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BALTIMORE'S BIO-FUTURE

A CONVERSATION WITH JIM HUGHES

By David Callahan

Photo by Bryan Burris

As I approached the new University of Maryland Biopark on May 14, the delegation from Korea was just leaving. They had come a long way to check out what was happening on the western side of Martin Luther King Boulevard in downtown Baltimore. That, all by itself, represents a tectonic shift for a neighborhood previously best known for the varieties of recreational drugs available there. Today, a very different kind of drug discovery is going on.

The eastern side of Baltimore gets most of the attention when it comes to discussing development, but what the University of Maryland has done on the west side is remarkable in many ways. Chief among them may be speed of development. Biotech buildings are not just thrown together. They require careful architectural attention (an NIH facility at Hopkins Bayview nearly suffered a disastrous blow when concerns about vibrations brought the very viability of the building into question last year) and require expensive construction peculiarities. And yet, the University of Maryland completes its third major structure of the complex in July when another research and office building opens its doors.

Yet another biopark is also under construction on the east side of town. That park, which will be adjacent to the Johns Hopkins main hospital campus, is seen as critical to keeping Johns Hopkins at the forefront of biomedical research.

All the more reason, we thought, to chat with Jim Hughes, the man putting heat on Hopkins to keep up. Hughes holds the title of vice president of research and development, but unlike many of his peers, he's not a career academic scientist. He formerly oversaw biotech development for DBED and is clearly comfortable bridging the gap between science and business.



BRAIN SCAN reading the minds of Baltimore's leadership

SmartCEO: Do you consider yourselves Terps?

Jim Hughes: That's a good question. I think so.

CEO: Before we talk about the biopark, I was just reading that demand for pharmacists is going through the roof. Is that something the school is feeling?

JH: Yes. The same issue has always been there with nursing. We have a national nursing shortage and that has been fairly widely known. Pharmacy does not get as much attention, but there is big demand for pharmacists. We have been trying for a decade to get state funding to build a new pharmacy building so we could better serve the students and expand enrollment. We did just start a new expansion program that will begin this fall at Shady Grove in Montgomery County.

Some of these shortages are partly facility-driven, but the big issue with nursing is faculty. If you have a Ph.D. or a master's in nursing, the demand is so high at the hospitals that we can't hire as many people as we'd like to teach.

CEO: Which causes a vicious circle of cost escalation and capacity strain for both the hospitals and the colleges. Well, something that is going well and has progressed quickly is this building. The most stunning thing about this biopark is how quickly it went from leadership chatter to conception to reality. The first time I heard about the idea of a Maryland biopark was probably in early 2004.

JH: Yes. I guess we started bouncing around the idea internally no more than 12 months before that. In some ways, we were sort of late to the game in thinking about doing a biopark, but [UMB president David Ramsey] said, "Let's go do it." We had certain advantages in that we had a community that was very, very supportive. That helped move things along very quickly. Also we had a president who says things like, "We've been talking about this for six months – why haven't you broken ground?"

So, we just moved. It's been fun. And when you live it day-to-day, it doesn't necessarily seem so quick.

CEO: Well, the GBC was starting to really talk up biotech about five years ago.

JH: Right

CEO: And they were largely focused on Hopkins, which has been a lot slower in getting their biopark project off the ground. Is biotech going to be as hot as the GBC thought

five years ago and is there room in the city for two very extensive biopark incubator engines?

JH: Absolutely. So many of these things feed on themselves. Yes, there have been certain advantages to having the first building up and second building up before they got started on the east side. But our longer-term success will be more assured by having that east side park thriving. So much of this involves critical mass where just by the size and scope [of the parks], we attract more and more people. Increasingly around the country you have a whole lot of people trying to get into this business, but at the end of the day I think it's probably only going to be a handful of clusters [that succeed] and if we were just doing our project all by itself, it would be tough nationally and internationally to convince people that Baltimore was a true top-tier destination for private biotech companies. So, I think as you get a bunch of people doing things here, that fact, by itself, will spawn new companies. Hopefully a couple of the companies in this building will be incredibly successful and there will be people in those companies [who start their own firms].

