## Vascular habitats

Glioblastoma's ability to invade the surrounding brain tissue, its resistance to therapy, and the development of new blood vessels are factors that contribute to its aggressiveness and poor prognosis.

Vascular habitats play a crucial role in the growth and progression of glioblastoma. Glioblastomas are known to be highly vascularized tumors, meaning they have a dense network of blood vessels. This vascularization is stimulated by the tumor cells themselves through the secretion of various growth factors and signaling molecules. The newly formed blood vessels provide the tumor with oxygen and nutrients, enabling its rapid growth and invasion into surrounding brain tissue.

The presence of abundant blood vessels in glioblastoma has several implications for patient prognosis:

Tumor growth and invasion: The dense network of blood vessels facilitates the growth and invasion of glioblastoma into surrounding brain tissue. This invasion makes it challenging to completely remove the tumor through surgery and increases the likelihood of tumor recurrence after treatment.

Resistance to therapy: The abnormal blood vessels in glioblastoma create a barrier that limits the delivery of chemotherapy drugs to the tumor cells. This poor drug delivery contributes to the resistance of glioblastoma to conventional treatments, such as chemotherapy and radiation therapy.

Angiogenesis inhibitors: Several drugs have been developed to target abnormal blood vessel formation in glioblastoma by inhibiting angiogenesis (the process of forming new blood vessels). While some of these drugs have shown promise in preclinical and early clinical studies, their efficacy in improving patient outcomes remains limited.

Prognostic markers: The extent of vascularization in glioblastoma can serve as a prognostic marker. Higher levels of angiogenesis, as indicated by increased blood vessel density, are associated with worse prognosis and shorter overall survival in patients.

Overall, the vascular habitat of glioblastoma contributes to its aggressive behavior, resistance to treatment, and poor prognosis for patients. Efforts to better understand and target the tumor's vascularization process are ongoing to develop more effective therapies for this devastating disease.

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