

# The BDNF/TrkB Neurotrophin System in the Sensory Organs of Zebrafish

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## Abstract

The brain-derived neurotrophic factor (BDNF) was discovered in the last century, and identified as a member of the neurotrophin family. BDNF shares approximately 50% of its amino acid with other neurotrophins such as NGF, NT-3 and NT-4/5, and its linear amino acid sequences in zebrafish (*Danio rerio*) and human are 91% identical. BDNF functions can be mediated by two categories of receptors: p75NTR and Trk. Intriguingly, BDNF receptors were highly conserved in the process of evolution, as were the other NTs' receptors. In this review, we update current knowledge about the distribution and functions of the BDNF-TrkB system in the sensory organs of zebrafish. In fish, particularly in zebrafish, the distribution and functions of BDNF and TrkB in the brain have been widely studied. Both components of the system, associated or segregated, are also present outside the central nervous system, especially in sensory organs including the inner ear, lateral line system, retina, taste buds and olfactory epithelium. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

## Author keywords

BDNF; Neurotrophins; Sensory systems; TrkB receptor; Zebrafish