

Case Western Reserve's new medical researchers pump millions into Northeast Ohio economy

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When the medical school at Case Western Reserve University wanted a leader for the physiology and biophysics department, it wooed a researcher at the top of his field from an ivy-league competitor.

The school did the same thing when it needed heads for its cardiovascular medicine, and hematology and oncology departments, as well as its proteomics center.

"What we go out looking for is excellence," said Pamela Davis, the researcher, professor and administrator at the medical school who became its dean late last year.

What Northeast Ohio got was an economic boost.

Five researchers won by the medical school in the last three years are pumping more than \$60 million into the region's economy -- and they promise to add more in the future.

The group, just one example of the medical research, innovation and development going on in Northeast Ohio, illustrate how federal research dollars can start a region's economic ball rolling.

The researchers -- Walter Boron, Dan Simon, Krzysztof Palczewski, Alvin Schmaier and Mark Chance -- brought dozens of scientists and millions of dollars in federal grants with them, spending the dollars to equip and staff their laboratories here.

They are entrepreneurs -- researchers who know how to pitch the National Institutes of Health for multi-million-dollar grants as easily as they do venture capitalists for money to invest in their businesses.

Their businesses?

All have started at least one company, and their businesses eventually could add jobs and wealth to the region's economy if they raise enough money and develop commercially viable products.

In the meantime, the federal grants are having a multiplied economic effect in the region. Each NIH dollar awarded to Ohio research institutions in 2007 generated \$2.29 in business activity, according to a recent report by Families USA's Global Health Initiative.

That's because most of the grant money -- about \$8 out of every \$10 -- goes to pay technicians, post-doctorate students, junior faculty and principal investigators in the researchers' labs over several years.

These lab workers, who earn between \$50,000 and \$100,000 per year, in turn spend their paychecks locally on things like housing, goods and services.

Boron, the latest medical school recruit, brought eight researchers with him from Yale School of Medicine. The Elyria native and accomplished scientist was hired in September as chairman and professor of the school's physiology and biophysics department.

Simon, recruited as director of the University Hospitals Heart & Vascular Institute in 2006, brought 15 doctors and scientists with him from Brigham and Women's Hospital, Harvard Medical School, in Boston.

The Harvard-trained cardiologist and other new cardiovascular faculty have recruited another 20 scientists since then, bringing their division to 59 people. They also brought with them \$12.6 million in NIH grants, and an additional \$5.2 million in indirect NIH support, said Simon, who also is cardiovascular division chief at the medical school and University Hospitals Case Medical Center.

What does this mean for Northeast Ohio?

"We've had a \$17.8 million impact on the economy," Simon said.

Chance, professor and director of the Case Center for Proteomics, brought 15 scientists with him in 2005. He and his colleagues in the medical school's physiology and biophysics department have brought in \$42 million in grants since that year, he said.

The researchers also are raising money for their businesses.

None plan to leave academia to build their companies. Rather, they use the companies to transform their research into commercial products -- therapies, drugs and devices -- for patients.

This is a break from the academic tradition of doing research for the sake of research. Dwindling federal dollars have forced many scientists to find other money sources -- including investors and corporations -- to support their work.

An growing number of development organizations, institutions, contract laboratories and manufacturers in Northeast Ohio are helping researchers find their commercial legs. Investors are responding to the stepped-up development activity, feeding the virtuous cycle that is making the region a good place to launch a biomedical company. BioEnterprise, the nonprofit "accelerator" of such companies in the region, provides office and lab space, as well as business development help and connections to investors, at its Cedar Road building.

"They're one of the reasons why I think it's a great opportunity to go to Cleveland," said Marc Pelletier, vice president and chief science officer for Aeromics LLC, Boron's business that is developing drugs to stop brain swelling after stroke.

BioEnterprise professionals offer skills that most researchers lack. "I'm a scientist and not a business development person." Pelletier said.

Emerging biomedical companies often partner with large drug or device companies to get the money to take their discoveries to the next stage.

Thromgen, the company of Alvin Schmaier, a doctor CWRU and University Hospitals recruited in 2005 as chief of hematology and oncology, is developing drugs that inhibit blood clots.

"We need to garner the resources so we can make the compound in a high-quality fashion, package it for human use, and then show that it's stable, and it works," said Schmaier, who also is the Robert Kellermeyer Professor of Hematology and Oncology at the medical school.

Northeast Ohio hosts contract research and development labs, and contract manufacturers that can help commercialize drugs or devices.

Biomedical companies also can get help from the state. Several Ohio Department of Development programs, largely through the Third Frontier Project, offer grants and start-up help.

And venture capitalists who invest millions of dollars in biomedical companies that have clear paths to market have an increasing presence in Northeast Ohio.

Rivervest Venture Partners in St. Louis opened a University Circle office early this year because of the "critical mass of activity" among life science companies here, said Tom Melzer, managing director and co-founder of the firm.

That critical mass is beginning to make the region a destination for biomedical startups.

"Investors and entrepreneurs are recognizing the value of moving their companies to Cleveland for their own success," said Baiju Shah, president of BioEnterprise.

"I think that's a trend we're going to see a lot more of in years to come," Shah said.

Fab five

These researchers whom Case Western Reserve University recruited have brought more than \$60 million to the local economy in research grants the last three years.

Walter Boron



Hired: 2007 as chairman and professor of the school's physiology and biophysics department.

Area of research: Understanding how ions and gases cross cell membranes.

Company: Aeromics LLC, developing drugs to stop brain swelling after stroke.

Employees: 1

Mark Chance



Hired: 2005 as professor and director of the Case Center for Proteomics.

Area of research: Uncovering the structure and function of proteins so scientists can better understand the underlying characteristics of disease, wellness and the variation in individual responses to diet, environmental stresses or therapeutic drugs.

Company: NEO Proteomics, finding biological indicators in urine, blood and other body fluid that can be used to guide treatment of patients who have chronic diseases.

Employees: 1

Krzysztof Palczewski



Hired: 2005 as John H. Hord Professor and chair of the medical school's pharmacology department.

Area of research: Membrane proteins that trigger the human eye to "see" light.

Companies: Retinagenix, commercializing a "miracle drug" that can slow retinal degeneration in adults; Polgenix, developing an instrument that can take an image of the back of the eye, and designing drugs for membrane proteins.

Employees: 4 Retinagenix; 7 Polgenix

Alvin Schmaier



Hired: 2005, division chief of hematology and oncology for the medical school and for Case Medical Center; Robert Kellermeyer Professor of Hematology and Oncology for the medical school.

Area of research: Understanding how blood clots occur; developing treatments that prevent blood clots, heart attacks and strokes.

Company: Thromgen, developing drugs that inhibit blood clots.

Employees: None.

Dan Simon



Hired: 2006 as director of University Hospitals Heart & Vascular Institute; division chief of cardiovascular medicine at the medical school and at Case Medical Center; and Herman K. Hellerstein Professor of Cardiovascular Research at the medical school.

Area of research: Role of inflammation in hardening of the arteries, and scar tissue formation after balloon angioplasty and stenting. Most prominent recent discovery is a new gene (MRP-8/14) that predicts heart attack and stroke.

Company (past): Co-inventor and co-founder of biotechnology start-up NitroMed, the developer of a heart failure drug.