

# Potential new drug derived from magnolia plants delivered directly to leukemia cells

March 2 2022, by Leslie Orr

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Credit: University of Rochester Medical Center

A cancer scientist, a chemist, and a biomedical engineer at the University of Rochester and its Wilmot Cancer Institute discovered a potential new drug and a new way to deliver it directly to acute myeloid leukemia cells.

The investigational drug is derived from plants in the magnolia family. Known as micheliolide, it has been studied for years because of its anti-cancer activity. But the Rochester trio invented a new synthetic version of the agent and repackaged it using nanoparticles designed to swiftly send the drug to the bone marrow where leukemia hides and blooms.

Their paper, in the journal *Advanced Therapeutics*, describes progress to target and destroy the stem cells at the root of acute leukemia.

The team includes Rudi Fasan, Ph.D., the Andrew S. Kende Professor of Chemistry at the UR; Danielle Benoit, Ph.D., professor of Biomedical Engineering; and Ben Frisch, Ph.D., assistant professor of Pathology and Laboratory Medicine and Biomedical Engineering. The trio launched their project in 2017, aided by University of Rochester seed funding.

Frisch, whose lab is at Wilmot, has been testing the investigational [drug's](#) potency and how well the nanoparticles navigate the bone marrow in mice. Further research is needed before the system can be evaluated in [human clinical trials](#), researchers said.

Nanotechnology, a growing field, provides an alternate way to carry medical therapies in the body to its intended cell targets. For example, nanoparticles are used in the mRNA vaccines against COVID-19 and are believed to have promise in many areas of medicine.

**More information:** Marian A. Ackun-Farmmer et al, Nanoparticle-Mediated Delivery of Micheliolide Analogs to Eliminate Leukemic Stem Cells in the Bone Marrow (*Adv. Therap.* 1/2022), *Advanced Therapeutics* (2022). [DOI: 10.1002/adtp.202270001](https://doi.org/10.1002/adtp.202270001)

Provided by University of Rochester Medical Center

Citation: Potential new drug derived from magnolia plants delivered directly to leukemia cells (2022, March 2) retrieved 5 May 2024 from <https://medicalxpress.com/news/2022-03-potential-drug-derived-magnolia-leukemia.html>

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