

Hard Cell

Can the Region Build a Life Sciences Cluster?

By JACLYN C. STEVENSON

With a \$1 billion life sciences initiative on the table, the Commonwealth is positioning itself to become a word leader in the field and the related biotechnology sector. Cambridge is already a juggernaut in this area, and Worcester is shining brighter each day as a biotech hub — but Western Mass. leaders want the so-called life sciences super-cluster, which ends just after Worcester, to extend west, and there's plenty of work to be done to make that happen.



There's an 800-pound gorilla in the Commonwealth that everyone wants to be friends with.

The behemoth is, in actuality, Gov. Deval Patrick's \$1 billion life sciences initiative, which promises state funding in this area and that of biotechnology to companies, academic institutions, and research facilities. It will also make available about \$250 million in tax credits and incentives to Massachusetts-based businesses, tied to growth and job creation.

It's no surprise, then, that hospitals, colleges, and companies with a stake in the life sciences are eager to see how the plan will play out, and if it will stimulate the economy, help retain a skilled workforce, and make Massachusetts a world leader in human-based scientific research and development.

A closer look at the state reveals another new phenomenon, however: that of the life sciences super-cluster, created by multiple cells of activity that have gradually blended into one another in recent years.

It's best illustrated by a circular blot on a Massachusetts map — darkest off to the right, where Cambridge continues full steam ahead as one of the country's leading centers of research and biotechnological commerce, and radiating west.

It stops just a few miles outside of Worcester, and thus, the super-cluster can be an irritating topic for the Pioneer Valley, which is currently working as diligently as the rest of the state to enter the life sciences race.

Dr. Paul Friedmann, executive director of the Pioneer Valley Life Sciences Institute (PVLISI), the region's leading biomedical research facility, said that just as life sciences is a hot-button topic in its infancy, the changes across the Commonwealth are also relatively new, occurring over the past two decades.

"Twenty years ago, there were comments being made about how well Springfield was doing, and how Worcester wasn't," said Friedmann. "Now, Worcester is booming in biotech and serving as a base for new companies. I won't take anything away from the work that has

been done — Worcester has done a great job.”

That success has put entities like the Regional Technology Corp. (RTC), an affiliate of the Western Mass. Economic Development Council (EDC) that serves to coordinate and manage the area’s technology-based economic growth, on high alert, watching for cues to take the strengths Western Mass. already possesses and position it as a player in global life sciences.

Ellen Bembem, president of the RTC, said that a year ago, that goal was more of a prayer. But now, she said, careful, deliberate advances in some key areas, as well as an overall focus on promoting the region as a destination for commerce, are beginning to turn the tide.

“To say we’ve seen growth in the last year is an understatement,” said Bembem. “It’s controlled, but it’s happening.”

Testing, Testing

Companies like Microtest in Agawam, a medical device and pharmaceutical testing and manufacturing laboratory; Biomedical Research Models Inc. (BRM), a pharmaceutical research outfit in Springfield; and Blackstone Medical in Springfield, a surgical spine component engineering firm, are early indicators of what Western Mass. can contribute to the life sciences industry. Microtest recently doubled the size of its testing lab, a \$7.5 million project; BRM landed a \$4.9 million federal contract for diabetes research, with the majority of the work to be done in Springfield; and Blackstone just added about a half dozen spine fusion products to its lineup.

But even as these victories are recorded, far more substantial growth is occurring in Worcester County, and some fear that it could block Beacon Hill’s view of the opportunities further down the pike.

There are a number of reasons why Worcester has excelled in development involving life sciences, especially of late. First, it’s an hour away from Cambridge, offering both easy access to the city and commercial and residential properties at much lower costs.

In addition, Worcester County contains a large amount of developable open space, ideal for manufacturing and processing plants, as well as research and development centers. Bristol-Myers Squibb chose to locate its new \$1 billion processing facility in Fort Devens, according to Mass Development Chairman Ranch Kimball, to be near Worcester. There’s also hope for a new biotechnology center in Grafton near the Tufts Veterinary School.

One of the more notable projects in this arena is Gateway Park, an 11-acre, mixed-use complex currently being developed in partnership by Worcester Polytechnic Institute (WPI) and the Worcester Business Development Corp. (WBDC) in the heart of the city’s downtown.

The project includes five life sciences buildings, the first of which, the WPI Life Sciences and Bioengineering Center, was completed in April of this year. Roughly 80% of the space will be used for WPI-based research, in areas such as tissue mechanics, mechanobiology, plant systems, molecular nanotechnology, and biological imaging.

