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Researchers awarded $1M for cancer study

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With $1 million in funding from the American Recovery and Reinvestment Act, WVU researchers are setting out to improve the five-year survival rate in patients whose lung cancer recurs.

When lung cancer comes back — as it does in up to half of patients — it's almost always fatal, according to Lan Guo, a WVU researcher. Without accurate prediction methods, doctors base decisions about surgery and chemotherapy on experience as much as science. The five-year survival rate for lung cancer, regardless of treatment, remains low.

Guo would like to change that, and her team will now add four people — a postdoctoral student, two graduate students and a technician. The researchers will comb through patients' samples looking for biomarkers associated with lung cancer. If successful, they may be able to show a specific pattern of RNA, DNA or protein molecules that signals a particularly aggressive tumor.

"That would be good for all lung cancer patients," she said. "For those who have the poor-prognosis gene pattern, even if their cancer is at an early stage, their doctor may recommend additional chemotherapy. If we can show that those with a good-prognosis gene pattern are at lower risk of recurrence, those patients can be spared the serious side effects that often come with powerful cancer drugs."

Unlike many researchers at WVU's Mary Babb Randolph Cancer Center, Guo is a computer scientist. Her expertise is in data mining — extracting information from thousands of medical records to generate information to guide doctors and patients.

"The project was selected on merit, as will be the participants," Guo said. "Because of this extra funding, four students will have an opportunity to work very early in their lives on a project with real significance in how cancer care is delivered."

Recovery Act money will also allow the researchers to make millions of National Cancer Institute records — housed in the Surveillance, Epidemiology and End Results (SEER) Program database — more accessible to patients.

The WVU team will build a web-based interface so patients can match their symptoms, genetic information and other information with a cross-section of lung cancer patients.

"This will give patients access to the whole process and a tool to interpret research findings that may have an impact on their choices for care," Guo said.

The work cuts across several fields of research including biostatistics, computer science, pathology, molecular genetics, public health and cancer clinical trials. The project involves collaboration between the WVU team and the Pathology and Physiology Research Branch and the Biostatistics and Epidemiology Branch of the National Institute for Occupational Safety and Health.

Guo is part of WVU's Center of Biomedical Research Excellence (COBRE) for Signal Transduction and Cancer led by Laura Gibson, Ph.D., the Cancer Center's deputy director.

Guo's group has already been successful in identifying genes found in lung cancer tumors.