Targeting pancreatic cancer growth and spread

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In laboratory tests, the drug suppressed or prevented pancreatic cancer spread when given in combination with traditional chemotherapy. Credit: UC Foundation.

While the overall cancer death rate has been steadily declining in the

U.S. since the 1990s, death rates due to pancreatic cancer are increasing.

This is especially true in pancreatic cancer that has metastasized, or spread to a different part of the body. The National Cancer Institute reports approximately 3.2% of patients with metastasized pancreatic cancer will survive five years after their diagnosis.

If treatments can stop the cancer from spreading, there may be a better likelihood of survival for these patients.

The University of Cincinnati Cancer Center's Vladimir Bogdanov is testing a new drug developed in his lab that is designed to block the growth and spread of cancer cells. He recently presented his research at the American Association for Cancer Research's Special Conference on Pancreatic Cancer held September 27–30 in Boston.

Bogdanov has zeroed in on a specific molecule that is overexpressed in cancer and can activate the growth and spread of cancer cells. The drug developed by Bogdanov's lab is a humanized antibody designed to target and neutralize this molecule, with the aim to block cancer cell growth and spread.

Researchers led by Bogdanov recently tested the drug's effectiveness in combination with current standard-of-care chemotherapy treatments in human pancreatic cancer cells within animal models in his laboratory.

Bogdanov said that in his model, cancer spreads easily when no treatment is given, and standard chemotherapy decreases the spread by about half. But when chemotherapy was given in combination with the novel drug, cancer spread was even more suppressed and, in some settings, did not spread at all.

"The most important finding is that our first-in-class drug shows promise

in stemming metastasis, which is the main cause of death in pancreatic cancer," said Bogdanov, Ph.D., director of the Hemostasis Research Program and associate professor of internal medicine in UC's College of Medicine. "In addition, the drug appears to work well in combination with standard-of-care types of chemotherapy, which is important from the clinical perspective."

Moving forward, Bogdanov said he plans to test the drug in combination with chemotherapy in additional pancreatic cancer cell lines and in patient-derived tissue samples. Additionally, his team is working to develop a system of larger-scale production of the drug in anticipation of early-stage clinical trials.

Like many scientific advancements, the development of this drug has been a long process, but Bogdanov has been persistent and made steady strides since his lab began developing a prototype in 2009. He credits the support of the Cancer Center's research community, leadership and shared resources.

"Each step of the process has been critical to the success of our project," he said. "In equal measure, the feeling is that of encouragement to continue our work based on our latest results and of gratitude to ... agencies, our fellow researchers and collaborators and patients and their families that provide so much support to early-stage translational research."

Provided by University of Cincinnati