

Finding – and fighting – the fat that fuels cancer

UT Southwestern research examines role of certain fat cells in tumorigenesis

DALLAS – Feb. 6, 2013 – Scientists at UT Southwestern Medical Center have made a key observation regarding how fat cells (also referred to as adipocytes) interact with tumor cells and thereby allow a cancer to thrive in dense breast tissue or fatty livers.

Fat cells near tumors secrete a variety of extracellular factors, some of which boost tumor development and progression, the UT Southwestern researchers report in the November issue of the *Journal of Clinical Investigation*.

The correlation between obesity and various solid and hematological cancers – along with other diseases like diabetes, osteoarthritis, and cardiovascular disease – has long been known. The ongoing challenge – and the focus of this latest investigation by Dr. Philipp Scherer, Director of the Touchstone Center for Diabetes Research at UT Southwestern – is to identify which extracellular factors are most important in driving tumor growth and to determine how to target them.

The UTSW research has found that endotrophin is a fat cell-derived extracellular factor that fuels the growth of breast tumors in mice. Working with the lead author, Dr. Jiyoung Park, assistant instructor of internal medicine, Dr. Scherer showed that blocking endotrophin secreted by the rodent's fat cells had a remarkable effect on breast cancer tumors: blocking endotrophin with an antibody not only reduced tumor growth, but also prevented the cancer from metastasizing to other parts of the body.

“Not all fat is bad, but endotrophin happens to be more abundant in unhealthy fat tissue,” Dr. Scherer said. “In the context of tumor growth, fat cell-derived endotrophin stimulates the growth of blood vessels that in turn feed cancer cells and enables the tumor to grow more rapidly.

“As we gain weight, we not only have an increased risk of developing cancer, but we also decrease the chance of successfully fighting the tumor,” Dr. Scherer said.

The researchers said future efforts will explore various pathological settings to establish whether this blocking approach is a viable strategy in the clinic.

The study received support from the National Institutes of Health, the National Cancer Institute, and the Department of Defense Fellowship.

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Visit <http://www.utsouthwestern.edu/newsroom/index.html> to watch Dr. Scherer discuss his latest research findings. Visit the [Harold C. Simmons Cancer Center](#) to learn more about oncology at UT Southwestern, including highly individualized treatments for cancer at the region's only National Cancer Institute-designated center.

About UT Southwestern Medical Center

UT Southwestern, one of the premier medical centers in the nation, integrates pioneering biomedical research with exceptional clinical care and education. The institution's faculty has many distinguished members, including five who have been awarded Nobel Prizes since 1985. Numbering more than 2,700, the faculty is responsible for groundbreaking medical advances and is committed to translating science-driven research quickly to new clinical treatments. UT Southwestern physicians provide medical care in 40 specialties to more than 100,000 hospitalized patients and oversee nearly 2 million outpatient visits a year.

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