



Research helps predict success with lung cancer drugs

Scientific paper published in the Journal of Thoracic Oncology

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SCOTTSDALE, Ariz. — Researchers at the Virginia G. Piper Cancer Center at Scottsdale Healthcare, the Translational Genomics Research Institute (TGen) and Van Andel Research Institute (VARI) have discovered a biomarker that could help in the treatment of patients with an aggressive type of lung cancer.

Using a particular biomarker, researchers might better predict which patients with small cell lung cancer (SCLC) are resistant to existing drug therapies, and which ones could benefit from new therapies tailored to their specific needs, according to a scientific paper published today in the *Journal of Thoracic Oncology*.

Of all lung cancer patients, an estimated 33,000 are diagnosed with SCLC. This is a particularly aggressive disease that usually goes undetected until it is in an advanced stage and treatment options are limited. More than 95 percent of SCLC patients eventually die from the disease.

Researchers profiled 34 tumor samples from patients with a median age of 69. They analyzed each tumor's microRNAs, searching for those that might be associated with cancer survival.

They identified three microRNAs associated with SCLC. But one in particular, identified as miR-92-2*, was "significantly" linked to survival, the paper said. This microRNA could be used in two significant ways:

- As a predictive biomarker in the development of new treatments for those SCLC tumors that prove to be *de novo* chemoresistant — possessing properties that render them inherently resistant to existing drug therapies.
- As prognostic biomarkers in the screening of SCLC patients and the design of clinical trials better tailored to their prognosis.

Nearly 220,000 Americans are diagnosed each year with lung cancer, which is by far the leading cause of cancer death in the U.S., annually killing nearly 160,000 patients.

"There is a need for predictive biomarkers that can aid investigators in designing future clinical trials, to help identify treatments that might be effective for these patients who most likely will be resistance to existing drug therapies," said Dr. Glen J. Weiss, the paper's senior author and director of Thoracic Oncology at TGen Clinical Research Services at Scottsdale Healthcare. TCRS is a partnership between TGen and Scottsdale Healthcare that helps bring new therapies quickly to patients at the Virginia G. Piper Cancer Center in Scottsdale.

"Our results demonstrate that higher tumor miR-92a-2* levels are associated with chemoresistance and with decreased survival in SCLC patients," said the paper titled *MicroRNA 92a-2*, a Biomarker Predictive for*



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Chemoresistance and Prognostic for Survival in Small Cell Lung Cancer Patients.

The next step in this research should be to attain further validation by analyzing additional independent samples, the paper concludes.

"VARI provided bioinformatics support assembling all the different types of data into a cohesive data set for analysis to help identify the miRNA that play a role in the survival of the lung cancer patients," said Dr. David Cherba, a VARI bioinformatics scientist.

This was one of the first scientific papers published since the completion of the TGen-VARI alliance and affiliation agreement, announced in February.

"The collaboration that occurred on this project highlights the synergies created by the VARI-TGen alliance," said Dr. Craig Webb, a VARI senior scientific investigator.

Dr. Jeffrey Trent, president and research director for TGen and VARI, said the new discoveries could have profound implications for the future of medicine.

"This advanced technology is exciting because of how these microRNA biomarkers could lead to improvements for patients. Hopefully, this will translate to new treatments and improved survival," Dr. Trent said.

This study was funded by the American Cancer Society, a Sylvia Chase Pilot Grant and the IBIS Foundation of Arizona.

The Virginia G. Piper Cancer Center at [Scottsdale Healthcare](#) opened in 2001 as the first major cancer center in greater Phoenix to offer comprehensive cancer research, diagnosis, treatment, prevention and support services in a single location at Scottsdale Healthcare Shea Medical Center.

The cancer program at Scottsdale Healthcare recently received Accreditation with Commendation from the Commission on Cancer of the American College of Surgeons. Clinical trials of new treatments for rare and advanced cancers conducted at the Virginia G. Piper Cancer Center at Scottsdale Healthcare have been featured in numerous scientific papers and presentations at international cancer conferences.

Free cancer resources are available to the public at the Virginia G. Piper Cancer Center at Scottsdale Healthcare. Cancer Care Coordinators offer free information and physician referrals at 480-323-1255 or ccc@shc.org and research coordinators provide information about clinical trials at 480-323-1339, toll free at 1-877-273-3713 or clinicaltrials@shc.org.