New Approach Uses Woman's Cells to Provide 12-Year Survival in Multiply Recurrent Stage 4 Lung Cancer

Laboratory Analysis of Patient's Living Cancer Cells Identifies Effective Drug Combinations Often Missed by Standard Protocols


Dr. Robert Nagourney releases 20-year cancer study

LONG BEACH, CA, UNITED STATES, November 25, 2025 / EINPresswire.com/ -- Long Beach, California - As reported in today's issue of Current Oncology (1) a groundbreaking approach that applies multi-omic analyses combining genomic and functional platforms provided an unprecedented 12-year survival for a 67-year-old woman diagnosed with metastatic lung cancer. By using the patient's own cancer cells to optimize treatment selection these investigators were able to extend her survival by over a decade.

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>
> *Dr. Robert Nagourney*

Lung cancer is the third most common form of cancer and leading cause of cancer death in the US. According to the American Cancer Society Stage 4 lung cancer has a 5-year survival rate of only 9% for patients with this type of metastatic disease.

Letting the Tumor's Biology Drive Treatment Selection

By studying the patient's tumor tissue using functional profiling in combination with gene profiling in the laboratory, the Nagourney Cancer Institute team discovered a unique chemotherapy drug combination that would not normally be prescribed This treatment proved highly effective against the patient's initial cancer.

Each time the patient's tumor relapsed, it responded to drugs and combinations that differed from those used in previous treatments. These were identified in the laboratory using her tumor cells to select the best options. This dramatically reduces the guesswork inherent in many protocol-directed cancer treatments.

Working on samples in the CLIA Lab at NCI

Steve Evans working in the lab at NCI.

Functional Profiling is a laboratory technique pioneered by the NCI research team. that measures how cancer cells respond when exposed to a variety of drugs and drug combinations, "By combining functional profiling measures that examine the tumor's biology with genomic measures that examine DNA mutations to provide additional guidance where possible, we were able to achieve extraordinary results," said Dr Robert Nagourney, the senior author of the study.

"Even at a point when no mutations could be identified using genomic testing, tissue studies still found active drugs that extended the patient's survival by a decade. This shows why lab-driven approaches could fundamentally change our approach to cancer treatment."

Staying Ahead of Tumors That Evolve to Become Drug-Resistant

Among the most important findings of the study is the role of cancer cell evolution that is driven by exposure to drugs and drug combinations. Human cancers are recognized to be highly heterogeneous meaning that different cancer sub-populations are present within each tumor at the time of initial diagnosis.

When drugs are administered, the more drug-resistant sub-populations become the dominant group, in some cases completely replacing the original cancer cell population.

"The implications are profound as we see that each tumor sub-population has distinct

vulnerabilities. This offers the opportunity to individualize treatments in the first line and every time the tumor recurs, extending survival by years." Dr. Nagourney noted.

About Nagourney Cancer Institute

The Nagourney Cancer Institute is a research laboratory whose mission is to replace the protocol-directed cancer treatment model by basing a patient's cancer treatment on lab-directed choices. NCI's targeted EVA/PCD platform called Functional Profiling, measures how a patient's own cancer cells respond when they are exposed to drugs and drug combinations in the laboratory. This helps select the most effective and least toxic drug regimen based on a patient's own cancer cells. For more information visit https://www.nagourneycancerinstitute.com/

Laboratory/Test Information

The Nagourney Cancer Institute (NCI) clinical laboratory is certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA). The EVA/PCD test is intended for clinical purposes.

References

(1) Serial Functional and Genomic Analyses Illuminate Clonal Evolution in Metastatic NSCLC with 12-Year Survival https://www.mdpi.com/1718-7729/32/11/646

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