

New drug to target and destroy tumor cells developed

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A new drug created at the University of Minnesota may hold the answer to defeating pancreatic cancer, according to results published today in the prestigious journal *Science Translational Medicine*.

The study is based on successful outcomes in a mouse model – results researchers expect to carry over to human patients when the drug potentially begins human trials in 2013.

The drug, Minnelide, is a type of injectable chemotherapy designed to target tumor cells. The drug works by inhibiting a [heat shock protein](#), HSP 70, which has been proven to aid the growth of tumor cells. By stopping HSP 70 from working, Minnelide disperses the cells integral to the tumor's growth and the cancer disintegrates. The drug is based on patented technology designed in the lab of Ashok Saluja, Ph.D., professor and vice chair of research in the University of Minnesota Medical School's Department of Surgery. Selwyn Vickers, M.D., chairman of the Department of Surgery, Gunda Georg, Ph.D., director of the Institute for Therapeutics Discovery and Development in the College of Pharmacy, and Bruce [Blazar](#), M.D., director of the Center for Translational Medicine, also partnered on this project. Pancreatic cancer is the most lethal of all cancers. This year alone, more than 44,000 Americans will be diagnosed with the disease and the median survival time following a pancreatic [cancer diagnosis](#) is just six months.

"A diagnosis of pancreatic cancer is incredibly grim. There is no good way to treat or cure this particular type of cancer," said Saluja, who

holds the Eugene C. and Gail V. Sit Chair in Pancreatic and [Gastrointestinal Cancer](#) Research, "and the best options currently available offer just six weeks of added survival. It is far from tackling the real problem which is that pancreatic cancer tumor cells make survival proteins, rendering them increasingly difficult to defeat." In 2007, Saluja and his collaborators discovered [pancreatic cancer](#) cells have too much HSP 70, which protects cells from dying. Because of this excess protein, pancreatic [cancer cells](#) are difficult to target with drugs, meaning the logical next step in fighting the cancer was to determine how to inhibit HSP 70 in these tumor cells.

Saluja found that triptolide, a compound derived from plants in China, worked to halt the development of HSP 70 in [tumor cells](#), but because triptolide is not water soluble, it was still difficult to administer to patients. The Saluja lab, in collaboration with the Department of Medicinal Chemistry, worked to make triptolide water soluble. They named their drug Minnelide as a nod to the compound from which it was derived, triptolide, and its discovery location, the University of Minnesota.

The University of Minnesota holds the patent on the modifying factors that create Minnelide from triptolide. It has been licensed to Minneamrita Therapeutics LLC for production.

Provided by University of Minnesota

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