EP.88 - Laurie Locascio FINAL

Narrator: You're listening to *BioTalk* with Rich Bendis, the only podcast focused on the BioHealth Capital Region. Each episode, we'll talk to leaders in the industry to break down the biggest topics happening today in BioHealth.

Rich Bendis: Hi, this is Rich Bendis, your host for *BioTalk*. And as I mentioned in our previous BioTalk, we have three university system of Maryland *BioTalk*s in a row, which is pretty exciting for the university system of Maryland. And we have somebody who is very important to the system and actually has multicampus duties that we're going to talk to on BioTalk today, and it's Dr. Laurie Locascio, who is the Vice President for Research at the University of Maryland, College Park and the University of Maryland, Baltimore, plus has some responsibilities we'll talk about during our little BioTalk today. So, Dr. Locascio, welcome to BioTalk.

Laurie Locascio: Thank you. It's great to be here, Rich. I appreciate it.

0:01:01

Rich Bendis: Thank you, I'm looking forward to this one. And I think one of the best things we do for the listeners–and if you don't mind, can I call you Laurie?

Laurie Locascio: Oh, please, absolutely.

Rich Bendis: Very good, Laurie. Yeah, what we do for the listeners is let you give a little introduction for yourself because no one knows your background better than you, and you can sort of go back as far as you'd like and bring us to where you are current day. And that would be a very interesting thing to hear your career path to get to where you are today.

Laurie Locascio: That's great. Well, I appreciate the chance to introduce myself as well. So I'll talk, first, a little bit about my education. So I got my BS in chemistry, my master's degree in bioengineering, and my PhD in toxicology in the School of Medicine at the University of Maryland, Baltimore. And I started my career as a bench scientist at NIST, and then moved up in management from Group Leader, where I was leading about ten people, to Division Chief, where I was leading about 100 people. And then, to Director of the Material Measurement Laboratory, and then finally, to Acting Principal Deputy Director and Associate Director for Laboratory Programs at NIST.

0:02:07 And I just had a wonderful career in research at NIST, where I published, and patented my work, and collaborated, really, all over the world. NIST was a great place to do research. Freedom to be creative and innovative and really be at the cutting edge of new technology development. And while I was there, I collaborated with many faculty at the University of Maryland. So when I was hired here in 2017 to be the Vice President for Research, I actually already knew so many people here. NIST and University of Maryland, just for perspective, have multiple joint centers and institutes, most notably in quantum science and in bioscience. The Institute for Bioscience and Biotechnology Research is at Shady Grove, and that's a collaboration between NIST, University of Maryland, College Park, and the University of Maryland, Baltimore. So I was hired here at College Park as Vice President for Research in 2017, and then in 2018, a year later, I was hired also as Vice President for Research for University of Maryland, Baltimore with the intent to really start to link the campuses strategically through research.

0:03:19 And as I mentioned at the beginning, University of Maryland, Baltimore is also one of my alma maters, so it was fun for me to have this dual role. In my current role, I do a lot of different things. I do advocacy for research at Maryland, I meet with federal agencies, particularly the ones that we partner with. The people that work for me manage all of the research money that flows in, around, and through the universities. And the combined research enterprise at Baltimore and College Park is about $1.2 billion. And then, we also manage tech transfer and entrepreneurship programs for faculty. I know Julie Lenzer was part of this program, and she's the Chief Innovation Officer for the University of Maryland, she does that work.

0:04:05 And finally, just to grow the volume and visibility of research at the University of Maryland. So it's a fun place to work, and it's great to be here.

Rich Bendis: Well, congratulations on your career path. And it also seems like there are a lot of similarities between what you were doing at NIST and what you're doing in the university system of Maryland. And one of the things that I noticed in your background is that NIST had two campuses that you were responsible for, in Boulder and in Gaithersburg. And that sounds like it's very similar to what you're doing here in Maryland with multiple

campuses as well. So talk a little bit about how you managed the two campuses with NIST, and what the transition was like with the two campuses here with the system of Maryland.

Laurie Locascio: That's actually a really good analogy, I think. The Boulder and Gaithersburg campuses were farther away than the two University of Maryland campuses that I manage, but it's similar in some ways. Each campus has its own personality and its own specialties that it's really recognized for in terms of research.

