Assistant Vice Chancellor for Commercial Translation in the Health Sciences, Associate Professor of Biomedical Informatics, Bioengineering, and Clinical & Translational Science, Co-Director of the Center for Commercial Applications of Healthcare Data, and Founder and Executive Director of sciVelo, Dr. Donald P. Taylor has been charged with leading commercial translation across Pitt's six health sciences schools.

Our Center's Associate Director, Julia Holber, had the opportunity to talk with Dr. Taylor about his perspectives on Pittsburgh's rise as a global innovation city and where he sees sciVelo going in the future.

Julia: Tell us a bit about your background and your journey to Pittsburgh.
Don: I've been in Pittsburgh for as long as I can remember. My family moved here from Boston when I was very young, and I've been here ever since. I received my B.S. in Information Systems from Carnegie Mellon University and 3 graduate degrees from the University of Pittsburgh. I've done a lot of travel and built a lot of startup companies that almost pulled me away from Pittsburgh, but I've always stayed because I knew something special was unfolding here year after year.

I caught the bug for academic medical commercial translation while completing my PhD in bioengineering at the University of Pittsburgh. In our lab we had two research groups working in complementary fields but not yet connecting the dots to each other. When we brought them together, we had something that could address a very big clinical condition but had no winning market solution. It was that process of being trained as both a basic scientist and translational scientist and then being a co-inventor on a patent we filed through the Innovation Institute that got me excited about the vast potential of academic commercial translation at Pitt.

Julia: Let's talk a bit about sciVelo. What is it? What does it aim to achieve?
Don: The sciVelo name is a contraction of "science" and "velocity." We're trying to speed up the science toward commercial application areas and across our seven focus areas in a staged, practical approach. sciVelo is the vehicle through which we help to support the "top of the funnel" academic medical commercial translation.

I was hired about 20 months ago to help activate commercial translation. So, under the vision and leadership of Dr. Arthur Levine, our Senior Vice Chancellor for the Health Sciences and Dean of the School of Medicine, we created sciVelo which is now coordinated under his office and that of Dr. Rob Rutenbar, Senior Vice Chancellor for Research. sciVelo was also formed by the vision of Dr. Mike Becich of the Department of Biomedical Informatics and Dr. Steve Reis of the Clinical and Translational Science Institute. Our sciVelo team is highly transdisciplinary, with about 25 team members now, who cut across so many different disciplines that are strategically aligned with our thematic areas.

When you think about commercialization to the outside world, there's quite a continuum of things to do and expertise required. Many investigators have active research projects in flight that may be wonderfully successful in terms of a peer review publication and traditional grant funding, but they haven't framed their research to an unmet market need. sciVelo's broad purpose to achieve is to answer such questions as: how do we increase the number and quality of Pitt invention disclosures? How do we strategically coordinate across campus to ensure that our translational science will yield a competitive portfolio of potential intellectual property? How do we strategically involve industry to inform our translational research perspectives? How do we bring in non-traditional funding to expand the impact of our research? One person can't do all that alone. So sciVelo links translational research projects to such other stakeholders as the Clinical & Translational Science Institute, the Center for Medical Innovation, and Innovation Institute, and the Offices of Economic Partnerships and Corporate Engagement.

Julia: What does a typical day look like for you?

Don: There is no typical day for what we do. We're aiming to activate research investigators across all pockets of the campus that aren't otherwise self-selecting for framing their basic research toward commercial application areas. My responsibility as the Assistant Vice Chancellor for Commercial Translation in the Health Sciences is aimed across the six schools while strategically linking translational research projects to other schools like our new School of Computing and information, and the Swanson School of Engineering, and our collaborators at Carnegie Mellon University. This is a large surface area to cover.

