Methods of Cold Plasma Treatment of Brain Tumor

Technology #017-042-keidar

GW researchers developed a novel micro-sized cold atmospheric plasma (CAP) device in order to target glioblastoma brain tumors. CAP is made when gas is ionized at room temperature. CAP induces apoptosis in cancer cells without harming normal cells. GW already commercialized a CAP device to be used in tumor surgeries to remove potential tumor cells left behind in the area around the removed tumor. The commercial device is much too large to be used in brain surgery.

Treatment of brain tumors requires particular care, because of the brain’s susceptibility to damage and limited reparability. Surgery remains a primary treatment of glioblastoma brain tumors, because many drugs cannot cross the blood brain barrier and the tumors are very resistant to conventional therapies. To apply CAP within the brain, GW researchers created a new micro-sized CAP (mCAP) device. The prototype mCAP device safely suppressed tumor growth in mice.

Applications

- Cancer therapy

Advantages

- Tiny device reaches tumors previously untreatable by CAP
- Delivers CAP to tumors in situ

Inventors

Michael Keidar
Jonathan Sherman
Colin N. Young
Zhitong Chen
Hayk Simonyan