0:05:09 So as the Associate Director for Laboratory Programs, one of my last activities in 2016 was to lead internal programs and lead internal strategic planning for the laboratories at NIST. And we ended up developing strategic research priorities that included quantum, and AI, and bioscience. And that really bridged the two campuses. And in several years, according to that early strategy that we developed, NIST has continued to excel in these areas and had leadership in our agency committees to develop strategies and initiatives for the US. I think it's a little bit similar between the Baltimore and College Park campuses. We really look to elevate and amplify the things that each campus can be known for separately, but also what they can be known for together. And so, I spend a lot of time on both campuses talking to researchers, and looking at all the great assets, and trying to figure out how best to bring them together, and where they work best together, and where they excel separately.

0:06:13

Rich Bendis: And you keep smiling about it, too.

Laurie Locascio: Yeah, it's a great, fun role, really.

Rich Bendis: So let's talk about organizational dynamics because sometimes, working in one academic institution is interesting. Having two academic institutions that you're responsible for with what you're doing in research probably makes it a little more interesting. So how do those organizational dynamics work?

Laurie Locascio: Yeah, my role is different at each campus, but in general, it's really looking for ways to bridge the two campuses for research. So empowering the state was the first legislation that was passed in 2012

that provided funding for joint research between these two campuses in Baltimore and College Park. And then, in 2016, there was the Maryland Strategic Partnership Act that really cemented that relationship by providing additional funding.

0:07:05 We now have about $12 million a year in funding for research between the two campuses, but it also described University of Maryland, College Park and University of Maryland, Baltimore as the University of Maryland. So those are the two campuses that can actually call themselves the University of Maryland without additional words behind them. The funding that bridges these two campuses, the MPower funding, is managed by a four-person steering committee, and I'm one of those members. And we're very, very deliberate about the fact that if you get funding, you generally have to be a partner to another colleague at the other campus. And we manage it very closely, and as a result, we've funded some really wonderful programs, including the Institute for Bioscience and Biotechnology Research at Shady Grove, the Fischell Institute for Biomedical Devices, the Maryland Blended Reality Center, which is augmented and virtual reality that's used, particularly in the shock trauma unit in Baltimore, for the purposes of training and learning how to do certain procedures, and also the SAFE Center for Human Trafficking Survivors.

0:08:18 And so, there are many other programs that we fund, but those are just examples of some of them. And we touched on this a little bit in the last question, but the organizations are very different with very different style leadership. And I report to both presidents. I admire them both greatly. And I know both presidents really respect each other as well. Between the two campuses, building that kind of relationship really takes building trust and integrating programs very purposely, carefully, and of course, very respectfully. And we've been doing that over the last nine years, and all of that has led to a closer relationship between the two campuses that operate very differently.

0:09:01 They should operate differently. As a matter of fact, College Park has 40,000 undergraduate and graduate students in arts, and humanities, and education, and social science, and engineering, and other disciplines. The Baltimore campus is primarily professional students in medicine, dentistry, nursing, law, and others. So the two campuses have very

different personalities, their programs are very different, but they really complement each other. And they don't compete with each other in so many ways. They just really complement each other. So that's been nice, and people understand that. And so, bridging these two campuses has been fun.

Rich Bendis: I think the bridge offers some other benefits, namely, you have the ability to leverage your assets and team members between the two institutions for collaboration, whereas generally, they might be going down the same paths in the same scientific areas and never talk to one another.

0:10:00 And the five areas that you talked about, and I'm sure there are more, for where you have joint collaborations between the two institutions, ensures that you don't have duplicity, and that you're getting a greater return on your resources that you're working with.

Laurie Locascio: Absolutely. And that matters so much. For instance, one organization might have certain resources or certain specialties that they can bring to the table, and the other organization has other resources they can bring to the table. And so, together, you really leverage each other's power and become even greater than the sum of the parts. And I think that's really critical in this case.

Rich Bendis: And I think one of the other benefits, you mentioned the $1.2 billion, which is pretty significant. I would imagine that's had an impact on the rankings and the way they rank research-based institutions around the United States.

Laurie Locascio: Yeah, we were really excited that the National Science Foundation acknowledged us as one research enterprise last year, and I think it's really important for the state and the region because it brings us together under one research umbrella and amplifies the message that we are a powerhouse research university.

