Treating Chronic Myeloid Leukemia

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WARF: P130277US02

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in finding a potential cure for chronic myeloid leukemia and applying induced pluripotent stem cells to identify novel drug targets for CML stem cells.

OVERVIEW

Chronic myeloid leukemia (CML) is a disorder driven by overproliferating leukemia cells in bone marrow and blood. Targeted therapy uses thyrosine kinase inhibitors to inhibit leukemia cells, but fails to cure the disease because the leukemia stem cells (LSCs) are resistant to drugs. A definitive cure will require identifying the right genes to eradicate LSCs.

The rarity of LSCs within the large pool of malignant cells makes them challenging to study. To counter this problem, UW–Madison researchers have developed a method to reprogram patients' common cells into induced leukemia stem cell-like cells (iLSCs). The iLSCs act as cell models to help identify promising gene targets and screen drugs without the constant need for new bone marrow biopsies.

THE INVENTION

With their method, the researchers have discovered a potential gene target to treat chronic myeloid leukemia. The gene, called OLFM4, was identified using iLSCs derived from a patient's reprogrammed cells. They found that knocking down OLFM4 inhibits leukemia stem cells. Forty other potential gene targets also have been identified.

APPLICATIONS

- Treating and potentially curing chronic myeloid leukemia
- Applying induced pluripotent stem cells for identifying of novel drug targets in LSCs

KEY BENEFITS

THE WARF ADVANTAGE

WARF: A Leader in Technology Transfer Since 1925

Since its founding as a private, nonprofit affiliate of the University of Wisconsin–Madison, WARF has provided patent and licensing services to UW–Madison and worked with commercial partners to transform university research into products that benefit society. WARF intellectual property managers and licensing staff members are leaders in the field of university-based technology transfer. They are familiar with the intricacies of patenting, have worked with researchers in relevant disciplines, understand industries and markets, and have negotiated innovative licensing strategies to meet the individual needs of business clients.

The University of Wisconsin and WARF – A Single Location to Accelerate Translational Development of New Drugs

UW–Madison has the integrative capabilities to complete many key components of the drug development cycle, from discovery through clinical trials. As one of the top research universities in the world, and one of the two best-funded universities for research in the country, UW–Madison offers state-of-the-art facilities unmatched by most public universities.

These include the Small Molecule Screening Facility at the UW Comprehensive Cancer Center; the Zeeh Pharmaceutical Experiment Station, which provides consulting and laboratory services for developing formulations and studying solubility, stability and more; the Waisman Clinical Biomanufacturing Facility; the Wisconsin Institute for Medical Research, which provides UW–Madison with a complete translational research facility; and the innovative, interdisciplinary Wisconsin Institutes for Discovery, home to the private, nonprofit Morgridge Institute for Research and its public twin, WID, part of the university's graduate school. The highly qualified experts at these facilities are ready to work with you to create a library of candidates for drug development.

- Provides a novel drug target for eradication of CML stem cells
- iLSCs are very useful for studying disease mechanisms and potential drug targets.

STAGE OF DEVELOPMENT

The researchers have identified 41 potential gene targets and have demonstrated that knockdown of OLFM4 inhibits leukemia stem cells.

ADDITIONAL INFORMATION

Tech Fields
Drug Discovery - Stem cells

CONTACT INFORMATION

For current licensing status, please contact Andy DeTienne at adetienne@warf.org or 608-960-9857.