Sunshine biomedicine

Over the past eight years, the state of Florida has invested close to a billion dollars to attract renowned research organizations to open up shop within its borders. But even with the arrival of several heavyweights, including the Scripps Research Institute and the Max Planck Institute, some continue to question whether the investment was worthwhile. **Christopher Mims** reports.

In July 2003, on a trip to Scripps Research Institute in La Jolla, California, Florida Governor Jeb Bush hatched a plan to add a recession-proof 'fourth leg' to the economy of Florida, which is still largely dependent on tourism, agriculture and construction. He believed his proposal would revolutionize the state no less than the invention of climate control, so he named the effort 'Project Air Conditioning'.

The initiative had been brewing for some time—since at least 1999, long before it had a name. That year, Bush, who was then Florida's newly minted governor, accompanied David Gury, head of Nabi Biopharmaceuticals (at the time based in Boca Raton), on a trade mission to Israel. Gury urged Bush to consider using biotech as a way to diversify Florida's otherwise generally low-wage economy.

So, in 2003, when Bush heard from Orlando-based lawyer C. David Brown II that Scripps, the world's largest not-for-profit biomedical research foundation, was looking to add a location on the East Coast, he wasted no time in initiating a whirlwind courtship involving private jets, secret meetings, nondisclosure agreements and, finally, a special five-day session of the Florida legislature in which he asked lawmakers to consider something unprecedented in the history of the state.

Bush asked lawmakers to use $310 million in public money—more specifically, federal stimulus dollars—to do everything from buying the land for Scripps Florida to paying its employees' salaries. Bush's rationale for the spending was that Florida was already a good place to invest (this is a state with no income tax, after all), but those investments needed to be kick-started by government funds.

"The hope [was] that our good business climate would attract private sector investment drawn to our invigorated scientific base," Bush told *Nature Medicine*. Biotech wasn't the only kind of high-tech that Florida tried to attract, but it stood out from other types of high-wage industries in that it had the potential to capitalize on the "strong but under-appreciated research capacity of our universities," he adds.

Palm Beach County, where Scripps Florida

was to receive hundreds of acres of land for its new facility, then offered an additional $200 million on top of the state's investment.

Scripps's three brand new buildings spanning 350,000-square-feet officially opened in February 2009, set on 30 acres within the Florida Atlantic University campus in Jupiter. Its opening was hardly assured. In 2005, a federal lawsuit over potential environmental issues forced the county to abandon the original location it had proposed for the labs, and in the process eat $100 million in additional costs, says Harry Orf, vice president of scientific operations at Scripps Florida.

Scripps Florida currently employs almost 400 people, and the institute is "in heavy recruiting mode," Orf says. The state will fund Scripps only as long as it continues to meet employment targets. Ultimately, that means a staff of at least 545, including 60 faculty.

Welcome to the neighborhood

Scripps also has something even the most ardent backers of Florida's biotech industry might not have anticipated when they first lured it to the state: neighbors, and lots of them.

After the state's successful recruitment of Scripps, Bush and the Florida state legislature went on to create an Innovation Incentive Fund in 2006 to attract other institutes to the state. Those transplants consist of Germany's Max Planck Institute, which planted its first branch in the Western Hemisphere across the street from Scripps in Jupiter, several satellite sites of West Coast-based research centers including the Torrey Pines Institute for Molecular Studies of San Diego, Sanford Burnham Medical Research Institute of La Jolla, California, and the Vaccine and Gene Therapy Institute of Portland, Oregon. In addition, if all goes as planned and the state and Collier County each come through with half of a total $260 million, the Jackson Laboratory of Bar Harbor, Maine will set up shop near Naples, Florida, according to Mike Hyde, vice president of external relations at Jackson Laboratory Florida.

"All of us were startled to see the cascade of announcements that followed Scripps," says Patti Breedlove, associate director of the Sid Martin Biotech Incubator at the University of Florida in Gainesville. For every institute, the reasons for coming to Florida were similar: money, lots of it, from both the state and the host county, as well as potential collaborations with Florida's large network of universities, hospitals and existing biotech companies. The state has committed $600 million to its Innovation Incentive Fund, bringing the grand total spent on attracting branches of basic research institutes to Florida to just under $1 billion.

