

Researchers discover new combination of 2 previously approved FDA drugs to treat lung cancer

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A team of researchers led by Dr. Goutham Narla at Case Western Reserve University School of Medicine in collaboration with scientists at Mount Sinai School of Medicine in New York, have discovered a previously unrecognized signaling network disrupted in lung cancer that can be turned back on by a novel combination of two previously approved FDA drugs. The drug combination targets a pathway to treat advanced/late stage lung cancer. The work highlights how understanding the basic mechanisms regulating cancer development and progression can lead to new uses for existing FDA approved drugs in the treatment of cancer.

"Because of the financial constraints and length of time it takes to bring new drugs through clinical trials, scientists are moving toward using existing drugs in new ways so that the process of translating the discoveries of today into the treatments of tomorrow can be accelerated," said Goutham Narla, MD, PhD, assistant professor, Department of Medicine, Institute of Transformative Molecular Medicine, Case Western Reserve University School of Medicine. Dr. Narla is also a medical geneticist at University Hospitals Case Medical Center.

"This 'movement' in science toward using existing [FDA approved drugs](#) for new purposes in the treatment of [cancer](#) has expanded our understanding of the pathways that cause the disease and significantly

accelerates our ability to treat a greater number of patients. In many instances, every month makes a difference for a patient when dealing with terminal cancer," said Dr. Narla.

Dr. Narla's laboratory focuses on the identification and characterization of the genes and pathways involved in [cancer metastasis](#). By studying the functional role of the KLF6 [tumor suppressor gene](#), Dr. Narla and his team have identified new signaling pathways regulated by this gene family thus providing new insight into [cancer diagnosis](#) and treatment. The team's research found that KLF6 and FOXO1, both tumor suppressor genes, are turned off as cancer spreads through the body. By using a combination of two existing FDA drugs - Erlotinib, a targeted cancer drug, and Trifluoperazine, a medication used to treat schizophrenia - the team developed an understanding of the properties that turn these critical genes back on, initiating tumor cells to die.

Since first discovering the KLF6 gene 13 years ago as a medical student at the Mount Sinai School of Medicine in the laboratory of Dr. Scott Friedman, Dr. Narla has been involved in the identification and characterization of the KLF6 gene and its role in cancer development and the progression of cancer.

This study appears online in the *Journal of Clinical Investigation*.

Provided by Case Western Reserve University

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