

MU researcher close to solving problem for cancer patients

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Patients with cancer and other long-term debilitating diseases often have additional problems. Many cancer patients, and those with other chronic diseases, can experience a wasting disease, cachexia anorexia, which causes the body to consume its own organs. Now, a University of Missouri researcher is beginning to plan for clinical trials with a drug that could block the cachexia from occurring, giving physicians additional time and treatment options for their patients.

"When people get the flu, they typically have difficulty eating for several days; yet their metabolisms will increase and their muscle mass will decrease disproportionately compared to their reduced food intake," said Ken Gruber, professor of pharmacology and physiology and president/CEO of Tensive Controls Inc. "Now, imagine that scenario over the course of several months or years; that is what happens to [cancer patients](#). The body's metabolism increases when people become afflicted with certain diseases, resulting in the need for more calories. With cachexia, no matter how much nutrition a body is given, it will continue to need more, thus leading the body to look for other sources of nutrients, which could include the heart, liver, kidneys and other organs."

Gruber, who has obtained several patents on his work and who also holds an appointment at the MU Dalton Cardiovascular Research Center, and other researchers found that the melanocortin system in the brain drives the body's metabolism. Previously, drugs that attempted to control metabolism also produced cardiovascular [side effects](#). Gruber and his colleagues found a solution by developing a drug that controlled

[metabolism](#) without producing significant side effects. Further, the drug was designed around a substance already familiar to the body and only stays in the system a short time.

"Chemists often try to fight the body with drugs developed through some type of molecular chemistry, typically producing a molecule the body has never seen before," Gruber said. "As the drug creates a beneficial reaction, the body is stressed as it attempts to excrete the drug, a substance it has never seen before. Our drug is a peptide, essentially a very small protein. This class of compounds is very familiar to the body. Peptides stay in the [body](#) for short periods of time, have no significant side effects and are easily excreted."

To develop the drug, Gruber founded Tensive Controls Inc., a biotech company focused on commercializing the discovery to benefit patients who have cancer and other debilitating diseases. In order to move this drug to the marketplace, Gruber utilized the expertise and assistance at the MU Life Science Business Incubator at Monsanto Place. Gruber expects the [drug](#) to be available to treat dogs in mid-to-late 2014, and he is currently in communication with the FDA to determine their requirements for human [clinical trials](#), possibly by 2015.

"The university has been very supportive of the business incubator, opening all of its core facilities to the resident companies," Gruber said. "I believe it is unusual to find a cooperative agreement that exists between a business incubator and a university similar to the one that exists between this incubator and the University of Missouri."

Provided by University of Missouri-Columbia

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