

Local SANTA BARBARA COUNTY NEWS

UCSB researchers gain insight on how cancer spreads

By GARRY WORMSER
NEWS-PRESS CORRESPONDENT

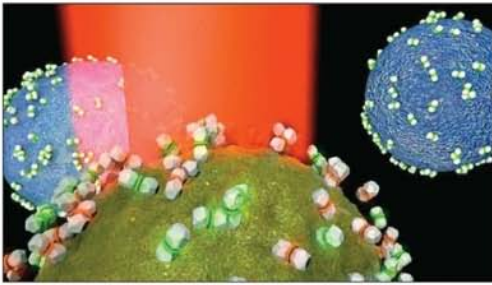
UCSB researchers have developed an innovative new approach to the detection of prostate cancer cells that could lead oncologists to a better understanding of how malignant tumors metastasize.

"Such diagnosis is difficult today because cancer cells in the blood generally number only about 10 per millimeter, while the normal white blood cell count is in the order of millions per millimeter," explained Alessia Pallaoro, a postdoctoral fellow in UCSB's department of chemistry and biochemistry.

Dr. Pallaoro was first author of a paper on the subject recently published in the Proceedings of the National Academy of Sciences.

"There is a big focus on understanding what causes tumors to shed cells into the blood. That's because catching all of the blood's cancer cells would theoretically stop metastasis," said Gary Braun, the paper's second author and postdoctoral fellow in UCSB's department of molecular, cellular, and developmental biology.

The research team, headed by chemistry and biochemistry professor Martin Moskovits, infiltrated the laboratory cell culture with nanoparticle biotags carrying cell-targeting peptides. A helium neon laser was then used to analyze signals from



COURTESY PHOTO

A microscopic view of cancer cells.

malignant cells carrying the biomarkers.

"We're hoping to ultimately translate the technology into a working diagnostic microdevice that would allow oncologists to monitor blood cells as a routine part of cancer therapy," Dr. Pallaoro said.

The team hopes to eventually be able to develop more biotag markers to identify and study unique tumor cells that are different from the main tumor cells, Dr. Pallaoro said.

"These different cells must be strong enough to start a new tumor, or they must develop changes that allow them to colonize in other areas of the body," she said. "Some changes must

be on the surface, which is what we are trying to detect."

The research team plans to use their laser-biomarker technology to analyze blood flow under laboratory conditions and to eventually analyze blood drawn from living subjects. Dr. Pallaoro noted that, aside from the blood, metastasizing cancer cells could also be carried in lymph fluids.

The peptide biomarkers themselves are the result of a joint research effort by scientists at UCSB and the Sanford Burnham Medical Research Institute. UCSB and Sanford Burnham have been developing peptide nanoparticles to recognize malignant tissue and actively destroy lesions.



STEVE MALONE / NEWS-PRESS

UCSB scientist Alessia Pallaoro demonstrates how laboratory cell cultures are prepared for spectroscopic analysis. Dr. Pallaoro is part of a UCSB research team attempting to better understand how malignant tumors metastasize.

The work was funded through UCSB's Institute for Collaborative Biotechnologies and by a grant from the National Science Foundation. An additional grant supporting Dr. Braun's research was awarded by the Cancer Center of Santa Barbara. email: news@newspress.com

Local SANTA BARBARA COUNTY NEWS

UCSB researchers gain insight on how cancer spreads

WEEK AHEAD Oct. 3-4

Affordable housing management on Lompoc agenda

City Council sets 6-month holiday season Christmas agenda

GOT A NEWS TIP? NEWS HOT LINE

Do something about your hearing NOW! COMFORTABLE DIVISIBLE QUALITY SOUND

AM 1290 RADIO "Radio Real Estate"