



GLIOMA CLASSIFICATION

Genetic Panel to Molecularly Classify Diffuse Gliomas

Brief Description of Technology

Genetic panel that combines copy number alterations [CNAs] and sequencing information to diagnose brain tumor molecular subtypes.

BUSINESS OPPORTUNITY

Exclusive license
Sponsored research

TECHNOLOGY TYPE

Bioinformatics
Biomarker
Diagnostic
Nucleic acid

STAGE OF DEVELOPMENT

Preclinical *in vitro*

PATENT INFORMATION

Patent pending

INVESTIGATOR

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Technology Overview

In 2016, the World Health Organization revised their classification system for CNS tumors to include molecular parameters in addition to the standard histopathology features. Dr. Holland's team identified and defined novel CNA-based subtypes that are independent of WHO grading. These molecular subtypes are defined by the following CNAs: chromosome 1 gain, chromosome 19 gain, CDK4 amplification, MDM2 amplification, CDKN2A deletion, and chromosome 14. This divides diffuse gliomas into eight distinct forms. The treatment and survival rates widely vary between different forms of gliomas so this diagnostic information is key to decision making. The algorithmically derived combination of CNAs has the potential application to be developed as a diagnostic kit, specifically using the technology of real-time PCR [qPCR].

Applications

- Rapid classification of CNS tumors
- Determine therapeutic strategies based on molecular subtype
- Patient stratification for clinical trials

Advantages

- Improved risk stratification
- Superior survival prediction

Market Overview

Almost 80,000 new cases of primary brain tumors are expected to be diagnosed in 2017. Diffuse gliomas are the most common malignant primary brain tumors. Glioblastomas [GBMs] are the most common diffuse gliomas, representing 15% of all brain tumors and 55% of all gliomas. GBMs, in general, have a poor prognosis, with the average overall survival of approximately 12-15 months. The market for GBM therapeutics is expected to grow at 17% CAGR to \$3.3 billion in 2024. The poor prognosis and increasing incidence rate necessitate the need for rapid diagnostics for risk stratification and patient management.