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Czechs Take Aim At Biotechnology

New life sciences cluster in Brno builds on centuries-old traditions

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COURTESY OF BRNO TOURIST OFFICE

IN THE GARDEN The science of heredity got its start in Mendel's gardens at the Abbey of St. Thomas in Brno.

For marketers at [CzechInvest](#)--the government agency set up to promote investment in the Czech Republic--the life sciences sector is an old friend.

The Czech Republic, the agency points out, has long excelled at one of the most traditional biotechnology processes: beer making. Moreover, it was the home of the monk Gregor Mendel, who formulated the laws of heredity--setting the stage for modern genetics--through his work in the gardens at the Augustinian Abbey of St. Thomas in Brno, capital of South Moravia.

Today, the manufacture of pharmaceuticals and related products makes up about 16% of the Czech Republic's \$5 billion chemical industry, according to government statistics and estimates. So it is no surprise to find CzechInvest officials enthusiastic about biotechnology in the country, nor to see an ambitious new innovation center devoted to life sciences being established in Brno.

Táňa Perglová, life sciences investment manager at CzechInvest, notes that the country's scientists are already active in genome projects, bioinformatics, and proteomics. And the work between 1994 and 2002 of Antonin Holy, director of the Institute of Organic Chemistry & Biochemistry, on potential antiviral formulas has begun paying off in commercial compounds used to treat chronic hepatitis B and AIDS.

There are a variety of Czech government funds to encourage investors, Perglová says, adding that these incentives don't have to be negotiated. "If an investor fulfills the criteria, he can have the investment money," she says. There are also structural funds from the European Union.

Moreover, the country has a particular emphasis on R&D. New legislation allows companies to fully deduct R&D expenses--salaries, experimental work, prototypes, and the like--from their tax base. Until the passage of this legislation, R&D had to be financed from profits.

The first foreign investors into the biotech sector were primarily those that acquired existing assets, Perglová points out. For example, Lonza has invested more than \$120 million in biotechnology production for the food and pharmaceutical industries since 1992 when it acquired facilities in Kouřim, near Prague. It now has more than 500 m³ of capacity at the site, which concentrates on production; Lonza has no R&D operations in Kouřim.

In 2002, [Baxter International](#) acquired the former Czech-government-owned vaccine research institute SEVAC. The U.S. company has since upgraded the site to state-of-the-art facilities for recombinant vaccines.

But more recently, Perglová adds, have come expansions into high-value-added projects, using the skills of "smart people who could do something more." And nowhere is that more evident than in Brno, the country's second-largest city.



PHOTO BY PATRICIA SHORT

JIC'S TRIO Kostka (from left),
Kuchař, and Nosek

THE BRNO initiative--a biotech innovation cluster--is based at the new \$120 million campus of Masaryk University, which will serve the fields of medicine, chemistry, biology, and sports, with an additional 37 acres to be developed for commercial partners.

The university's morphological center and a large research and teaching hospital have already been built. Two months ago, integrated laboratories for biomedical and environmental technologies opened. And an "incubator" for biotechnology company start-ups is scheduled to be ready in February 2008.

Managing the project is the three-year-old [South Moravian Innovation Center](#), referred to by its

Czech name acronym [JIC](#). Its four founding groups--Brno's Technical University and Masaryk University, the city of Brno, and the South Moravian regional government--were joined earlier this year by the Mendel University of Agriculture & Forestry and the Veterinary & Pharmaceutical University, both in Brno.

As JIC's managers see it, their job is to support the transmission of innovative projects from the academic environment into commercial reality.

Last month, JIC launched an Internet site, www.gate2biotech.com, that aims to connect the international biotech community with Central Europe. Organizations, universities, companies, and researchers from the Czech Republic, Austria, Slovakia, Hungary, and Slovenia can share their know-how, knowledge, and experiences in the field of biotechnology.

Technology transfer from research labs to commercial enterprises is not new, of course. A case in point is Prague-based IQA, founded in 2000 but with roots that go back to research teams in contract drug development at the Pharmaceutical & Biochemical Research Institute. More recently, IQA has branched into generic pharmaceuticals and the sale of related licenses.