0:11:16 So together, we're a $1.2 billion public research institution of higher education. And together, that research is genuinely made better through collaboration. And together, we ranked number 14 overall in the country through the National Science Foundation Higher Education Research and Development Survey, which is sort of this definitive survey that ranks all universities across the country. About 650 universities are ranked. So being number 14, we're up there with Harvard, Stanford, Duke. We're in

nice company. And we are number eight among all public research institutions in the country.

0:12:00 And I like to say that the small state of Maryland should be really proud of its private research powerhouses. It's pretty excellent.

Rich Bendis: Well, there's no question that being in the top ten of anything in the academic research category is pretty impressive. And I'm sure you're not satisfied with $1.2 billion, you'd like to see that grow. Right?

Laurie Locascio: Absolutely. And the presidents on both campuses agree with that. I tell them that all the time.

Rich Bendis: It's part of your performance indicators, I would imagine. So let's talk a little bit about what's happened over the last year. And you talked about a lot of this collaboration over the last year, but more importantly, the COVID-19 pandemic has hit everybody. And it's hit academic institutions, hospitals, and basically the education- and research-based institutions a little bit harder. So what has the COVID-19 pandemic impact been on the university system of Maryland, especially in the roles and responsibilities you have?

Laurie Locascio: Yeah, so back in April, we really orchestrated a very complex shutdown of the on-campus activities across the university of Maryland campuses, the University of Maryland, Baltimore and the University of Maryland, College Park.

0:13:14 And about a month later, we started to form groups to talk about restarting that on-campus research. From March to June, most of our on-campus research was closed down, but we continued to do clinical research and allowed exemptions for work with COVID-19, and that was pretty much true across the United States, but definitely true on these two campuses as well. So we started discussing how we could restart on-campus research safely. And in June, research was the first to come back to both campuses. And we started with about 25% occupancy in the labs. At that time, that was really just on-campus research that was laboratory- and studio-based research, for example.

0:14:00 But we delayed the restart of human subjects research other than COVID-related research, just because we really needed time to figure out how to safely deal with any type of human subjects, or the public in general, in

our research. In August, we came back at 50% capacity on campus, and in April this year, we're finally back to 75%. Now, we're ready to get back to normal. I know the region is ready to get back to normal. And hopefully, by summer, we'll be able to go back to full capacity. But the great news is that even while things were shut down on campus for on-campus research, the faculty spent a lot of time writing proposals, writing patents applications, and it was still a very productive time. And another piece of great news is that once people came back, we kept everyone safe, and there was no evidence of community transmission in the research laboratory.

0:15:00 So the researchers came back and were extraordinarily conscientious and compliant, and they kept themselves and everybody around them safe in the research laboratory so we could get back to work.

Rich Bendis: Well, I think everybody's ready to get back 100%. So hopefully, the fall is going to be different than the spring semester. But I think another thing that you just published recently was, during the pandemic, it also gave you time to do analysis of the assets within the university system of Maryland that related to what could be done to address pandemics, or research around that area, or the current COVID-19 pandemic that we have today. And I think you just published a report related to the assets within the university system of Maryland around that. Could you summarize that for us?

Laurie Locascio: Yeah, I'll spend some time talking about, first, maybe medical and clinical research. So I'll talk about both the Baltimore and College Park campuses combined.

0:16:00 But we have research and development, and testing of new therapies related to COVID-19 from stem cells, to antibody-based biotherapeutics, to new antivirals. And we also had very well-publicized early vaccine clinical trials for Moderna and Pfizer up at the University of Maryland Medical School in Baltimore, as well as early versions of the Novavax vaccine in mice that were tested at the school of medicine. And now, of course, there's well-publicized pediatric clinical trials for the Moderna vaccine, ages 12 to 15, I believe. Now, I don't want to underplay this work at all. The School of Medicine has really been central to the response for COVID-19 in the country, with participation in NIH Clinical Research Network, Operation Warp Speed, of course, the federal government's

plan to produce and manufacture vaccines. And so, that whole research enterprise has been entirely and clearly visible and central in this COVID response.