"It's a different economic development model than most other states and regions in the US have had," says Russell Allen, president and CEO of Bioflorida, the state's bioscience industry association. "It's not a model to go after commercial enterprise. Instead, the model was to build a base and let commercial enterprise grow from that."

Florida's wager on biotech has not been without its critics. A January 2010 report from the Florida Office of Program Policy Analysis & Government Accountability, entitled *Biotechnology Clusters Developing Slowly; Startup Assistance May Encourage Growth*, discussed the relatively slow growth of biotech clusters—those agglomerations of spin-off companies and compatible private companies that these institutes are supposed to spawn—was touted by papers across the state as evidence that Bush's billion-dollar bet was a boondoggle.

Michael Schmitt, a doctor and life sciences analyst who maintains the only comprehensive database of biotech companies in Florida, disagrees with the critics. As he points out, this is not an industry that creates jobs overnight.

"It's going to take at least a decade to get to the point that you have significant numbers of startup companies coming out of these research institutes and creating more jobs and economic impact," says Schmitt. To help kick-start that process, experts quoted in the same Florida government report suggest the state might get into the venture capital game by using money from the state's Innovation Incentive Program to give startups $1 million grants, or perhaps provide matching funds to startups already receiving Small Business Innovation Research and Small Business Technology Transfer grants from the US Small Business Administration. The goal would be to make up for the historical lack of venture capital funding in Florida, which has only worsened during the economic slump.

During his triumphant return to Scripps in December 2009, Bush, who is now active as a real-estate developer, rejected the possibility that the state should get into venture funding of early stage startups.

"The government of Florida and its local partners have stepped up," Bush told the *Palm Beach Post*. "Now the question is who are the next people to step up?"

On the following pages we spotlight some of the new Florida facilities.

Thinking big: Sanford Burnham's Florida campus measures half the size of Manhattan (inset).

Torrey Pines Institute for Molecular Studies in Port St. Lucie

Richard Houghton, founder of the Torrey Pines Institute in San Diego, liked Florida so much that after he opened the institute's Port St. Lucie branch he moved the headquarters of Torrey Pines to the state. The Atlantic Coast research facility specializes in pain and pain therapy, the effects of stress on the brain, Alzheimer's disease, opiate and nicotine addiction and multiple sclerosis.

"What really drew me was the freedom to do unique and unusual kinds of research," says Houghten. That freedom was born of a total of $105 million in state and local incentives, spread over ten years. Torrey Pines in Florida now employs 90 people and will eventually employ more than 200. The facility has the ability to rapidly screen millions of compounds in living tissue, which has already led to potential preclinical trials for one of the compounds its scientists discovered, a powerful painkiller with "none of the side effects of morphine," Houghten says.

If it works out, Houghten says that he might use this compound to start a spin-off with venture capital funding, a rarity so far for Florida's research institutes.

"All the institutes that have come to Florida have the mindset of 'let's spin off companies and be more pragmatic; let's jump out and not just do pure academic research,'" says Houghten. The entrepreneurial environment fostered by the state is deliberate and one of the reasons that it attracted a certain type of institute.

Scripps Florida in Jupiter

Located in Palm Beach County on the southeastern coast of Florida, Scripps's 30-acre project was the first to come to Florida, touching off a tidal wave of funding that attracted many other institutes to the state. "All of us who were here early on felt like we were getting into covered wagons and moving south—like it was the Wild West," says Harry Orf, vice president of scientific operations at Scripps Florida. Unlike the other nonprofit research institutes recently drawn to the state, Scripps offers graduate degrees—six so far, despite this being only the sixth year that the institute had labs in the state.

All of Scripps's research departments—from chemistry to molecular therapeutics, metabolism and aging—are bicoastal. And like all of the institutes that were attracted to Florida, the emphasis is on translational medicine—taking insights gained from basic research and bringing them to clinical trials.