A former brownfield, the park, which also includes a hotel and will soon house

condominiums and eateries in addition to lab and office space, required a \$55 million investment on the parts of WPI and the WBDC, and an additional \$15 million in state and federal funding.

D'Anne Hurd, vice president for Business Development at Gateway Park, said the project is a prime example of what can arise from capitalizing on a convergence of positives.

"We'd like to make Gateway Park a model for not just the state, but the world," she said, "but you have to start by looking at how we reached this point."

Beginning with a map of the Commonwealth, she used a pen to trace some of the more obvious advantages Worcester has over Springfield.

"The first is this," said Hurd, rapidly moving her pen between Point A — Cambridge — and nearby Point B, Worcester. "Cambridge is the center of the universe when it comes to life sciences, so for companies outside of the state or the U.S., Worcester looks like a slam dunk. It's a simple value proposition. We're close to Cambridge, without Cambridge prices."

There's also a strong culture of 'eds and meds' in Worcester, intrinsic to any biotechnology hub. There are 13 colleges in the area and five medical facilities (three are schools), and the region boasts a successful educational continuum in math and sciences that has been in place for some time.

WPI has a partnership with the city's K-12 schools, targeting girls in particular, and Worcester Technical High School, ranked number one in the country, has instituted an entire academy dedicated to the life sciences, preparing students for higher education as well as jobs out of high school, in fields such as lab technology and bioprocessing.

All of this has created a region that is primed and ready to take advantage of the governor's life science legislation, and also one that is coming into its own as a biotech center, increasingly bright despite the shadow of Cambridge.

"Worcester has become an anchor," said Hurd. "It's not because we compete with big life sciences markets, but because we reflect best practices. We have the intellectual capital we need, a vibrant downtown with live theater and music, and we continue to invest in the creation of a city where people want to live, work, and most importantly, talk to each other."

Still, Hurd conceded that there are hurdles for Western Mass. that Worcester did not have to clear.

"The key differentiator is this," she said, illustrating with a map once again, this time slowly drawing her pen across the state — the line that represents an hour of drive time between Worcester and Springfield. "The life sciences super-cluster, as it is defined in Massachusetts today, stops at Worcester. Western Mass. has some of the things that make life sciences happen — the eds and meds, the low cost of living, the open space — and now, perhaps, it needs to capitalize on the anchor that is one hour away, and become a second anchor — or maybe not an anchor, but a buoy."

Real World Applications

Friedmann, in addition, cites UMass Medical School, located in Worcester, as a primary driver for that city's success, but he admits a medical school is not a panacea for moving life sciences forward. Overall, he said, the support from the community at large has had the most profound effect on the development of a life sciences cluster in Worcester County, and it's also what Western Mass. has been lacking.

"I wish we had a medical school," he said. "Some people think that if we did, we might be where Worcester is today.

"But there has been a strong sense in the area that Worcester needed to move forward in these areas," he continued. "We haven't had that here, and so for us to start now is difficult. We're small, and we got into this late. The things we put in motion now will come to fruition 20 to 30 years from today, and we don't have a lot of resources."

Still, there is work being done to capitalize on some of the strengths that have been identified in Western Mass., among them a focus on the unique nature of the PVLSI, created through a relationship between UMass Amherst and Baystate Medical Center.

"We may not have a medical school, but we do tap into the potential of UMass and the medical center in terms of research," he said. "It's a collaboration that allows us to function in a way that medical schools can't, and that could be a competitive advantage for us."

Friedmann said the PVLSI has already shown promise researching breast cancer, metabolism, diabetes, and apoptosis — cell death — which is a specialty that can be applied to myriad issues, including stem cell research.

"What we need to do is find our niche," he said. "We've not been able to compete in basic science research — we need to look more at the practical applications, such as patient care, identify our strengths, and link to others in the region so we can apply what we're doing in the clinical arena."

That's because 'life sciences' is a very broad discipline, including a number of specialties ranging from health care research to medical device manufacturing. Biotechnology alone is a subset of life sciences, and one of the fastest growing, touching on the areas of bio-informatics, software development, pharmaceuticals, nanotechnology, and polymer science, to name a few, so there's room to identify promising segments of both.

The Big and Small of Things

To that end, it's the goal of the RTC and other collaborating entities to cut across these various disciplines to diversify activity in the life sciences and biotechnology, at the same time identifying which practices are best suited to the region.

