano et al., 2001).





