

Residual Glioblastoma and Glioma Cell Capture

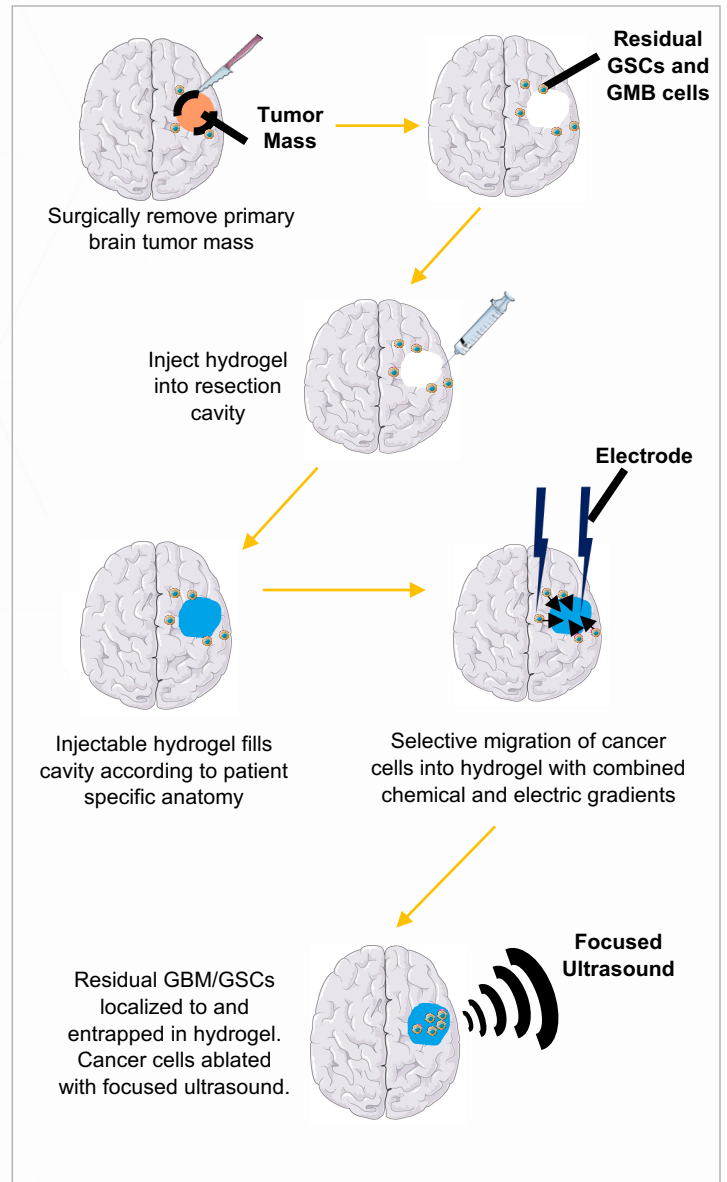
VTIP 20-092: “A Stimuli Responsive Injectable Hydrogel Platform to Capture and Eradicate Glioblastoma Cells and Glioma Cancer Stem Cells”

THE CHALLENGE

Physical removal of tumors in most cases cannot eradicate all the cancerous cells in the affected area. The cells that are left behind are known as residual tumor cells due to their inability to be removed. Some of these residual cells are also resistant to chemotherapy which make them particularly threatening as this is the primary method to remove residual cells. These residual cancer/tumor cells pose a serious threat to the body as they have the potential to cause a relapse by growing and initiating new tumors.

OUR SOLUTION

This technology proposes a multi-stimuli responsive polymeric biomaterial platform for treating glioblastoma multiforme. The treatment will localize and concentrate cancer cells and cancer stem cells responsible for tumor recurrence with a combination of physical/chemical cues to enhance selectivity to malignant cells only. Non-invasive tumor ablation technology will then be applied in a targeted manner to eradicate the cancer cells, without the need for surgically removing the biomaterial. This therapy is tunable to patient specific parameters and will increase the efficacy of glioblastoma treatments by enabling personalized treatment plans towards individual patients.



Schematic diagram of glioblastoma tumor cell entrapment into injectable hydrogel.



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