"That was a major component of what Scripps wanted to do: to use the investment of the state to get into high tech areas so we could use those tools toward [...] work that goes beyond basic discoveries, into looking at potential applications and products," Orf says.

Sanford Burnham Medical Research Institute at Lake Nona

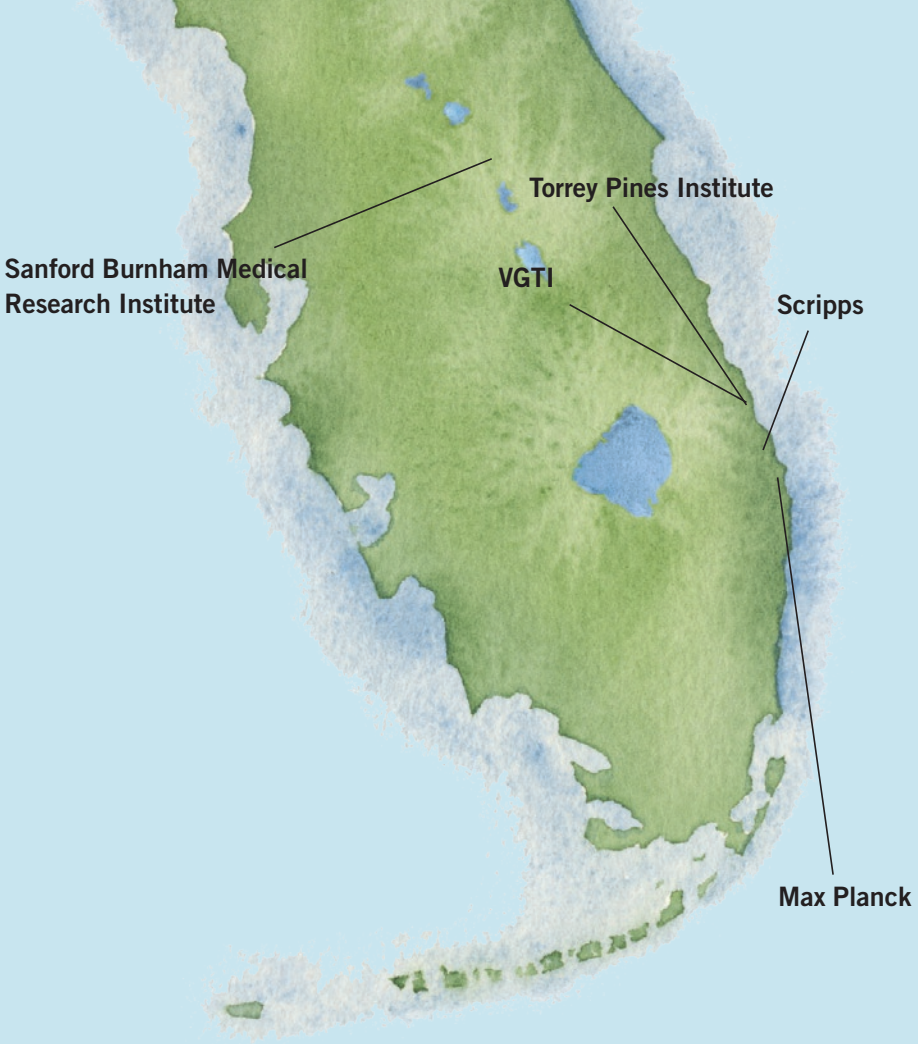
"You almost have to come down here to believe this. What's developing here is a medical city, not just an isolated institute," says Daniel Kelly, scientific director at Sanford Burnham at Lake Nona. Overlaid on a map of Manhattan in a schematic from the institute, the Lake Nona site, which includes Sanford Burnham, two new hospitals and biomedical research facilities belonging to the University of Florida and the University of Central Florida, covers nearly half the island of Manhattan.

La Jolla, California–based Sanford Burnham's satellite research facility will specialize in research on diabetes and obesity. The effort was planned as a partnership with hospitals scheduled to be built on the Lake Nona site, but an opportunity arose to start the partnership early, with Florida Hospital in Orlando.