0:17:05 But also, some visible research at the College Park campus has looked at COVID-19 transmission through viral shedding and exhaled breath. And that was used to inform public policy. In fact, the research done at the University of Maryland was used to inform the decision by the CDC to require the use of masks. So that was a really important step. It's hard to remember that we weren't using masks at one time, or that wasn't the recommendation. But University of Maryland was involved in that initial discussion that led to the decision by CDC to require us to use masks to prevent community transmission. But we're also doing a lot more than that. Our research spans some really important issues of health disparities and inequities, including determining the reasons why the Black community is or has been disproportionately impacted by COVID-19, and also research to examine intensified racism against Chinese Americans as a result of the rhetoric used during the COVID-19 pandemic.

0:18:12 We've also looked at other community and social impacts as well, including the effect on children's language development through the pandemic, since they were sort of encapsulated in smaller environments. We also looked at job loss, creation, supply chain issues. And the University of Maryland, I should also mention, is a leader in climate research, and we've been studying climate impacts that have occurred in this very low emissions environment as a result of our stay-at-home orders. In the area of data science, our universities, early on, developed a social indexing index, which is an online visualization tool, to help states track compliance with mandatory quarantine policies by monitoring movement of people and traffic throughout the States.

0:19:03 And then, we also partnered with Facebook and Carnegie Mellon University to develop and design a new survey methodology for Facebook users to track the spread of COVID-19 worldwide. So if you're on Facebook, it actually came up recently on my Facebook feed, take this survey. And it might only say Carnegie Mellon, but Carnegie Mellon is partnering with the University of Maryland. So go ahead and take that if you're comfortable doing that. It will help us with our research on COVID-19 globally.

Rich Bendis: Well, thanks for that summary. It's pretty impressive how involved the University of Maryland has been related to the COVID pandemic. But another thing for recognition, and something that's new within our region is that there's a formation of a Global Pandemic Prevention and Biodefense Center, which is being led by Connected DMV. And I happen to be a co-lead with Stu Solomon on that project. And one of the first things they needed was a lead academic institution to be associated with the formation of this center.

0:20:03 And there's an MOU that's been formed that the university system of Maryland would be the lead academic institution with the Global Pandemic Prevention and Biodefense Center. And you've been involved in the formation of that MOU. So talk a little bit about what you think about that new initiative and the partnership with the system.

Laurie Locascio: Yeah, we really appreciate the work that Connected DMV is doing to really connect the entire region in these new initiatives that have global impact. And of course, two initiatives are quantum innovation and pandemic prevention and preparedness. And both of those dovetail perfectly, I would say, with assets and initiatives at the University of Maryland. And just to talk about what's happened at the University of Maryland recently with regard to pandemic prevention and preparedness, I want to talk a little bit about our history this past year, what we have been doing to organize our thinking, and then what led to what I think is a perfect partnership between Connected DMV and the University of Maryland around this particular topic of pandemic preparedness.

0:21:11 But in April 2020, the university system of Maryland launched, under Chancellor Perman, a COVID-19 Task Force for Research and Innovation, and I'm fortunate to chair that with Tom Sadowski at USM. And for about six months, we developed ideas for launching a new initiative at the University of Maryland campuses focused on the work we've been doing around the pandemic, and I just talked about a lot of that. And we knew we had a lot of assets in that area, and we were trying to figure out the best way to amplify, and leverage it, and grow, and even make impact in future pandemics, not just the current pandemic. So late in the year last year, 2020, we organized a group of faculty to put together a workshop, and we called that workshop Preparing for the Next Pandemic.

0:22:01 And the two-part workshop was held in January and February. And we just released a report. Happy to share that with anybody. But the workshop really focused on four different areas. Of course, medical countermeasures and life sciences is the heart of any response. Diagnostics, therapeutics, telemedicine. But we had three other areas that we examined. The next was pandemic predicting and tracking. So developing a resource where we could track viral spread, mobility, do some war gaming on the potential growth and development or how it could spread across the world, vaccine adoption, forecasting capabilities. So that was the second area that we looked at. The third area that we looked at was business impact and economic recovery. And that ended up really focusing on looking at global supply chain vulnerabilities, which of course, became really apparent to all of us during COVID-19.

