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ImmuneWorks to help patients breathe easier

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When Teresa Geiger attended a lung disease conference five years ago, she could count on one hand the number of meetings dedicated to something called idiopathic pulmonary fibrosis.

The disease, commonly called IPF, afflicts 128,000 people in the U.S., and 40,000 will die from it this year. It has no treatment and no known cure.

In May, Geiger attended another lung conference. The sessions on IPF were so numerous that she couldn't attend them all; one 3,000-seat auditorium was standing-room only.

Geiger has a personal stake in the fight. Her father died of IPF in 1996; from 2001 through 2006, his four siblings all were diagnosed with and died of the same disease.

"Scientists are recognizing this is a huge area of interest," said Geiger, who helped found the San Jose, Calif.-based Coalition for Pulmonary Fibrosis in 2001 and works as its vice president of advocacy and patient outreach. "I'm excited about it. I'm excited about any research done that could (lead to) a treatment. There was a time when no one was doing it."

But now, one Indiana company has joined the fight.

ImmuneWorks, a life-sciences startup based at Indiana University's Emerging Technologies Center near the Downtown Canal, has developed a therapeutic product it says can help fight IPF and increase the success rate of lung transplants.

In July, President and Chief Executive Wade Lange joined the company founded in 2006.

The company last week secured \$300,000 in early-stage funding from BioCrossroads' \$6 million Indiana Seed Fund 1, and Lange hopes to begin clinical trials by next summer. He said the company will start by focusing on IPF and lung transplants and move on to other autoimmune diseases.

An autoimmune disease such as IPF -- or Type I diabetes, rheumatoid arthritis or multiple sclerosis -- causes the body to attack what it thinks is a foreign substance. That's what happens when organ transplants are rejected.

"If you know what the trigger is, you might be able to educate the body not to respond," said David Wilkes, co-founder and chief scientific officer of ImmuneWorks. He also is a professor of medicine, microbiology and immunology at IU and directs the medical school's Center for Immunobiology.

"We think we've found a key trigger," he said.

In the case of IPF, that trigger is something called collagen V, a substance that assists muscles all over the body, but is especially useful in helping the lungs stretch and contract.

The problem occurs when a patient has a lung transplant. The body thinks the collagen V that is released is a bad thing, and the autoimmune response kicks in to get rid of it.

That can lead to scarring and a drying up of lung tissue, which can cause patients to slowly suffocate.

"It's a horrific disease," Wilkes said. "There is no good therapy."

Wilkes, who has spent the past 15 years studying lung transplants at IU, said the survival rate after such a transplant is about 50 percent; patients with IPF survive about three years after they are diagnosed.

"Of all the organs that are transplanted, lungs do about the worst," said Wilkes, "The irony is that patients that have IPF get listed for lung transplants."

To become a viable company, Lange said, ImmuneWorks had to focus on both IPF and transplants. About 1,200 lung transplants are performed every year.

"It's not an insignificant number," Lange said.

David Johnson, chief executive of BioCrossroads, an Indianapolis-based life-sciences initiative, cited ImmuneWorks as an example of the type of technology transfer and commercialization of innovations that originates from IU.

"ImmuneWorks is very big science that addresses a very significant medical need," Johnson said. "It could have a very big ending to it if they're successful. It's very promising."

Geiger, with the Coalition for Pulmonary Fibrosis, said the past decade has seen an increase in the number of people interested in the disease, but federal support for it still lags better-known diseases such as breast cancer or cystic fibrosis.

"It's a marked change in the last few years. The more companies like ImmuneWorks that are out there looking, the more opportunity we're going to have to find treatment," Geiger said, adding that her group does not fund ImmuneWorks.

"We need answers, and we need treatment. Transplant is not the answer. We need treatment," she said.