GDNF family

Overview: GDNF family receptors (provisional nomenclature, ENSFM00500000269996) are glycosylphosphatidylinositol-linked cell-surface receptors, which, when activated by members of the glial cell-derived neurotrophic factor (GDNF) family, activate a transmembrane tyrosine kinase enzyme, Ret (ENSG00000165731). The endogenous ligands are typically dimeric, linked through disulphide bridges: GDNF (211 aa, ENSG00000168621); neurturin (197 aa, ENSG00000171119); artemin (237 aa, ENSG00000117407) and persephin (156 aa, ENSG00000125650).

Nomenclature	GFRα1	GFRα2	GFRα3	GFRα4
Other names	GDNF, GNDF family receptor α1	Neurturin, GNDF family receptor α2	Artemin, GNDF family receptor α3	Persephin, GNDF family receptor α4
Ensembl ID	ENSG00000151892	ENSG00000168546	ENSG00000146013	ENSG00000125861
Potency order	GDNF > neurturin > artemin	Neurturin > GDNF	Artemin	Persephin
Probes	[^{125}I]-GDNF (3–63 pM, Treanor *et al.*, 1996; Klein *et al.*, 1997)	–	–	–

Mutations of Ret and GDNF genes may be involved in Hirschsprung's disease, which is characterized by the absence of intramural ganglion cells in the hindgut, often resulting in intestinal obstruction.

Further Reading

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