CEO: How does the way this place operates differ from any other industry-specific incubator space?

JH: I guess that it is really being driven by the university. That's not to say similar things aren't being done elsewhere, but I really have a full-time job overseeing research and development, particularly [issues associated with] tech transfer. I have several people on my staff that are focused on making the linkages between the companies here and our faculty.

If you look at a more traditional incubator model, the business services that are provided are geared at helping someone set up a business plan or develop an accounting system or do strategic planning. While we can help with that, the primary focus is helping companies hook up with academics who are doing research in their field. [We find] somebody who can be a consultant to the company and whom they can bounce ideas off as intellectual property gets developed in their lab. It's really that expertise that makes us attractive. We have 1,200 faculty at the university whose primary job is doing research.

CEO: Sure. The ETC on the West Side is focused on technology, but at the end of the day, it is Struever Brothers that is the key developer behind all of that. Is there a developer that plays a prominent role here?

JH: There is a developer named Wexford Science and Technology who plays a relatively quiet role. What we've done here is for each property we're going out and selecting a developer, so you could expect that we'll have multiple developers on the project. As it has turned out, Wexford has won the first three buildings. We have land enough for 10 buildings and two or three parking garages in addition to that. We're looking at about 1.2 million square feet, overall.

CEO: How fast has space been filling?

JH: This building was essentially 100 percent leased within a couple months of its completion. It was 90 percent leased before we opened the doors.

CEO: How many companies come from somewhere other than the east coast?

JH: We have a Japanese company named SNBL that is based in Tokyo and we are their first East Coast facility. They are the biggest private company in the building. They actually purchased the top two floors. We created a commercial condominium so they could do that.

CEO: I guess they think they're going to be here a while.

JH: Yes, the 20-year lease was too short-term for them.

The next biggest company would be Alba Therapeutics, which is a new company founded on technology developed from our school of medicine. The fellow who runs it relocated here from Indiana. They're up to about 30 employees now.

The next biggest company, Fasgen, has been in Baltimore a little while. They actually came out of Johns Hopkins. This was a fairly significant expansion for them.

We have some other small companies, such as Irazu BioDiscovery, which is a spinoff of Paragon BioSciences, a company over at Hopkins Bayview.

Acidophil is a company that relocated from San Diego. It's a small company headed by a local venture capitalist named Philip Goelet.

Let's create a community here that is bringing the world new treatments for diabetes, cancer and a whole range of ailments.

CEO: I read that they are looking for early-stage IP related to oncology and neurological disorders, so I guess being close to the cancer center or the ALS center is important for them?

JH: Yes, Absolutely. Philip was just appointed as an adjunct faculty member in our department of biochemistry. He's working closely with the cancer center – it's a very relevant tenant because the purpose of the biopark, first and foremost, is bringing new drugs and diagnostics to the marketplace. We certainly want economic development and jobs created for Baltimore and all of that, but the primary objective remains this idea of let's create a community here that is bringing the world new treatments for diabetes, cancer and a whole range of ailments.

Plus we recruited the Holland Laboratories from the American Red Cross in Montgomery County. They have 80 or 90 researchers located on the second and third floors here that have now joined us as faculty and staff at the university. They joined our medical school and the university became their employer, which is great because the whole idea is to mix and mingle the university researchers with the corporate researchers.

CEO: What's the attraction of someone leaving Montgomery County to relocate here? Baltimore is close to academic researchers and large research hospitals, but NIH is where the money is.

JH: Well, adding to your list there is access to patients and clinical trials. There are a large number of patients out there who want to participate in clinical trials because they have a disease that is not responding to approved drugs and they want to find a clinical trial that is well-regulated and well-controlled that perhaps might give them hope for something better. That becomes very attractive to the companies and researchers.

