EFNB1

EFNB1 (Ephrin-B1) is a member of the ephrins family, which functions as a ligand for Eph receptors, a class of receptor tyrosine kinases. These proteins are crucial in **cell signaling, nervous system development, angiogenesis, and tissue segmentation**.

Key Functions

1. **Interaction with EphB Receptors** – EFNB1 binds to EphB receptors, triggering bidirectional signaling that influences cell positioning and organization. 2. **Nervous System Development** – Regulates cell migration, adhesion, and axon guidance, essential for proper neural circuit formation. 3. **Tissue Morphogenesis & Segmentation** – Contributes to embryonic tissue patterning, including forming the skeleton and vasculature. 4. **Cell Communication & Adhesion** – Modulates contact-dependent communication between adjacent cells, affecting processes such as cell sorting and boundary formation. 5. **Role in Disease** – Mutations in **EFNB1** are associated with **craniofrontonasal syndrome (CFNS)**, a developmental disorder that affects craniofacial, skeletal, and neurological structures.

EFNB1 has been implicated in various malignancies. However, its role in gliomas remains poorly understood. A study aimed to elucidate the connection between EFNB1 and the glioma progression. A retrospective RNA-seq analysis was conducted by utilizing the data from glioma patients in the TCGA and CGGA databases. Kaplan-Meier survival analysis and multivariate regression models were employed to evaluate the prognostic significance of EFNB1. RT-PCR was used to quantify EFNB1 expression in glioma tissues and cell lines. Meanwhile, in vitro assays were carried out to assess its functional roles in glioma cells. The findings demonstrated that EFNB1 expression was significantly elevated in gliomas and other cancers. Moreover, high EFNB1 expression was closely correlated with advanced clinical stages and poor prognosis. Multivariate analysis identified EFNB1 as an independent prognostic factor for overall survival. KEGG pathway analysis suggested that EFNB1 is involved in critical biological processes, including the cell cycle, protein processing in the endoplasmic reticulum, Epstein-Barr virus infection, and Salmonella infection. Furthermore, EFNB1 expression was associated with immune cell infiltration, particularly Th2 cells, macrophages, and plasmacytoid dendritic cells. In glioma cells, EFNB1 expression was markedly increased. Consequently, functional experiments demonstrated that EFNB1 knockdown inhibited glioma cell proliferation, invasion, and migration. These results highlighted EFNB1 as a novel independent prognostic biomarker and suggest its potential role in shaping the immunological microenvironment of gliomas [1)]

1)
Zheng Y, Shi J. EFNB1 drives glioma progression and shapes the immune microenvironment: a potential prognostic biomarker. Discov Oncol. 2025 Feb 27;16(1):249. doi: 10.1007/s12672-025-01867-y. PMID: 40014231.