

# KENTUCKY BY THE NUMBERS

With targeted recruiting efforts under way, Kentucky is attempting to build a life-sciences hub.

**T**he Commonwealth of Kentucky — as the state is officially called — is historically famous for bluegrass, bourbon and thoroughbred horses. But during the past decade it has invested in biotechnology, bolstering the infant industry with state funding. The 'Bucks for Brains' programme matches public dollars (\$350 million in the ten years to 2007) with private donations to encourage academic research. It has succeeded in attracting top researchers from around the world, who have helped jump-start the life-science economy by attracting federal grants and spinning off their intellectual property into start-up companies. More than 75% of new biotech companies have spun out of the state's two major research universities: the universities of Kentucky and of Louisville.



**Ben Keeton**, executive director of the Kentucky BioAlliance, discusses the challenges of transforming a state historically dependent on agriculture, mining and manufacturing into a biotech presence.

**How do you compete with the bigger, more established biotech hubs?**

We don't compete. Everyone wants to be the next biotech hotbed. That's not enough. You need to figure out what it is you can control naturally and organically in the state. We need to figure out what our researchers and research institutions do best.

**In what areas is Kentucky competitive?**

We have experience in drug delivery, cancer research and plant-made pharmaceuticals. A group of scientists at Kentucky Bioprocessing in Owensboro is using tobacco leaves to grow a plant-made version of Gardasil, which helps protect against human papillomavirus. It turns out that tobacco leaves are naturally susceptible to engineering and tobacco grows really well in Kentucky. The researchers impregnate the plants with a viral vector; the plant then chews up the virus and produces the protein needed for the vaccine.

**What non-scientific advantages does Kentucky offer to biotech companies?**

We think we can lead in bio-logistics. The United Parcel Service's world port is located in the Louisville airport. That's an advantage because Louisville is located between some of the highest-population areas of the United States. Protein-based drugs are incredibly fragile. The quicker you can get biologics from a cold-storage facility to your destination, the better. We can get a drug to any US destination within seven hours, from door to door.

**How is the state government helping?**

Since 1997, it has been running a programme nicknamed 'Bucks for Brains' (see opposite).

**What is the biggest challenge to being a little fish in a small biotech pond?**

There is no shortage of ideas. The challenge is getting them to market. We've had some success with early-stage funding, but getting later-stage funding is more difficult. So we're developing relationships with venture-capital funds that are thinking of investing in the Midwest. But the state needs to help, too, whether by putting up dollars or providing financial incentives for new companies.

**Interview conducted and data compiled by Paul Smaglik.**

**GOVERNMENT FUNDING**

- In 2009, Kentucky ranked 26th in the United States in national research dollars. In 1998, it ranked 33rd.
- In 2000, it garnered \$75 million in National Institutes of Health funding, ranking 29th nationwide. In 2009, that doubled to \$151.5 million, ranking up one to 28th.
- In 2000, the state earned \$17 million in National Science Foundation funding. By 2009, that had more than doubled to \$37 million, still only 40th nationwide.
- As part of the biotech growth initiative 'Bucks for Brains', started in 1997, the state has funded 159 endowed chairs and 227 endowed professorships appointed at Kentucky's public universities.
- Bucks for Brains faculty have launched about 36% of Kentucky's start-up companies dependent on university-generated technology and landed about 14% of all extramural R&D.

**BIOBUSINESS**

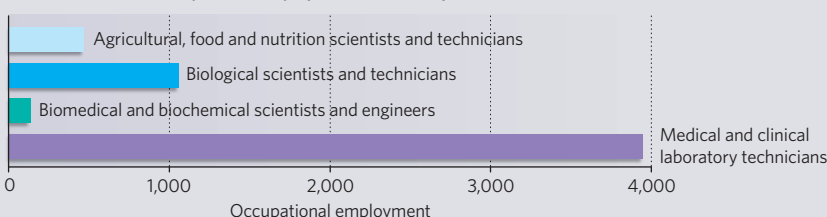
- MetaCyte Business Lab, a for-profit subsidiary of the University of Louisville Foundation, has secured \$16 million for 13 portfolio companies since 2002. One company, Immuno Theragnostics, has ventured out on its own.
- At the University of Kentucky-affiliated incubator Advanced Science and Technology Commercialization Center, 35 companies have 'graduated' from the building; 17 remain.

**SCIENCE PARKS**

- The University of Kentucky's Coldstream Research Campus, located on a 300-hectare former horse farm, has 22 technology companies, 3 University of Kentucky research centres, 7 equine centres focused on horse medicine and breeding genetics, and 22 service companies including hotels and restaurants.
- The state has approved a \$30-million plan for Nucleus, Kentucky's life-science and innovation centre, a downtown Lexington research park, housed in a 14,000-square-metre building.



**Bioscience-related occupational employment in Kentucky, 2006**



SOURCE: US BUREAU OF LABOR STATISTICS, OCCUPATIONAL EMPLOYMENT STATISTICS SURVEY DATA, 2006.