There's a great researcher here named Dudley Strickland who heads the group that does basic research in cardiology. He has always worked in a lab, but now that he's here, he works hand-in-hand with the head of cardiac surgery here. He can take his ideas to the surgeon who can then give feedback about what he's seeing in patients, so both are benefiting from the collaboration and ultimately patients benefit from that.

NIH is still NIH and there will always be good reason to be [near it], but the bioparks in Baltimore have a strong niche.

CEO: When the two parks are done, what percentage of business in the city becomes biotech related? Are there any estimates of that? It becomes one of the larger clusters, doesn't it?

JH: It does. But you don't have huge employment in this. We're estimating that we'll have about 2,000 people working directly in the park when we're fully built out here at over a million square feet. There will be side benefits and other companies that locate in the area when we get to critical mass.

CEO: The dollars per person is very high, yes?

JH: Yes. The wages are good. On average it will be \$50,000 to \$60,000 and some people will make a good bit more than that, so it brings well-paying jobs.

That's wonderful for the city, but it does not create tens of thousands of jobs, so, on a certain level, relative to the workforce in Baltimore, it's a relatively small percentage. But it will have a disproportionately positive impact for the numbers employed. Combined with the East Side, you're talking about 4,000 to 5,000 good paying jobs being created here.

CEO: Are all of these companies exit strategy companies? In other words, are they all looking for IP that they can then sell to big pharma or is there a chance that one of these companies could explode on their own into a large concern that actually becomes a part of big pharma?

JH: For many of these companies, that's the hope. I think if you at the business plans, it often involves to eventually have an IPO and grow the company as large as they can. Now, MedImmune's plan was to grow as a stand-alone company and at some point those plans changed, but I think a large number of these companies have no exit strategy in mind other than to keep growing. Our hope is that one of the companies we have in these buildings may eventually occupy one or two more buildings as they move along and at some point, we cease to be able to contain all of that and they move elsewhere in Baltimore.

CEO: Can the relationship between the University of Maryland and these private companies ever get dicey? Where the rubber meets the road, where are the ethical issues?

JH: The primary one that we are absolute about is if we have a faculty member that owns equity in a company or is an officer in a company; we will not allow that faculty member to conduct clinical trials on behalf of that company. We don't want a scenario where a faculty member invents a new drug, helps start a new company and that company is going through the trial process and the faculty member gives that drug to his patients. We don't want him giving that to his patients until the drug has FDA approval.

Patient safety is the critical area. We don't want the mixing of business interests to create a problem in the area of patient safety. We do have other ethical areas to watch, but that's the big one.

CEO: What about on the business side? Is there any concern about individuals enriching themselves in a manner that abuses the opportunities that exist within their jobs?

JH: Yes. Those are the types of situations that



we try to manage. Any time that a faculty member is involved in a company in any sizable way, we assign a more senior faculty member whose role it is to monitor that situation. We look at the details of the situation and if we think it is something that is manageable, then we actively manage it.

Some of it is just simple transparency. If a faculty member takes money or interest in a company, they always have to let us know that. They can't be going out and writing a paper about how a company is wonderful without saying, "By the way, I'm a paid consultant."

We don't typically prevent those situations, but we do try to manage them.

CEO: Does this effort try to rebalance the scales a bit between private interests and public universities. Traditionally in drug discovery the universities have provided the seeds that generated huge profits in the private sector. I think sometimes the universities wonder if they have given away too much. Is this partly an attempt to rebalance that?

JH: This is not driven so much by a fear of giving things away as by the fact that the traditional model has always been like an assembly line – very linear – where you had basic research done by university faculty in a lab with minimal interaction with companies. They would come up with an idea, publish it and patent it and a company would look at it and decide to take it to the next step. There would be a handoff. And a lot of things get lost in that handoff. It was widely referred to as the "valley of death" because there was a gulf between how far the university wanted to take the technology and how far the companies wanted to reach to pick it up.