In general, though, existing Czech legislation has discouraged spin-offs--in part a legacy of socialism, with many people convinced that the fruits of publicly funded research should not be exploited by private enterprise.

But that situation is changing, says Jakub Nosek, JIC's head of strategy, as new legislation comes into force in 2007 officially permitting spin-offs.

Jiří Hudeček, JIC's chief executive officer, adds, "We think the new law will allow the universities to support these spin-offs with their own labs, and so on." For example, when the biotech company incubator is up and running, tenants will have access to the science departments at [Masaryk University](#), essentially an outsourcing of analysis, equipment, and similar services that small enterprises would not be able to afford on their own.

That prospect is tantalizing enough, says Vladimír Kuchař, marketing manager for JIC, that already "maybe 20 companies so far have contacted us about being in the incubator."

And as the law is changing, researchers' thinking is changing, too, suggests Michal Kostka, JIC's biotech sector manager. "Researchers have started to think of alternative usage of the things they develop, other than just papers. That's why they get in touch with us. We give them business advice on the way to establishing their business. We try to put together a business plan, find customers, put them in touch with private investors willing to invest, and find a person to be a CEO for the company," he says.



PHOTO BY PATRICIA
SHORT

FOUNDERS

**Damborský (left)
and Prokop, of
Enantis.**

That's what JIC is doing with the embryonic company [Enantis](#). Enantis, when officially established, will pursue haloalkane dehalogenases to create high-purity, optically active substances, developed and patented by founders Jiří Damborský and Zbyněk Prokop.

The two, a professor of chemistry and a research assistant, respectively, in the science faculty at Masaryk University, want to exploit several intriguing applications with commercial value. Among them: detoxification of mustard gas in case of a terrorist attack, neutralization of aging stockpiles of mustard gas, biosensors to detect chemicals in the environment, and production of optically active alcohols that can be used in treating Alzheimer's disease.

"These are very close to becoming commercial technologies," Damborský says. "But we hope more can come from these enzymes, which we have been working on for 12 years."

For the two researchers, Enantis is an exciting concept--but one that neither wants to run as CEO. As Damborský puts it, being CEO "is probably not the job I should do. I'm a biochemist, and I should be doing new things in that. We are not trained to do this business work."

A SIMILAR complaint is heard from Jaroslav Turánek, head of the Laboratory of Immunopharmacology at Brno's Veterinary Research Institute, who is waiting until 2007 to proceed with his company. Turánek envisages a spin-off to commercialize the work of several Czech and English research groups in nanosystems for targeted drug delivery and vaccine administration, with a specialty in synthetic carriers and adjuvants for DNA and recombinant protein vaccines.

Until this company can be formed, he says, "we are doing what we can to be prepared, to find some investors. We are looking for very good management--this is a general problem, to find experienced management. It is impossible to be a good researcher, manager, a teacher in university, a housekeeper, and so on. We are trying to arrange things differently, to prepare for the start-up of the company."

JIC also works with Vítězslav Březina, who founded and sold one company before returning to research in dental technology. He has now started B. P. Medical, a Brno-based firm that specializes in implant biocompatibility. Březina has developed implant skeletons made of an inexpensive metal, rather than titanium or zirconium, that is covered with a layer of protein cells to reduce rejection.

The company's ultimate aim, he says, is to produce implant material that uses a cellular frame into which a surgeon can implant stem cells. Deployed in regenerative or reconstructive surgery, these stem cells would recognize what tissue they are supposed to create.

As JIC's Hudeček told the EU's R&D Directorate earlier this year, "The South Moravian region wants to become a leading area within the Czech Republic in the field of innovative entrepreneurship. What's more, it wants to be ranked among the top 50 regions in the whole European Union in that category."

That might not be too difficult, suggests Nosek, his colleague. "Our brand name is getting better and better, and we are in a very strong position in the whole area of innovation." JIC is already

being asked to comment on national innovation policy and strategy along with organizations such as CzechInvest, he points out. "Our impact on the innovation environment will affect the whole country."

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