

Cancer Detection and Treatment Devices

Summary

Neurosurgeons at Baylor Scott & White Health have developed novel devices that provide for *in vivo* detection of solid cancerous tumors based on the measurement of magnetic fields. The apparatuses can also be configured to provide for ablation of tumor tissue upon detection of cancerous cells. The devices of the invention can also be used to monitor patients for recurrence of cancer following treatment and to apply subsequent retreatment as needed.

Key Investigator

Jason Huang, MD

Field

Neurology, oncology

Technology

Device for detecting and destroying abnormal tissue, such as cancer

Key Features

- Novel *in vivo* detection and/or treatment of cancer cells
- Treats tumors that may otherwise not be amenable to conventional therapy
- Real-time monitoring and treatment when inserted
- Reduces surgery time and cost
- Can be applied to multiple cancer screening methods

Stage of Development

Discovery

Status

Available for licensing

Patent Status

Provisional

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Market

This technology has the ability to identify and treat solid cancerous tumors otherwise difficult to treat, such as cancers in the brain.

Specifically, Glioblastoma Multiforme (GBM) is an aggressive primary brain tumor. GBM has the highest number of cases of all malignant brain tumors, with an estimated 12,120 new cases predicted in 2016 according to the American Brain Tumor Association. The median survival is 14.6 months.

Often times, a glioblastoma is treated through a combination of debulking surgery, to remove a portion of the tumor and relieve pressure on surrounding tissue, and/or with radiation, and/or chemotherapy in an attempt to remove the remainder of the glioblastoma. Unfortunately, in many instances, portions of the glioblastoma that are not removed during the debulking surgery may cause recurrence of the glioblastoma. Tumor recurrence is reported in more than 90% of all cases. It is difficult to judge all tumor margins to confirm complete removal of the tumor with present technology.

Technology

This technology includes novel devices for *in vivo* real-time detection of cancer based on measurement of magnetic fields. The technology also includes methods of diagnosing and detecting cancer cells *in vivo* using devices of the present invention. The devices can also be used to assess response to therapy and to screen for recurrent tumor following therapy.

The device has the ability to identify cancerous cells *in vivo*, thus allowing the surgeon to see the extent of the tumor spread and completely treat the tumor by ablation. The unique ability to monitor response to therapy at the time of treatment will lead to more effective surgery and earlier diagnosis of recurrence.

In brain tumor locations where conventional surgical approaches are not allowed, the device's minute size will permit insertion and cancerous excision with minimum healthy brain parenchymal damage.

The device's use can be expanded to include preliminary diagnosis in other screening methods such as mammography and colonoscopy.