Hedge Funder, Jeffrey Epstein Funds Groundbreaking Colon Cancer Research at John Hopkins University.

Science philanthropist, Jeffrey Epstein and the founder of the Program for Evolutionary Dynamics at Harvard University has helped fund pivotal research in how to combat colon cancer and specifically cancer resistance to inhibitor drugs.

The research was conducted by Martin Nowak, Director of the Program for Evolutionary Dynamics. Nowak and his team set about to figure out why 28 colon cancer patients at John Hopkins University were showing resistance to a successful inhibitor drug called panitumumab. Their findings have revealed the critical need for a cocktail approach to combatting cancer.

Inhibitor drugs have been a growing trend in fighting cancer. Unlike chemotherapy, inhibitor drugs attach themselves to and block specific proteins unique to a cancerous cell. While many inhibitors have successfully eradicated cancer cells, a mutated form of that cancer almost always returns, and is usually more resilient and faster growing.

Dr. Bert Vogelstein at John Hopkins, who instigated the investigation of the 28 colon cancer patients, enlisted the help of mathematician Martin Nowak and his team to create a mathematical model of how the colon cancer cells were reacting to the inhibitor panitumumab. Nowak's findings were illuminating: they showed that as the cancer cells rapidly reproduced, various mutations would inevitably occur. Some of those mutations would show resistance to the inhibitor drug, and although that resistant pool was less than 1%, it quickly evolved to tumor capacity. In fact, even before treatment began, Nowak and his team found one in a million cells to carry resistant mutations and could also quickly evolve to tumor level.

Up to now, doctors and clinical trials have been testing inhibitor drugs in sequence to one another: if one fails due to resistance, a new one is applied to fight it.

"The problem with this sequential approach," Jeffrey Epstein remarked "is that new resistance is guaranteed to occur to the second drug."

"The second one fails for the same reason as the first one," Martin Nowak asserted to the *New York Times.*

Based on this, Dr. Vogelstein and Dr. Nowak concluded that a cocktail of inhibitor drugs must be used to target all possible mutations. The challenge however is daunting: there are few, if any clinical trials that offer inhibitor combinations, mutation analysis within a cancer needs to be improved and toxicity tolerance better evaluated.

SOURCE:

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