

Jeffrey Epstein, New York Financier and Harvard University Help Combat the Evolution of Cancer

/EINPresswire.com/ The [Jeffrey Epstein VI Foundation](#) Backs Pivotal research on the evolution of cancer cells.

The [Jeffrey Epstein VI Foundation](#), a science foundation based in New York City, has helped finance the first mathematical model of how human cancer cells evolve, and more specifically, how they evolve to become immune to inhibitor drug therapy, a popular alternative to chemotherapy. Cellular resistance to inhibitor drug therapy is still a major challenge to finding a cure for cancer and the new mathematical model has led to a critical understanding of how to combat it.



Jeffrey Epstein

The mathematical model was developed by [Martin Nowak](#), Director of the Program for Evolutionary Dynamics at Harvard University and post-doctoral students, Benjamin Allen and Ivana Bozic. Martin Nowak is also Professor of Mathematics and Biology at Harvard. Their research was conducted from the request of the Pathology and Oncology Department at John Hopkins University. The Department was trying to understand how the KRAS gene in colon cancer cells becomes activated during inhibitor drug therapy, making the cells resistant to treatment.

By developing a mathematical model of colon cancer cell growth during treatment with an inhibitor drug, (which typically blocks a protein receptor), Nowak and his team, showed how the KRAS gene is not actually activated or 'switched on' from inhibitor drugs but rather a small percentage of colon cancer cells with an already activated KRAS gene are immune from the start and evolve to predominance as the other cancer cells are destroyed by the inhibitor drug.

The discovery was critical in changing the approach to inhibitor drug therapy. Instead of applying a single inhibitor drug, which can lead to a resilient minority to dominate, the Pathology and Oncology Department at John Hopkins are now exploring the use of a cocktail of drugs to block all colon cancer cell types: those with the activated KRAS gene and those without. The same approach is underway for other cancer types.

"The use of mathematics in biology is an exciting new field," Jeffrey Epstein remarked. "It reveals patterns that are not otherwise seen or understood."

Much research still needs to be done: cocktail tolerance needs to be assessed, and cocktails have to be specific to cancer types and minority cells known to be resistant.

The Jeffrey Epstein VI Foundation established the Program for Evolutionary Dynamics at Harvard University in 2003 with a \$30 million dollar grant. In addition to supporting cutting edge science around the world, its founder Jeffrey Epstein also sits on the board of the Mind, Brain and Behavior Committee at Harvard.

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