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

- 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

For More Information About the Inventors

- Igor Slukvin

Tech Fields

- Drug Delivery : Other drug delivery technologies

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