

Researchers discover compound that fights leukemia and lymphoma

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Renato Aguilera, Ph.D., a professor in the Department of Biological Sciences at The University of Texas at El Paso, is the principal investigator on a project that identified a novel pharmaceutical compound that successfully kills leukemia and lymphoma cancer cells, potentially paving the way for new forms of therapy. His team's findings were recently published in the research journal *PLOS One*.

Credit: The University of Texas at El Paso.

Researchers at The University of Texas at El Paso have identified a novel pharmaceutical compound that successfully kills leukemia and lymphoma cancer cells, potentially paving the way for new forms of therapy.

Renato Aguilera, Ph.D., a professor in the Department of Biological Sciences, is the principal investigator on the project that identified the promising compound, called thiophene F-8. His team's [findings](#) were published in the journal *PLOS One*.

"The main goal of my research is to discover new anticancer drugs that can eventually treat distinct [cancer](#) types," Aguilera explained. "This research not only had amazing results, it also led to the training of five Ph.D. students who are now working as postdoctoral fellows in research laboratories across the nation."

Leukemia is a cancer of the blood cells while lymphoma is a cancer of the immune system. As part of their research into potential treatment of these cancers, Aguilera's lab screened drug compounds to determine their impact on various cancer cell types.

Pharmaceutical companies generate millions of compounds and their full range of uses is often unclear or unknown, Aguilera said. Some of these companies sell the generated compounds as chemical libraries, which researchers like Aguilera can then study to determine the precise effect of the compounds on human cells.

"The hardest part of this kind of research is figuring out what exactly a drug does," said Aguilera who also serves as director of the Research Infrastructure Core of UTEP's Border Biomedical Research Center.

As part of the project, the UTEP team tested 1,300 different compounds on cultures of human cancer cells. Thiophene F-8 was very successful at

inducing programmed cell death in the leukemia and lymphoma cells, essentially sending a message to the cells causing them to kill themselves and inhibiting the growth of new cancer [cells](#).

Mia Swain, Ph.D., helped discover and conduct research on thiophene F-8 as a doctoral student at UTEP. Swain graduated from UTEP in December of 2022 with a doctoral degree in biological sciences and is currently a postdoctoral fellow at Texas Tech University Health Sciences Center El Paso.

"Engaging in such a groundbreaking discovery has been truly fulfilling," Swain said. "The compound's potential to work in conjunction with existing therapies could be life-changing for leukemia and lymphoma patients."

The UTEP team will continue studying the effectiveness of thiophene F-8. If the drug is successful in further testing, Aguilera said, [pharmaceutical companies](#) may one day launch [clinical studies](#) to determine the compound's effect on patients.

More information: Risa Mia Swain et al, Thiophene derivative inflicts cytotoxicity via an intrinsic apoptotic pathway on human acute lymphoblastic leukemia cells, *PLOS ONE* (2023). [DOI: 10.1371/journal.pone.0295441](#)

Provided by University of Texas at El Paso

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