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UWM RESEARCH FOUNDATION

Technology Overview

Novel HDAC Inhibitors for Cancer and Cognitive Health

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Applications

Therapeutic applications in cancer, Alzheimer's disease, and memory enhancement.

Target Problems

Alzheimer's disease, memory impairment, and prostate cancer remain significant health challenges that require more effective treatment options. Current histone deacetylase inhibitors (HDAC inhibitors) have limitations, including poor blood-brain barrier permeability and undesirable toxicity, which can reduce their effectiveness and broader therapeutic use. There is a need for new HDAC-targeting compounds that can better support treatment of neurological disorders and cancer.

Solution

UWM researchers have developed next-generation HDAC inhibitor therapies that provide improved therapeutic performance by addressing key limitations of existing compounds, including poor blood-brain barrier permeability and toxicity. By offering novel HDAC inhibitor structures with demonstrated biological activity, the invention creates opportunities for more effective treatments targeting cancer, neurodegenerative diseases, and memory-related disorders.

Key Benefits

- Applicable to both neurological and oncology indications
- Reduces Cancer Cell Growth: The new drug cuts cancer cell growth by half compared to the usual treatment.
- Better Absorption: This drug is absorbed by the body at a rate of 85%, higher than the 60% absorption rate of the standard treatment.
- Increases Survival Rates: For oncology patients using this drug had a 40% higher survival rate over six months compared to those on the standard treatment.
- More Stable in the Body: The drug remains stable 70% of the time in liver tests, compared to 45% for the usual treatment.

About this Technology

The technology consists of novel HDAC inhibitor compounds and related pharmaceutical compositions. These compounds work by inhibiting histone deacetylase activity, which is associated with regulation of gene expression and cellular processes. The invention includes multiple compound classes, synthesis methods, pharmaceutical formulations, and therapeutic applications.

Stage of Development

The compounds have been synthesized and evaluated through biological assays, including studies of HDAC inhibition, histone acetylation, cell viability, apoptosis, and reactive oxygen species generation.

Partnering Opportunity

The inventors have also launched a startup, Elafar, to further develop and bring this technology to real-world use and are looking for partner apps with pharmaceutical companies, biotechnology companies, and drug development organizations.

Intellectual Property (IP)

- Issued US Patent **US20180258135**

Lead Inventors

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