

**SPECIAL REPORT** | Reno scientists discovered the first retrovirus since HIV. It could solve the mystery of Chronic Fatigue Syndrome and other maladies.

# Medical breakthrough puts Reno in spotlight



DAVID B. PARKER/RGJ

Whittemore-Peterson Institute researchers Vincent Lombardi and Judy Mikovits said their work has attracted the attention of some of the world's largest pharmaceutical companies.

## How the Whittemore-Peterson Institute came to be

Three forces combined in Reno's emergence as a national destination for Chronic Fatigue Syndrome research:

**PARENTS' DRIVE:** The daughter of Annette and Harvey Whittemore is suffering from Chronic Fatigue Syndrome. Annette Whittemore has been tireless in her quest to find help for her daughter, who has been fighting the illness for nearly 20 years.

**MONEY AND INFLUENCE:** The Whittemores' financial contributions, estimated in the millions, combined with Harvey Whittemore's influence as a former lobbyist.

**FEW ROADBLOCKS:** The University of Nevada, Reno, is small compared to institutions with established research facilities. That played to everyone's favor as officials were able to act quickly as donations and support for the institute grew.

## Inside today's special report

### ■ MEET THE PATIENTS, 6A-7A

Chronic Fatigue Syndrome affects the whole family. The diagnosis of the illness spurred one family to create the Whittemore-Peterson Institute. For another family, the institute's work brings new hope.

### ■ MEET THE RESEARCHER, 8A

Microbiologist Judy Mikovits feels empathy toward people who suffer from Chronic Fatigue Syndrome and other illnesses, an emotion she learned in childhood as her grandfather was dying of lung cancer.

## On RGJ.com/wpi

- Read the Whittemore-Peterson Institute's report on its Chronic Fatigue Syndrome study.
- View a photo gallery of the people involved in the research.

## Medical study buoys patients, earns scientists global acclaim

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BY LENITA POWERS  
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Judy Mikovits remembers that "eureka" moment when she realized that she and her team of researchers at the Whittemore-Peterson Institute in Reno had discovered a new retrovirus that could lead to a possible treatment, even a vaccine, to combat Chronic Fatigue Syndrome.

"It was January 22, and we were in a San Diego restaurant called the Yard House," said Mikovits, who had gone there with fellow scientist Vincent Lombardi to present the results of their research to Frank Ruscetti and Robert Silverman, two of the world's leading virologists.

"We kept waiting for them to say something," Mikovits said. "I was nauseous. Bob (Silverman) waited a long a time, and then he looked up and said, 'Well, this is going to change their world.'"

And it has.

The research resulted in a paper that was published last month in a prestigious scientific journal, which set off a flurry of media coverage that put the Whittemore-Peterson Institute and Reno's name in reports from the New York Times, the Wall Street Journal and the BBC.

The institute's finding also heralds the prospect of money to be made from intellectual property that could be used to develop drugs and a vaccine, and of prestige for Reno and Nevada as scientists from around the country and the world take

SEE RESEARCH ON 8A

# Research/XMRV also studied in autism cases

from 1A

part in future research, Mikovits said.

This breakthrough discovery of a new infectious human retrovirus in Chronic Fatigue Syndrome patients also holds out hope for those who suffer from other illnesses, including fibromyalgia, nongenetic autism and possibly even some forms of cancer, institute researchers said.

In addition to money and fame, the discovery of the new retrovirus XMRV and its link to the syndrome could provide the medical world with the first means to diagnose those stricken by the disease, Lombardi said.

"What makes this especially exciting is patients, who basically have been ridiculed and poked fun at for having a disease that has been given very little credibility, finally would have hope," Lombardi said. "And it could lead to real treatment strategies."

## 'If we could develop a vaccine'

Annette Whittemore, founder and president of the Whittemore-Peterson Institute, said the recent findings could lead to drugs to treat syndrome patients, but just as important, it also could mean the development of a vaccine to protect others from the illness.

"The idea of another generation that could be so deeply impacted ... If we could develop a vaccine and actually stop that from happening, it would be fantastic," Whittemore said.

The rate of the syndrome within families suggests it could be transmitted more easily than previously thought, but additional studies must be done to determine how the retrovirus passes from person to person, Mikovits said.

