



**Patrick Leinert,
Founder and President
Leinco Technologies**

St. Louis
www.leinco.com

Leinco Technologies is part of a veritable life sciences powerhouse that runs across the middle of Missouri. The company supports research in human and animal health both in and out of the state. Founder and President Patrick Leinert talks about growth in the industry and what that has meant to his company.

"This industry has been around since the 80's, but it has grown tremendously in the last five years. As they learn more and more, there are more and more regulatory constraints. That contributes to the selective nature of human clinical trials.

"Preclinical research budgets seem to be increasing, because they're trying to funnel more successful candidates into the actual human clinical trials. The early discovery research and preclinical testing of proteins and therapeutics in animals is on the rise, because the cost of human clinical trials is so high. They want to make sure that what does go into the human clinical trial is successful. We are part of the preclinical stage of development."

Leinert's company fits neatly into the life sciences chain, supporting both the academic and industrial sides of the business.

"We develop and manufacture recombinant proteins, monoclonal antibodies and testing kits used both by academic and industrial researchers. On the industrial side, that would be both diagnostic companies and biotech/ pharmaceutical companies. The diagnostic companies also use our products in their diagnostic test kits.

"We're 60 percent pharma and 40 percent academics, supporting research institutions such as Washington University (in St. Louis). We supply them with research tools in the form of recombinant proteins, monoclonal antibodies, and kits for testing protein levels in cell cultures and blood."

R & D is a big part of the business for Leinert and his growing company.

"We've been developing a new technology using Chinese hamster ovary cells (or CHO) to manufacture prototype antibodies for preclinical trials. We started developing CHO four years ago in response to requests from large biotech companies for the production of human monoclonal antibodies and recombinant proteins prior to the development of stable genetically-engineered cell lines.

Essentially, what we do in this technology is to grow CHO cells in suspension in bioreactors. Then we take the gene for a human antibody and we transfer that into those cells while they're growing in these bioreactors. The cells think that that's part of their DNA and they start making that protein. This technology

produces enough of the human antibody or protein so that we can start to test it, without having to spend a year making a stable cell line. It's much faster. And it may have success with diseases like Multiple Sclerosis and Rheumatoid Arthritis.

We're also collaborating with another company on a new protein produced by the embryo that modulates your immune system. This protein has applications in therapeutic preimplantation factors (PIF) and early stage pregnancy detection in both humans and animals. But it has also been showing efficacy in bone marrow transplants in animals and possibly therapy for autoimmune diseases."

Leinert could operate his business anywhere, but he chooses Missouri.

"For manufacturing, overall costs of labor, utilities, cost of land and buildings and the skilled labor pool, Missouri is one of the best values in the country. I did some studies. We were looking at moving the business to Florida, and just the cost of electric was almost double.

"We received tax incentives, state tax credits, and low-interest business loans. We also received some training funds, as well as a lot of support from the Department of Economic Development and from the St. Louis County Economic Council.

"This gave us incentive to invest a large amount of its money into a brand new 30,000-square-foot facility for research and development and manufacturing. Our plan is to have about 45 people on our payroll in the new facility within 3 years. And right now we're at 20.

"I've had some discussions with a private equity company — well-known in the bio sector - and they say many companies wish they could be in the Midwest because of the value. Rather than relocating to China, you can get a better value by moving into the Midwest. Many of our customers are in California and in the Boston area. And about 30% of our business is international."

It's not just the economy for Leinert. It's the educational assets, too.

"We're hiring out of St. Louis Community College, Washington University, and Saint Louis University. Between the schools and the life sciences companies in the St. Louis area, there's usually a decent pool of people.

"St. Louis Community College has a life science training program where you can get an Associates degree in laboratory skills. And, lots of times, people who have their Bachelor's degrees enroll in that, because they don't have experience yet.

"We've entered into licensing agreements with Washington University to license their technology and commercialize it for basic life science research. I actually have an expensive piece of equipment that I moved to Washington U's Siteman Cancer Research Center, because we weren't using it every day. And now we share use of it.

"We've helped develop and trouble-shoot diagnostics for other companies for a long time. But we're thinking about forward integrating to develop and manufacture some of our own diagnostic test kits. This would be a new growth opportunity. We're kind of excited about that."