We spend our days connecting the research landscape and helping investigators with experimental design, data interpretation, and contextualizing their research through a commercial lens in order to advance a robust, strategic, and continuous flow of translational science that will ultimately precipitate licensing and new company formation. This is what we call, "top of the funnel commercial translation" and it differentiates us from other commercial translation programs. Specifically, we've initially focused on seven highly differentiated areas of research excellence at Pitt that intersect some of the core sweet spots where we know that there are unmet collaborative research needs from industry. These seven areas are: brain health; cell therapy; drug discovery; immunotherapy; precision medicine; regenerative medicine; and digital health.

Julia: Where do you see sciVelo going in the next 5 years?

Don: We're expanding in the depth we bring to each of our seven thematic areas. Take any one of those, like digital health or precision medicine. In five years from now, you'll see a greater depth of sciVelo being able to help expand the impact of our research through commercial translation, which is a key pillar in the Plan for Pitt that Chancellor Gallagher has outlined. You're also going to see sciVelo expanding into other pockets of opportunity to help investigators engage in commercial translation. For example, sub-branded versions of sciVelo being cohabitated at Children's Hospital in Pittsburgh of UPMC to help pediatric clinicians and scientists unlock their translational research toward commercial applications. Having sciVelo's top-of-the-funnel resource proximal to Children's Hospital of UPMC would be amazing. We could think about doing the same thing for Magee Women's Research Institute, the UPMC Hillman Cancer Center, and many other centers and institutes across the campus, the region, and even the globe.

Julia: What do you think makes Pittsburgh a unique city in the tech and innovation scene and how do you see the city evolving in the next few years?

Don: Recently the University, through Rebecca Bagley, our Vice Chancellor for Economic Partnerships, commissioned the Brookings Institute to study our region, identify our strengths and weaknesses, do a gap analysis, and make a series of recommendations. This study understood we've have one of the world's best and natural innovation districts with Carnegie Mellon, the University of Pittsburgh, and UPMC, our tight-knit community of angel investors, seed stage capital firms, and angel networks that invest in early stage companies, top-quality students, and the emergence of such anchor companies as Facebook, Google, and Amazon.

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Scott Andes, Mitch Horowitz, Ryan Helwig, and Bruce Katz
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All of this has been incubating and brewing in a very productive way, and we're making even more investments to reinforce this innovation district. For example, our new Immune Transplant and Therapy Center at 5000 Baum Boulevard will house both research investigators and industry around cancer immunotherapy therapy, diseases of aging, and transplantation. The commercialization arm of UPMC (UPMC Enterprises) is at the epicenter of this initiative and has demonstrated incredible leadership in coordinating with Pitt and our region to help make this happen. That's really exciting.

Julia: Are there any current or upcoming behavioral-health related projects you are also excited about?

Don: Behavioral health research cuts across many of our seven themes, from brain health to digital health to even precision medicine and drug discovery. It's an area of significant opportunity, and we're establishing new translational research projects and relationships. One example is our relationship with Children's Hospital of Pittsburgh of UPMC. Childhood anxiety is a major unmet need with about 4.5 million children aged 8 to 16 who have an anxiety disorder that interferes with their quality of life, yet 80% go untreated. For those children who are treated, the typical approach of cognitive behavioral therapy and psychotherapy can be helpful, but many children don't respond. Jennifer Silk is an Associate Professor in the Department of Psychology and one of the many investigators sciVelo has been working with – in this case, through our Center for Commercial Applications of Healthcare Data of the Pittsburgh Health Data Alliance Initiative. She developed SmartCAT, a mobile application that is in the process of being validated in an NIH-funded clinical trial with adolescents. SmartCAT incorporates cognitive behavioral therapy, dials it in at just the right altitude for that population and helps to incorporate it into their natural daily workflow. It's a relatively non-disruptive way for adolescents to engage in care that will reduce their anxiety and help address a major unmet clinical need.

Julia: Do you have advice to clinicians, researchers, engineers, and anyone else who wants to get involved with sciVelo? What is the process of partnering with sciVelo like?

Don: If a clinician or scientific researcher is thinking about innovation, commercialization, and collaborative research with industry, my advice is to come in, sit down, grab a coffee and talk with us. That's step one. We have a team that spans very ensconced, more traditional basic scientists with a little bit of a translational flair to those who are more clinically oriented and even those who are highly business-oriented and entrepreneurial.

