



THERAPEUTIC, DIAGNOSTIC

Treatment of brain tumors with combinatorial NAMPT inhibitors and NAD precursors

Brief Technology Description

Methods to treat glioblastomas and other brain cancers with combinations of nicotinamide phosphoribosyltransferase (NAMPT) inhibitors and nicotinamide adenine dinucleotide (NAD) salvage pathway precursors.

BUSINESS OPPORTUNITY

Exclusive licence
Non-exclusive license
Sponsored research
Start-up

TECHNOLOGY TYPE

Therapeutic

STAGE OF DEVELOPMENT

Preclinical *in vitro*

PATENT INFORMATION

[Patent Pending](#)

INVESTIGATOR OVERVIEW

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Technology Overview

Treating brain tumors remain a challenging target due to challenges associated with crossing the blood brain barrier, accessibility, rapid spread, and tumor complexity. For all brain tumors, including benign tumors, the five-year survival rate is 33 percent. This survival rate drops to 5 percent for glioblastoma multiforme, the most malignant brain tumor type. One promising avenue to target cancerous cells is to alter components of their metabolism, as cancerous cells seem to require higher levels of nicotinamide adenine dinucleotide (NAD), a cofactor central to metabolism, than noncancerous cells. Nicotinamide phosphoribosyltransferase (NAMPT) plays a key role in the biosynthesis of NAD and can be upregulated in a variety of tumor types. Unfortunately, these trials have had limited success due to dose-limiting toxicities and low efficacy, potentially due to alternative cellular pathways for NAD synthesis. Hutch researchers have discovered alternative pathways not present in some cancer cells, which allow non-cancerous cells to produce NAD. By treating with a combination of these salvage pathway precursors and NAMPT inhibitors, researchers can selectively eliminate cancer cells and increase the therapeutic index of NAD synthesis inhibitors in specific subtypes of cancer, which include a variety of glioblastomas.

Applications

- Treatment of a variety of cancers, including glioblastomas and brain cancers

Potential Advantages

- Increased therapeutic index of NAMPT inhibitors

Market Overview:

The market for brain tumor pharmaceuticals market is expected to grow to \$3.41 billion at a CAGR of 9.2% through 2022, driven by the increasing prevalence of neurological disorders and increased focus on treatment.