

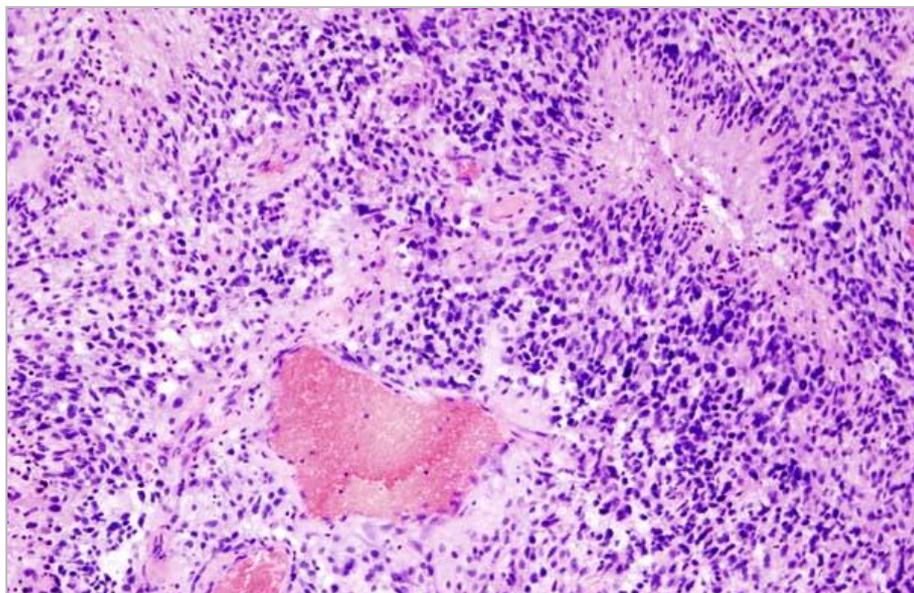
TECHNOLOGY OFFERS

Evi/Gpr177 as new target in Wnt signaling pathway for treating various cancer types (P-975)

A novel target that is strikingly upregulated in glioma tumorigenesis, offering a validated route for treatment and diagnostics

EXECUTIVE SUMMARY

Malignant astrocytomas constitute most primary brain tumors with poor prognosis for glioma patients and low long-term survival rates. Glioblastoma, the most aggressive form, are characterized by invasive behavior and a high degree of apoptosis resistance leading to limited treatment options. Despite highly aggressive multimodal therapy, including surgical resection followed by combined radio- and chemotherapy, the median survival of glioblastoma patients has remained as low as 12-14 months throughout the past decade. Lowering the rate of recurrence after tumor removal would greatly improve the poor prognosis for glioma patients.



*Histological image of cerebral glioblastoma.
[https://commons.wikimedia.org/wiki/File:Glioblastoma_\(3\).jpg](https://commons.wikimedia.org/wiki/File:Glioblastoma_(3).jpg)*

Category

Therapeutics

Indication

Cancer

Development stage

Lead

Seeking

Licensing, Development & Commercial Partner

BENEFITS

The Wnt secretion protein Evi/Grp177:

- is upregulated in various cancer types such as astrocytic astrocytoma and its high expression correlates with poor prognosis
- supports tumor cell proliferation, invasion and tumor initiation and prevents apoptosis
- constitutes a validated target for glioma treatment and glioma diagnostics.

TECHNOLOGY BACKGROUND

DKFZ inventors now identified the Wnt secretion protein Evi/Gpr177, which is strikingly upregulated during glioma tumorigenesis in a WHO stage-independent way and which correlated with poor prognosis ($p = 0.013$). SiRNA- and lentiviral shRNA-based silencing of Evi/Gpr177 significantly inhibited glioma cell proliferation and migration. Additionally, an inhibitory antibody against Evi/Gpr177 was invented that significantly reduced Wnt target gene response.

DEVELOPMENT STAGE

Functional analyses in glioma and glioblastom-derived cancer stem-like cells identified the target molecule as an essential regulator of glioma tumorigenesis. In the following animal studies will be performed, confirming the capability of Evi/Gpr177 as new target for glioma treatment.

APPLICATIONS

Evi/Gpr177 is a core Wnt signalling component and a specific regulator of pan-Wnt protein secretion, affecting both canonical and non-canonical signalling. This fact assigns the protein as vulnerable target for glioma treatment. Additionally, its localization in the membrane facilitates the accessibility to antibodies and compounds. Apart from the role as target, Evi/Gpr177 also can be used as diagnostic marker.

INTELLECTUAL PROPERTY

- A PCT patent application was published as WO2012143382A2,
- Nationalized in Europe (EP2699599B1 - granted)
- Nationalized in USA (US9062114B2 - granted)

PUBLICATIONS & REFERENCES

- "The Wnt secretion protein Evi/Gpr177 promotes glioma tumourigenesis." in EMBO Mol Med. 2012 Jan; 4(1): 38-51. by Augustin I, et al.
- "Wnt secretion is required to maintain high levels of Wnt activity in colon cancer cells." in Nat Commun. 2013 Oct 28 by Voloshanenko O, et al.
- "ERAD-dependent control of the Wnt secretory factor Evi." in EMBO J. 2018. By Glaeser K, Urban M, Fenech E, et al.

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ABOUT THE DKFZ INNOVATION MANAGEMENT

Working at the interface of research and industry, the Innovation Management of the German Cancer Research Center (DKFZ) helps to get new cancer medications, diagnostic tests, and research instruments onto the market as quickly as possible.

The DKFZ with its more than 3,000 employees is the largest biomedical research institution in Germany. At the Center more than 1,300 scientists investigate how cancer develops, identify cancer risk factors and endeavor to find new strategies to prevent people from getting cancer. They develop novel approaches to make tumor diagnosis more precise and treatment of cancer patients more successful. DKFZ is a member of the Helmholtz Association of National Research Centers, with ninety percent of its funding coming from the German Federal Ministry of Education and Research and the remaining ten percent from the State of Baden-Württemberg