Enhanced Treatment & Imaging of Cancers through Iron Nanoparticles

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Technology description

Technical Summary

Brain tumors present particular challenges for both the patients struck with the disease and the medical professionals sought for their treatment. Even though there are multiple treatments for brain tumors (medication, surgery, and radiation), there are still poor prognoses for this patient population. Emory researchers discovered that the incorporation of Iron molecules into existing antibody targeting therapies, allows physicians to use different techniques to destroy cancer cells more efficiently and with minor loss of normal tissue. These elemental iron nanoparticles can be used for a range of applications including cancer localization, tumor cell apoptosis, and tumor cell lysis. These attributes make this technology ideal for treating difficult to reach cancers; particularly brain tumors such as Glioblastoma Multiforme (GBM). These nanoparticle have been used in mice implanted with cancerous cells in the brain and demonstrated increased survival when compared to controls

GBM is the most common and aggressive primary brain tumor. Alone, GBM makes up 52% of parenchymal brain tumors and 20% of all intracranial tumors.

Application area

This technology includes targeted Iron Nanoparticles that enable the localization and management of cancers.

Advantages

Improved targeting and treating of tumor cells, while minimizing loss of unaffected tissue.

Targets only cancer cells, minimizing therapy induced side-effects.

Allows clinicians to treat cancers, otherwise untreatable without costly invasive procedures and/or therapies.

Institution

Emory University

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