So, I think what we're trying to do is change the model a little bit and get the companies and faculty talking at an earlier stage in the hopes of bringing the university closer to the market through that interaction and also bringing the companies closer to the university. With ideas bouncing back and forth, it becomes a more iterative process.

So yes, revenues from new technologies are important to us and figure into the thinking here, but we feel the revenues will take care of themselves if we can get more ideas out into the market.

CEO: Well, you are director of R&D so let me ask about a common problem in this arena. One of the frustrating aspects of the free market and medicine is this problem of orphan diseases. These are diseases that might be horrible and not necessarily incredibly rare,

but don't have enough victims to make it financially worth the effort compared to investing in something that strikes a lot of people, like cancer. Does this approach start to nibble away at researching those less popular diseases?

JH: You hope so. Big pharma doesn't necessarily like to look at diseases that don't affect a large number of people and not only that, but there is another problem when you have a disease where the vast majority of people who get that disease are usually terribly poor. So, if you look at malaria or cholera or other disease that fortunately we don't encounter much in the United States or Europe or Japan, which are the biggest markets, there's not a lot of incentive for the pharmaceutical companies to pursue those.

CEO: Another tough issue in this arena is that curing a disease, from a financial standpoint, is worse than managing a chronic disease, right?

JH: Yes, that's true, but I'll be a little benevolent and guess that the pharmaceutical companies aren't saying, "Well, I could cure it, but I don't want to cure it because I want you to have to take the expensive pill every day." But this is something that has impacted the vaccine industry. There is liability associated with vaccines and it's a one-time thing, so the financial model can be difficult. Fortunately, people like the Gates Foundation are stepping in and doing real good work. We have a vaccine center here at the university that is funded by NIH, but we have always struggled because a lot of the vaccines are for the developing world.

I think for some of the orphan diseases it is more likely that it will be the smaller biotech companies that make headway on those. Even if it's just going to be generating a couple hundred million dollars in sales a year, for a little biotech company, that might be enough to build a company around. So, while we would love to have big pharma here, our focus is on those small to medium sized companies. Alba Therapeutics is focusing on Celiac Disease, which is a gastrointestinal autoimmune response that is essentially an allergy to gluten. Right now there's not a treatment for it and big pharma might be interested in it, but essentially it is one of those diseases where a smaller biotech company was more likely to totally commit itself to the early technology developed by the university.

CEO: By the time this interview runs, building

two will be open. How quickly are you leasing building number two?

JH: It's coming along very strongly. It will be twice as large as building one. It's about 215,000 square feet. The university is taking about one-third of the building. We'll be putting our new school of public health there.

We've just recruited Claire Fraser-Liggett who has been the longtime director of The Institute for Genomic Research (TIGR) in Montgomery County. She'll be joining the university as director of a new institute for genome sciences. She's one of the top three or four genomic researchers in the country. She's in the process of recruiting a team that will probably number about 100 researchers. They will be located in building two also.

We also have gone to lease with another private company for about 20,000 square feet, so at this point the building is about 60 percent committed and we have strong interest in the remaining 40 percent, so I would expect by this time next year it will be fully occupied, so we're now at the point where we will be showing an RFP in the next 45 days or so to build a third building.

CEO: What's the effect been on the neighborhood here?

JH: The most immediate impact is that the university created a police station over here. University police now cover this area, so it has become one of the safest places in Baltimore and three years ago that was not the case. Also, real estate prices have easily doubled in the last three years. There have been two groups acquiring property in this area. One is from California and they have been taking abandoned dilapidated homes and renovating them.

CEO: This is a block or so north of here?

JH: Yes – just north of West Fayette Street. They are a real good group. They are independent of us, but we've been encouraging them. Then there is another group from New York that is acquiring 14 acres with the city's help. So, you have two very major developments happening that are just going to completely transform the neighborhood.

CEO: Is this complex considered campus?

JH: Yes, we do consider it campus, so the campus has grown from 45 acres to about 55 acres.

CEO: Jim, thanks very much.

CEO