0:23:05 And then, the fourth area was societal impact, community health, and engagement. And that track, during the workshop, we talked about health disparities, public health communications, where it was good, where it failed, what research can do to support it. We also talked about mental health and of course, the issues with education during the pandemic. So like I said, we developed a report out of that and started talking to you and the Connected DMV about trying to link together these two initiatives, the one at the University of Maryland and the one with Connected DMV. And we did sign a collaboration agreement to work together, and I think this is a tremendous opportunity to bring all of these things that we have been doing, the organization of all of our thinking and research around the region, to bear on this problem of preparing for a future pandemic.

0:24:02

Rich Bendis: Yeah, I guess the key is, how can we prepare for future pandemics, so we won't be as reactive as we have been for the COVID-19 pandemic? And so, I think we're all waking up to that. And if you look at the concentration of assets that we have, basically, the moons are aligning over what we call the BioHealth Capital Region. And people around the world recognize now how important this region ins with FDA and their emergency use authorizations, Dr. Fauci being on TV 15 times a day, NIAD, research, BARDA, DARPA, DOD, everybody that's engaged, and all of these resources are in our backyard, in addition to the university

system of Maryland. So I think there's no better place to have a global pandemic prevention center than right here in the BioHealth Capital Region.

Laurie Locascio: Yeah, I agree. And these incredible companies who also have been just at the heart of Operation Warp Speed as well. Really tremendous.

0:25:00

Rich Bendis: 40% of the Operation Warp Speed money landed in Montgomery County, Maryland. That's hard to believe, out of $16 billion. But in addition to the MOU, or the collaboration agreement with Connected DMV, you have another one. And that other one is related to the Quantum Innovation Center, which we believe we also can be a leader in the United States and the world in this region in, and a lot of that is due to the university system of Maryland's assets around quantum computing. So first of all, let's define quantum computing for the listeners, and then talk a little bit about some of the recent successes and assets you have in quantum computing at the University of Maryland.

Laurie Locascio: Yeah, quantum computing is such an exciting topic right now. Quantum computing is really the next generation of computing, which is predicted to outperform and leapfrog current silicon-based technologies to advance the speed of computing and computing capabilities. And the University of Maryland, more than 15 years ago, in collaboration with NIST, launched the Joint Quantum Institute, which is a premiere institute and one of the most prominent research institutes in the world performing research in quantum computing and other aspects of quantum information science and technology.

0:26:21 And there are over 200 researchers currently at the University of Maryland performing research related to quantum. So yeah, we joined together, again, with Connected DVM, through a collaboration agreement to more effectively and efficiently achieve our shared goal of building this globally leading quantum ecosystem. And this is the place to do it. With the University of Maryland and many, many industries in the region, and federal agencies, a lot of the ones that you just rolled off for other purposes as well, we have formed the Mid-Atlantic Quantum Alliance, which really unites everybody together under this one umbrella

to think about quantum in the region and how strong we are with quantum capabilities in the region.

0:27:12 And now, this partnership with Connected DMV, I think it's really going to accelerate that. We do want to become the place for quantum computing in the country, and really, in the world. Because the place that captures that is really going to be at the center of every discussion for the next 50 years.

Rich Bendis: And the amazing thing is, versus biotechnology or life sciences, you don't have as many people who are competing to be the global center for quantum computing because it takes so much from an equipment and skills and experience standpoint to compete in that field. So while there isn't as much, there are some strong competitors. But I think we're showing very well. And one of the other things that's happening is, you've got a neat tech transfer success for a new quantum company coming out of the University of Maryland, IonQ, which has gotten a lot of visibility, and also shines a light on Maryland and the university, based on what it plans to do.

0:28:12 So you want to talk a little bit about IonQ please?

Laurie Locascio: Yeah, I will. And before I go there, you talked a little bit about who's competing in this area. And I just wanted to say that I think it's ours to lose. Because we have been out ahead for so long that it's really ours to lose. And the reason I put it that way is because so many regions now see the importance of this technology and are investing big-time resources to try to either get in the game or accelerate their place in the game. So I think that's an important thing to state, that we're there. We just want to stay the leader. But yeah, IonQ, big story out of the University of Maryland. So the company was founded as a startup by University of Maryland Professor Chris Monroe in 2016.

