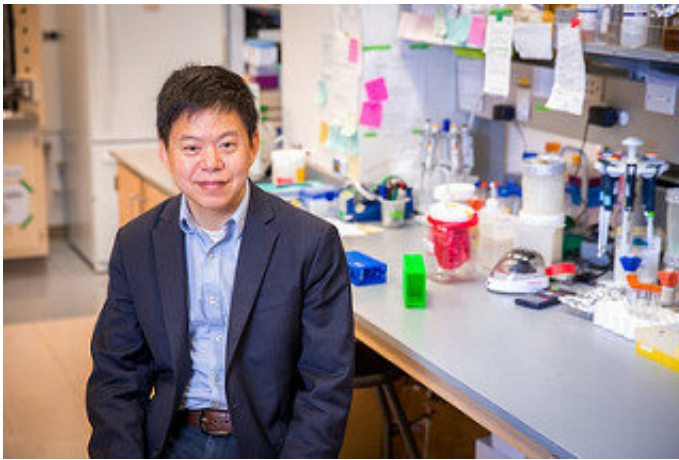


Programming white blood cells to fight pancreatic cancer

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Peter Yingxiao Wang, Ph.D. Credit: UC San Diego Jacobs School of Engineering

Pancreatic cancer is the third most lethal cancer in the United States. Patients typically don't know they have it until it's too late, making it difficult to treat. Only 9 percent survive five years after diagnosis.

But recent discoveries at the UC San Diego Institute of Engineering in Medicine are raising hope. Michael Bouvet, MD, Professor of Surgery in the Division of Surgical Oncology, who specializes in endocrine surgery, has been working with Peter Yingxiao Wang, Ph.D., Professor of Bioengineering, to develop a treatment.

"It's very difficult to cure [pancreatic cancer](#). Often times the tumors escape and spread and [patient survival](#) is very poor. So we're looking for better ways to treat patients and we want to make them more specific for patients' tumors to ensure higher chances of success," says Bouvet.

Bouvet and Wang's approach involves reprogramming a type of white blood cell, called monocytes, to target and eradicate pancreatic cancer tumors. Wang's team is developing a way to genetically modify monocytes so that they target pancreatic cancer [cells](#), and then upon hitting their target, transform into another type of white blood cell, called macrophages, which are able to essentially eat and destroy cancer cells. Bouvet's team then tests these re-engineered [monocytes](#) in mouse models of pancreatic [cancer](#).

The work is currently at the proof-of-concept stage. Results from mouse studies are preliminary but promising.

Wang notes how invaluable it is for engineering teams to have clinical partners to help steer and fine tune their ideas.

"As engineers, we can come up with ideas from our imagination and we want to see if they will work in the lab at all. But clinicians can provide a more practical point of view of what will work in the body, what's safe," says Wang.

Provided by University of California - San Diego

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