Bemben said Western Mass. has, in fact, identified several areas in which advancement could occur, including precision machining, finish work, and medical disposables, which could thrive in many of the area's plastic, paper, and textile mills. However, now the region must zero in on the most promising of those to continue to grow.

"We have several niches," she said, "including biotech research and development, medical device manufacturing, nanotechnology, and medical coating and finishes. We just haven't found our biggest niche yet, and there are several things that have yet to be explored further, which could be just as big."

One such area that's already been targeted is that of clinical trials, particularly of medical devices.

"Typically, in the eastern part of the state, running these trials is twice as expensive and it takes twice as long to get into the queue," she said. "By joining with Baystate and running north-south through the Knowledge Corridor, we could have a clinical trial super-site."

Aiding in that goal is Hartford's life sciences landscape, which is similar to Springfield's, and also heavily focused on manufacturing and distribution. In turn, there are a number of technology-based companies within the corridor that Bembien classifies as "coming out of the technology closet," those with specific manufacturing capabilities that have retooled their businesses of late to cater to more promising industries — life sciences and biotech being two of the largest.

"Folks are doing their homework," she said. "We're trying to make available to them funding sources, venture capital, and education for workforce development."

There have been inroads made in this regard; for one, there's BETA — the Bioeconomic Technology Alliance — which was formed in 2003 to foster the growth and development of bioscience and bioengineering in Western Mass. BETA operates under the auspices of the RTC along with two other technology networks: the Materials and Manufacturing Technology Network (MMTN) and the Technology Enterprise Council (TEC). The three are working together more each year, partnering industry leaders in the region with colleges and other training and education-based organizations to help create a better workforce pipeline and to cultivate new ventures.

There are also preliminary plans to create a biotech incubator or technology park for new, young companies, and a new position, director of business development, has been formed within the RTC through funding from the John Adams Innovation Institute. The post has yet to be filled, but will charge the new hire with linking area, state, and federal organizations to the RTC to create a greater amount of opportunities for the region.

East, Meet West

The RTC is of the opinion, however, that Western Mass. as a whole needs to ramp up its marketing efforts, selling the region and its positives to the audiences — new start-ups, research firms, and funding sources, primarily — that can help the most.

Keith Parent, chairman of the RTC and president of Court Square Data Group, a strategic IT consulting firm, said promoting the region as a center for technology and development can be a frustrating battle to wage in the Commonwealth.

"We have big precision manufacturing capabilities, and even in the midst of a billion-dollar initiative, people don't know anything about us," he said. "They think we're in the woods."

However, Bemben said in some ways, the Pioneer Valley in particular has a leg up. It's smaller, more geographically diverse, and with an overall cost of living that is lower than Worcester County's, and that's a draw for companies who may need to relocate employees.

Unlike most regional agencies, the RTC, EDC, Regional Employment Board, Affiliated Chambers of Commerce of Greater Springfield, and Greater Springfield Convention and Visitors Bureau are all located under the same roof, and Bemben said she's seen her share of jaws drop upon entering the rare, one-stop shop.

"The co-location is to our advantage," she said. "A roundtable discussion is, essentially, always available, and that coupled with our smaller size makes us more intimate, and more nimble. And it gives us the ability to woo."

Parent echoed Hurd's sentiment that the area should look to Worcester for opportunities — he said the reality that Worcester is decades ahead of Western Mass. in terms of life sciences research and biotech development is not lost on those in the know.

"Business attraction and business retention are the two biggest areas we focus on," said Parent. "Our concept is 'east meets west.' We understand that the eastern part of the state holds the greatest amount of expertise. But now, we want them to bring it here, to expand here.

"We don't have the volume," he added, "but we do have the key sparks of opportunity, and just one spark can get the flames going."

Bemben agreed.

"Creating a collaboration with Worcester is a key part of the process," she said. "We're in an awesome location to deliver services, and it will also help to connect the dots — from Boston to Worcester, Worcester to Western Mass., and maybe from here to New York, Connecticut, and Vermont."

Bananas for Bio

But before that can happen, Friedmann said the work toward redefining Western Mass. continues, in hopes of meeting that 800-pound gorilla with a confident handshake — and later, an open palm.

"We need to show what we are," he said, "and prove what we're not — a vast wasteland. We have developable space, a research laboratory, and a lot of potential.

"There are many things in the pipeline, and if any one of them hit, it will be huge," he continued. "That's where we'll start; where we'll end up, I don't know, but in the process we'll build our strengths, and build what we have."

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