Cincinnati Children's | Innovation Ventures

Oncology

Combination Therapy for Leukemia and Solid Tumors

Brief Description of Technology

A pharmaceutical therapy that has demonstrated, in vivo, the ability to eliminate leukemic, lung adenocarcinoma and lung squamous carcinoma cells.

TECHNOLOGY ID

2011-0409

COMPLEMENTARY TECHNOLOGY

2015-0511, 2015-0607

BUSINESS OPPORTUNITY

Exclusive License

TECHNOLOGY TYPE

Small Molecule

PATENT INFORMATION

Nationalized

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Technology Overview

Treatment for various kinase-driven cancers have advanced, but there is often a relapse after treatment is discontinued. We have identified a therapeutic cocktail that eliminates this relapse by inhibiting three complementary pathways: c-Fos, Dusp-1 and BCR-ABL tyrosine kinase. In vivo experiments in an animal model mimicking human CML, AML, and lung cancers showed that treatment with our cocktail fully suppressed the expression of cancer stem cells. A one month drug treatment cured the mice of leukemia and eradicated the cancer stem cells while those treated with only one or two components of the cocktail relapsed, demonstrating that this cocktail provides an effective therapy for leukemia. Further, inhibition of DUSP-1 alone is effective against MPN.

Applications

Acute Myelogenous Leukemia (AML); Chronic Myelogenous Leukemia (CML); Lung Adenocarcinoma; Lung Squamous Carcinoma; Myeloproliferative neoplasms; and possibly other kinase-driven cancers

Advantages

- Highly effective in eliminating leukemic cells from peripheral blood.
- Provides a curative method of treating CML, which would not require lifelong treatment, and a curative method of treating kinase resistant AML.
- Potential platform for treating multiple cancers.

Market Overview

The American Cancer Society estimates that approximately 19,940 new cases of AML and 8,450 new cases of CML occur each year.

Investigator Overview

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