Step two is for us to help the investigator understand what they want to get out of commercial translation. If a researcher wants to try to commercialize their research because they want to make a billion dollars with their cancer immunotherapy solution or maybe they want their pediatric medical device to be widely disseminated in the marketplace with no interest in personal financial wealth, those are both fine goals, but they have different ways of getting to market and being sustainable market solutions. Once the investigator knows what they want, the sciVelo team helps them develop and manage what we call their "commercial translation critical path."

This commercial translation critical path is unique to each project and to each researcher, although the path draws upon a common framework. Experimental design, the end points you might be interrogating, how you interpret the results in the data, and certainly how you communicate what you're doing is very different in commercial translation audiences than it is for purely scientific audiences. Not only does sciVelo help serve as translators, taking that complicated science and making it digestible to non-scientists, we roll up our sleeves and help with designing those experiments and interpreting the data. Then, we help the translational science teams chart their commercial translation critical path depending on where they want to go. We can do this because our team is composed of current practitioners of translational science. Our team has also been involved in all of the University of Pittsburgh programs and competitions, such as the Innovation Institute's First Gear to Randall Family Big Idea, and the Clinical and Translational Science Institute's PInCh Challenge.

Julia: Are there any events or conferences you are hosting or attending that you would encourage our readers to attend in the upcoming year?

Don: We're particularly proud of the first annual Found in Translation event which we just hosted this month in collaboration with the Clinical and Translational Science Innovation Core. The primary purpose of this event was to wrap PInCh-funded teams with the ecosystem of commercial translation support to help them achieve their commercialization objectives. We brought together over 20 PInCh-

funded teams and 30 stakeholders from Pitt and the region (such as the Office of Research, Women in Bio, the Pittsburgh Life Sciences Greenhouse, and the Innovation Institute) and set up speed dating. We know each PInCh team well, so we prescribed which dates they had based upon what commercial translation gaps they needed to fill. Our goal was to accelerate their commercial translation critical path by creating these connections and the sciVelo team will continue to help manage the outcomes from this event. What the campus and our region saw at the Found in Translation event was a strategic intersection of need, and service, all coming together in a coordinated and sensible way. I think that's going to carry a very powerful message back to the University, our region, nationally, and internationally, that we really do have what it takes now. Look for this program again next year!

Julia: Finally, what are you currently reading? Any book recommendations?

Don: Like most faculty at Pitt, I have to be very disciplined in how I invest my time for continuous learning. I'm an active scientific manuscript reviewer in my fields of breast cancer metastasis and wound healing, serve on NIH SBIR/STTR study sections (reading many of those commercialization grants) and I also stay tuned to a diversified press, for example, GeekWire.

I read a lot of books concurrently and one I have been chipping away at is the biography on Elon Musk. It's hard to know how much of this book is embellished versus how much of it actually occurred, but a couple things from reading it really struck me. First is Elon's intense focus and his ability to execute. Focus and execution are hard enough for even the most experienced people to master, but Elon seems able to remain calm, and even increases his focus and ability to execute under mounting amounts of pressure. He describes being on the brink of bankruptcy, and it seems as though the more pressure he's under, the more focused and determined he is on getting the right things done. Second was Elon's ability to risk it all for a purpose that's greater than oneself. Sometimes to really change the world, you have to risk everything. To be clear, this is not risking your integrity or your sense of purpose, of course, but risking a stable job, and a personal fortune. At one point, Musk was risking his entire $200 million and facing the possibility of living in his wife's parents' basement because he believed so much in Tesla, SpaceX, and what he wanted to accomplish. I think to really change what we need to change, we need more people to take risks like Elon Musk and to be able to stay focused and productive under pressure. I'm not saying that everyone to be successful must risk their entire personal finances, or must set astronomically high goals, but we must get out of our comfort zones, take big risks for the right purpose, attract, retain, and empower top talent, and that really speaks to me.