Gene fusion events identified for diagnostic and therapeutic interventions for glioblastoma and other forms of cancer

Technology #cu13242

Glioblastoma is an aggressive and dangerous malignant form of brain tumors. Current treatments involve a combination of chemotherapy, surgery, and radiation but survival rates are still dismal due the difficulty in treating this disease. This technology reveals that genetic fusions involving the epidermal growth factor receptor (EGFR) gene are the most common gene fusion events associated with glioblastoma. The technology demonstrates that these fusion events are integral in the development and progression of glioblastoma. The genetic fusions described in this technology are therefore important therapeutic targets for treating the disease. The technology offers evidence that administration of EGFR-targeting inhibitors augmented with standard strategies may improve treatment. This technology thus motivates the development of diagnostics and therapeutics directed towards EGFR fusions.

Newly identified target for diagnosis and therapy provides more options for treating a difficult disease

Currently, there is a severe lack of effective treatments for patients with glioblastoma. EGFR fusions are identified in this technology as a target for glioblastoma diagnosis and treatment, and could potentially provide new options for patients. Additionally, the distinction against EGFR fusion proteins versus normal EGFR proteins allows for the development of specific inhibitors against the fusion proteins. On a broader scope, it is also probable that EGFR fusions could occur in other forms of cancer as well, which would potentially make this technology widely applicable towards a large range of diseases.

The prevalence of EGFR fusions in glioblastoma was demonstrated through massive sequencing efforts using samples from afflicted patients. The causative effect of EGFR fusions, as well as the therapeutic benefit of EGFR inhibitors, was then demonstrated using mice with implanted human tumor samples.
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Applications:

- Diagnostic target for glioblastoma, and possibly other forms of cancer
- Identification of therapeutic targets such as fusion-specific proteins
- Reduction or hindrance of tumor growth rate

Advantages:

- Fusion-specific inhibition allows for targeted drug treatments with possibly reduced side effects
- Synergistic with other forms of chemotherapy and surgical interventions
- Potential personalized treatment strategies for patients identified with specific fusion events

Patent information:

Patent Pending

Licensing Status:

Available for licensing and sponsored research support

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Related Publications:


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