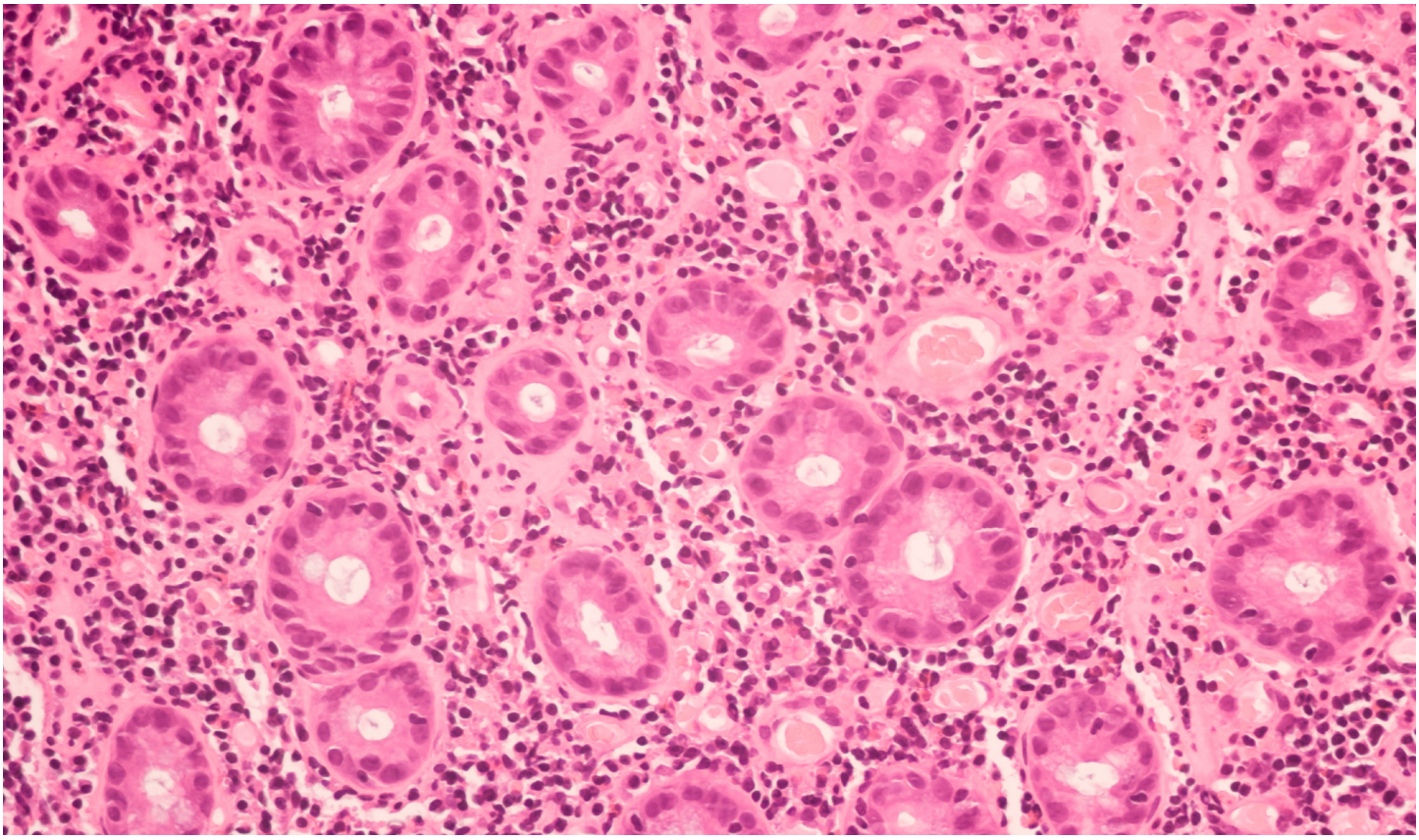
POLITICO

ARPA-H funds early cancer detection tool

By Lauren Brensel | October 21, 2025



An agency within the Department of Health and Human Services has awarded Carnegie Mellon University researchers $26.7 million to develop a single at-home cancer screening system using synthetic biology, which would detect signs of 30 different types of cancer as early as stage one.

Carnegie Mellon's team is one of four labs to receive award money from the Platform Optimizing SynBio for Early Intervention and Detection in Oncology program within the Advanced Research Projects Agency for Health. ARPA-H will invest $147 million over five years in POSEIDON, according to the agency. The funding award was announced before the government shutdown began.

The agency did not respond to a request for comment.

How it works: The multi-cancer early detection system uses an oral medication with sensors that detect three warning signs of cancer: low oxygen levels, high acidity and increased lactate. After taking the pill, users would provide a urine sample. The results, which would appear in a downloadable app, could indicate whether a cancerous tumor might be present and where it might be located.

Why it matters: The funding comes as the National Cancer Institute estimates about 2 million Americans will be diagnosed with cancer this year. Typically, cancer screening requires visiting a medical facility. At-home kits like the MCED system the researchers are developing could make cancer detection more accessible.

Many people aren't being routinely screened for cancer because they don't have a regular health care provider, said Erica Childs Warner,

a managing director of research, education and outreach for the Prevent Cancer Foundation, a nonprofit that supports methods for early cancer detection.

"Reaching cancer screening before you have any signs or symptoms of disease can give you more treatment options and more healthy days ahead," Childs Warner told POLITICO.

The Carnegie Mellon team plans to seek FDA approval for its MCED kit, according to the program's call for proposals. The kit would test for signs of hard-to-detect cancers like gallbladder, stomach, pancreas and lung cancer, which would benefit most from early diagnosis. A doctor's visit would be required to confirm any positive results.

The kit's ability to detect cancer early is significant as most cancer deaths stem from late diagnoses, said Burak Ozdoganlar, a Carnegie Mellon mechanical engineering professor and an investigator on the project.

"We can avoid literally three-fourths of cancer deaths at least from that cause by detecting it at an early stage," Ozdoganlar told POLITICO. "This is tremendous in terms of human lives."

Key context: The funding comes as President Donald Trump pledged to defeat pediatric cancer, doubling the budget of a childhood cancer research initiative.

However, the Trump administration has cut funding for public health research. Those cuts include dismantling a foreign-aid agency that supplied millions in research dollars to U.S. universities and eliminating hundreds of NIH grants, including some dedicated to cancer research.

"It's a big award that needs to be this scale to enable the research to go forward," Rebecca Taylor, a mechanical engineering professor at Carnegie Mellon and an investigator on the project, told POLITICO. "But it's at a time when that's particularly unusual, so we recognize that."

What's next: The Carnegie Mellon team and the ARPA-H program hope to bring the kit into human trials within five years and eventually offer it to the public without a prescription for less than $100, according to the call for award proposals.