"That's why the National Institutes of Health is interested. There's some misconception that just because XMRV is an HIV-related retrovirus, it's sexually transmitted, but that's not been shown yet," she said. "What our paper shows is we can get it out of the blood, but more



DAVID B. PARKER/RGJ

Whittemore-Peterson Institute for Neuro-Immune Disease researcher Vincent Lombardi, working in the Applied Research Facility at the University of Nevada, Reno, credits the university with providing resources and lab space for the institute's work.

research is needed."

She cautioned that just because someone is found to have the retrovirus doesn't mean they will develop the symptoms of the syndrome.

"People who are resistant, their immune systems could be so strong that, although they're replicating the virus like mad, they may never get sick because they can keep the virus down," Mikovits said. "So we're looking at that, too."

Further research also is needed to determine if XMRV causes the syndrome or if the retrovirus sets up an immune deficiency that results in susceptibility to the syndrome and possibly other diseases such as autism or some cancers.

"We saw (the retrovirus) in 30 percent of a small number of autistic patients we looked at," Mikovits said. "That's 30 percent, but if one in about 100 children have autism, that's a lot."

The XMRV retrovirus also

was found in 3.7 percent of the control group of 218 healthy people who did not have Chronic Fatigue Syndrome.

Mikovits said extrapolating that percentage to the rest of the nation could mean as many as 10 million people in the United States could have the retrovirus, but it might never result in illness among those with strong immune systems.

## Vaccines, treatments

If further research demonstrates XMRV causes the syndrome, then drugs to treat it and a vaccine to prevent its spread could be developed, Mikovits said.

The National Cancer Institute already has started working on a vaccine, and clinical trials are expected to begin at the Whittemore-Peterson Institute sometime next year, Mikovits said.

The world's largest pharmaceutical companies have been calling the institute ask-

ing if they can test their lines of a drug now used to treat patients with HIV, another retrovirus, to see if their antiviral drugs can be adapted to treat Chronic Fatigue Syndrome patients.

"They want us to send them the (XMRV) retrovirus so they can screen huge libraries of compounds and see what they have that could work," Mikovits said. "They already have drugs to treat HIV, so they could redesign a compound for the XMRV virus. Since they already have FDA approval, they could get something out to people fast."

Among the drug companies lining up are LabCorp and Quest, two of the largest diagnostic companies in the world, Mikovits said.

The drug companies will pay for the Reno institute's cell lines, the established cultures that will grow the XMRV retrovirus so they can test their antiviral drugs on them, she said.

"I think this will bring money into the state right now," Mikovits said. "Investigators will want to come to the University of Nevada, Reno to do science, and we will have to hire doctors and nurses for the clinical trials."

Future research and biotechnology stemming from the initial study is expected to generate more research and intellectual property.

"And the Whittemore-Peterson Institute is nonprofit, so we can put it all back into the patients," Mikovits said.

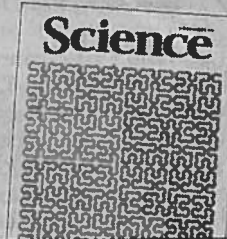
Lombardi, Mikovits' colleague at the institute, said the recent media attention has overlooked the critical contributions made by UNR.

"They haven't gotten credit for the resources and the lab space and support they have given, without which this never would have happened," Lombardi said.

"For the university, Reno and the whole state, it will put us on the map," Mikovits said. "It's already doing that."

## About the research

**THE ARTICLE:** The research paper that made the research known appeared Oct. 8 in the journal *Science*.



**THE AUTHORS:** Judy Mikovits, Vincent Lombardi and other scientists at the Whittemore-Peterson Institute at the University of Nevada, Reno in collaboration with the National Cancer Institute and the Cleveland Clinic.

**THE FINDINGS:** The scientists detailed how they found the retrovirus XMRV in the blood of 67 percent of the 101 Chronic Fatigue Syndrome patients they tested. In comparison, the retrovirus was found in only 3.7 percent of the 218 healthy people from the control group.

## THE SIGNIFICANCE:

Although parts of the XMRV retrovirus were identified three years ago in aggressive prostate cancer cases, it was never before recognized as a new infectious human pathogen, Mikovits said.

"That was the significance of our research paper," she said. "That's why it was published in *Science*."