0:29:04 It's now the first publicly traded company dedicated to quantum computing hardware and software. And it came out with a $2 billion valuation. Really exciting for the region. It can be, really, the centerpiece of the conversation around economic development because it should be an attractor. I shouldn't say the only attractor because all of the research we do was the original attractor for the creation of this company and formed its basis. But that kind of incredible startup story, you don't hear

very many of those. And it should just be a huge attractor for other companies to come to the region, and for people to think about spinning out new companies out of the research done in this region. So yeah, I think it's an incredible story. We're really proud of it.

Rich Bendis: And it's really one of the first quantum unicorns in the United States.

0:30:01 And we don't get that many unicorns in the BioHealth Capital Region. So it's nice to have the first quantum unicorn. But in addition to that, when I was talking to Julie just last week, she was also talking about a new quantum incubator as well as a $25 million commitment to quantum, which is new. Maybe you can expound on those a little bit.

Laurie Locascio: Yeah, so Julie, I'm sure, said a lot about this last week. But yeah, we have realized that it's critically important, at this particular juncture--as I said, right now, it's ours to lose--to start to think about how we can accelerate companies in this region, how we can help startups be successful, and how we can attract new companies here. And so, Julie Lenzer has been talking about the establishment of the Quantum Startup Foundry, which is a market accelerator. And we are going to have resources to support people to work on their startups, to grow their startups, and to attract new startups to the region.

0:31:08 We're really excited about that. That Quantum Startup Foundry is going to be located in College Park, but we have a lot of people we're talking to around the region, the States, and the globe who are interested in seeing what we do here at the University of Maryland with respect to the Quantum Startup Foundry. Really excited about that. And the president, in his inauguration week, announced the establishment of the Quantum Startup Foundry. But we have additional funding that we're investing in quantum research and development at the University of Maryland. One, of course, is the funding for the Quantum Startup Foundry. But we're also providing funding for new faculty hires. And the reason I mention that is because a lot of these startups have come out of faculty at the universities, or people who have done research at other institutions and locations.

0:32:05 And so, having these great faculty here, and then enticing them to move out of the university with a startup is really something that's central to the way that we're planning to move forward. Hire great faculty, help

them start a business, accelerate their business, and encourage them to stay in the region while they continue to go back to the laboratory and do new research that can lead to the next startup. So it's really that entire ecosystem that we're trying to build. And we're building it through faculty hires, through funding for startups, through an incubator, and together with the region, we hope to catalyze an incredible ecosystem for businesses around the area.

Rich Bendis: All of it's exciting. And as you know, one of BioHealth Innovation's missions is to help early-stage companies try to succeed. So anything we can do to support you in either the life science, or biohealth area, or the quantum side, we're here to help.

0:33:05 So I think we've covered a lot in this initial podcast, and I don't think it'll be the last because there's a lot of exciting things happening at the University of Maryland. But what is there that you'd like to talk about that we haven't mentioned for the listeners? And we're talking to Dr. Laurie Locascio, who's the Vice President for Research at both the University of Maryland, College Park and the University of Maryland, Baltimore. But, Laurie, you have an open mic for anything you'd like to close with.

Laurie Locascio: I didn't really mention some of our other companies that I'm sure Julie Lenzer mentioned those in the bioscience area. But there are a lot of exciting things that do come out of the university system, out of all of the research universities in the country. And it's such an important thing at this particular time to think about how we can bring people together, how we can bring together universities with other institutions, with federal agencies, and with industry, and really use each other to leverage our capabilities and accelerate the work that we do.

0:34:11 And I just think that a lot of the things going on right now in the state of Maryland and the DMV are all thinking about that particular question, how do we nucleate those kinds of relationships, and how do we cement those kinds of relationships so that together, we can really accelerate our research and development for the region?

Rich Bendis: Well, I think you're going to be one of the catalysts to help ensure that that happens, Laurie. So congratulations on what's been accomplished to date, and we look for much more to come in the future. And I guess

we're going to close with Dr. Laurie Locascio, who is Vice President for Research at University of Maryland, College Park, University of Maryland, Baltimore. Thank you for appearing on BioTalk, and we want to catch up with you as all these new breaking major developments are going to happen within the system over the next year.

0:35:03

Laurie Locascio: Thank you so much for having me. I really enjoyed it.

Narrator: Thanks for listening to *BioTalk* with Rich Bendis.

End of recording