"Florida Hospital turns out to be the largest hospital, based on admissions, in the country," says Kelly. The institute's diabetes and cardiology institute has not traditionally involved itself in academic research, but its doctors have access to a large population of patients whom they have been following for many years.

Sanford Burnham at Nona Lake has high-tech platforms paid for in part by the $155 million in incentives from the state, city, county and local businesses, including an advanced high-throughput small-molecule screening platform—the same kind used by drug companies to screen huge quantities of chemicals for potential usefulness as drugs. Kelly isn't able to disclose who the partner will be yet, but he says that the combination of this platform, access to a unique patient group and Sanford Burnham's entrepreneurial history has attracted a large private company to partner with the institute and help it earn revenue from the knowledge its scientists are translating from the lab to the clinic.

Sanford Burnham Medical Research Institute



Max Planck Florida Institute in Palm Beach

Of all the institutes to come to Florida, only one originates overseas: the Max Planck Florida Institute, one of 80 research institutes that are all part of the Max Planck Society. Notably, the Palm Beach location represents the society's first research institute in the Western hemisphere.

Max Planck Florida occupies the same temporary facilities on the campus of Florida Atlantic University that Scripps researchers used while waiting for construction to finish on their own building. In early September, construction began on what will eventually be a 100,000-square-foot facility that will be completed in 2012.

Currently, Max Planck Florida base has only 37 employees, 17 of whom are scientists, including doctoral students. Like Scripps Florida , the new Max Planck branch is currently in "heavy recruiting mode," says Claudia Hillinger, vice president for institute development at the Florida branch. To receive a total of $188 million in funding, half from the state and the rest from the county and its partners, the institute will eventually have to reach a staff of 135.

Once the facility is finished and hiring has plateaued, the leaders of Max Planck Florida plan to take full advantage of being directly adjacent to Scripps Florida.

"With Scripps Florida coming to this location, the intent was to build a synergistic research profile between our institutions," says Hillinger. Whereas Scripps focuses on drug discovery and translational medicine, Max Planck Florida will concentrate almost exclusively on the application of technology, including new imaging techniques, to neuroscience. The institute already has in place four research groups, which focus on digital neuroanatomy, cortical circuits, molecular neurobiology and synapse physiology.

Vaccine and Gene Therapy Institute (VGTI) in Port St. Lucie

Until its new, 100,000-square-foot research facility on which it just broke ground is completed, VGTI is couch-surfing with its friends at Torrey Pines, at least metaphorically. Fifty researchers and support staff from VGTI currently occupy the third floor of Torrey Pines, in Port St. Lucie, Florida, including recent recruit Rafick-Pierre Sékaly, a leading researcher in HIV vaccine development and now co-director of the Florida branch.

VGTI is the newest of Florida's research institutes to create a satellite facility in the state, having started at the Oregon Health & Science University in 2000. The incentives offered by the state ($60 million), as well as Palm Beach County and the city of Port St. Lucie ($58 million), allowed the institute to expand in ways that were impossible in its home state of Oregon, says Jay Nelson, VGTI's founder and director. That expansion has helped broaden the research focus of VGTI, which covers HIV, yellow fever, dengue, tuberculosis and cancer, so that it can include, for example, what happens to the immune system as we age.

"When you get, for instance, a flu vaccine, if you're immunized as an adult, 80 to 90 percent of people will respond, but if you're over 65 that figure drops to 40 percent or less," says Nelson. Using its new research facilities, the scientists of VGTI will attempt to unravel this mystery.

Once VGTI's eight-acre campus is complete, the institute will employ at least 200 people. By bringing the primate research branch into close physical proximity with a new local hospital being built next door, the leaders of VGTI hope to facilitate the translation of basic research into clinical trials.

Nelson says he could not be happier with the institute's reception in Florida. "I've never really seen a state where you have everybody from the legislature to the city to the institutes and universities all working together to make sure this whole thing works," he says.

Christopher Mims is a science writer based in Gainesville, Florida.