Bring the benefits of discovery to the world. This part of the founding mission of Johns Hopkins is engrained in the day-to-day activities of Johns Hopkins Technology Ventures and is showcased through our industry collaborations and the successes of our entrepreneurs and startups. In this newsletter, we highlight new opportunities, award-winning startups, the importance of customer discovery and why Baltimore is a nurturing environment for emerging ventures.

Emocha Mobile Health, Proscia Receive Incubator Company of the Year Awards

On June 15, two startups based on Johns Hopkins technology received Incubator Company of the Year Awards at an annual event sponsored by the Maryland Technology Development Corporation (TEDCO) and several other organizations. Emocha Mobile Health, a tenant in FastForward 1812 developing a mobile health platform for remote patient management, was recognized as Best Health I.T. Company. Proscia, a digital health company building cloud-based image analysis and deep learning software for pathology based at Spark in the Inner Harbor, received the first-ever award for Best Unaffiliated Company.

Emocha’s win marks the fourth time in the past five years that a FastForward startup has received an Incubator Company of the Year award. Sonavex claimed the award for Best Med Tech/Life Science Company in 2016. Gemstone Biotherapeutics was named Best Life Sciences Company in 2015. Clear Guide Medical won the Life Sciences/Medical Device & Research Tool category in 2013.

Judges, a cross-section of the region’s most prominent industry leaders and early-stage investors, evaluated 21 finalists based on their success in achieving their objectives. Key factors included technology or product development, intellectual property, increase in employee numbers, growth in revenue or earnings, engagement of significant customers and strategic partners, receipt of awards and grants, attraction of outside investors, innovation, self-sufficiency, impact on the region and usage of the incubator’s services.
Dr. Dan Stoianovici

Dr. Dan Stoianovici is a professor of urology, mechanical engineering, neurosurgery and oncology at The Johns Hopkins University. He holds 15 issued patents, has 13 licensed patents, and in his 20-plus-year career, he has co-authored nearly 1,000 publications, many of which earned awards. He is an expert in the field of medical robotics and built his robotics laboratory at the Brady Urological Institute.

One could understand why he would question the return on investment he would receive from Johns Hopkins University’s I-Corps program. The four-week workshop is designed to help researchers better understand their target market for innovative new products and services by engaging directly with potential customers. Additionally, it provides funding of up to $2,880 to support customer discovery work or prototype development. Despite his initial skepticism, Stoianovici found the program time well spent.

“Once you work in the same field for many many years, you tend to believe you know what the requirements are and what customers would like to have,” Stoianovici says. “In general, it’s true because you work on and read about it every day.”

Stoianovici is currently developing a device that combines ultrasound and robotics not only to improve prostate biopsies but also to make them less expensive and more accessible. The current preferred method for conducting prostate biopsy involves ultrasound and MRI, but that is cost-prohibitive for many patients.

After receiving an $115,000 award from TEDCO’s Maryland Innovation Initiative (MII), which is designed to promote the commercialization of research in select Maryland universities, Stoianovici applied to the Johns Hopkins I-Corps program to gain a clearer understanding of the business of commercializing his innovation.

Stoianovici attended the university’s opening I-Corps workshop which provided an overview of customer discovery and lessons on better communication. From there, he spent the four weeks of the program interviewing customers, primarily medical device manufacturers, physicians and patients, and meeting weekly with an adviser who would provide feedback on his progress and advice for future interviews. All told Stoianovici has interviewed more than 30 customers and anticipates doing even more because the experience has proven so valuable.

“Initially, you don’t really know how to do the customer interviews, but then step after step you start to like it and understand it,” he says. Stoianovici recalled Bob Storey, one of the I-Corps instructors, explaining that customer interviews could become addictive and said that’s what he experienced.

Though Stoianovici occasionally had differences of professional opinion with the people he interviewed, the feedback still proved valuable.

“In talking with various people, I found there were still things that people saw in different ways and that is very important because they are the customers,” says Stoianovici. “I need to ensure I prepare the product so that it offers value to them as well.”

Some of the customer insights Stoianovici received will inform the actual design and versatility of the robotic device, which he aims to have a prototype of by mid-summer. For example, one of the interviews revealed that the customer wanted the functionality of the robot to include focal ablation therapies, a technique that destroys small tumors in the prostate but leaves the remaining gland intact and preserves much of the healthy tissue.

“Because of that feedback, we’re actually thinking about how we can design the probe for multiple applications beyond biopsy,” Stoianovici says.

Megan Wahler, the program manager of FastForward, says that participating in I-Corps will benefit any inventor and ensures that any work poured into the program will lead to a greater understanding of the solutions necessary to address people’s problems. She especially encourages inventors in the very early stages of development to participate.

“From an academic technology development standpoint, it’s imperative that you gain an understanding of your customers’ needs early on so you design technology that’s truly solving their problems,” says Wahler, who leads the university’s I-Corps program with Bob Storey, the managing director of the Maryland branch of VIC Technology Venture Development and Elizabeth Good Mazhari, President of Transition Health Ventures. “If your technology isn’t ready for prime time, this is a great way to vet the potential market viability because you’re not supposed to talk about your tech.”

Instead, as Stoianovici has learned, I-Corps encourages inventors to listen to their target audience’s biggest challenges.

“Previously, I would just show them what I have and talk about how fantastic my gadgets are,” Stoianovici says. “What you should do is talk to them, ask for their opinions and try to conduct your dialogue so that it gets closer and closer to what you are working on. If you start hearing what you want to hear, you probably have a customer.”

Now that he has completed the Johns Hopkins I-Corps program, Stoianovici is considering applying to the National Science Foundation’s version. This rigorous program has a curriculum that provides best practices for working with partners, building a business strategy and, of course, additional customer discovery and funding.

“I recommend other people in the academic world to go ahead and pursue the I-Corps program because it is instructive, and the lessons you’re taking from the customers can help you refine the work you’re doing in research,” Stoianovici says.

The next Johns Hopkins University I-Corps program will start in September and a call for applications will go out in August. If you have questions about the program, contact Megan Wahler (mwahler@jhu.edu).
Life Science Workshop a ‘Tour de Force of Knowledge’ for Bayer, Hopkins Scientists

This spring, Bayer brought its Life Science Workshop Series to the Johns Hopkins medical campus, creating an information exchange that could further stimulate collaboration between the two organizations.

“What really struck me and what I think made this conference novel is that we started with the latest developments in immunology and ended with the latest developments in radiochemistry,” says Dr. George Sgouros, Johns Hopkins’ representative on the four-person organizing committee of the workshop’s scientific program. “That span of expertise I really hadn’t seen put together in that way. It was a tour de force of knowledge that spanned numerous fields that you typically wouldn’t find in any one meeting.”

During the workshop, the three dozen Bayer scientists, two dozen Johns Hopkins researchers and six guest speakers in attendance had deep scientific discussions about cutting-edge cancer treatments that combine radiation therapy with immune cells that target cancer cells and deliver the radiation therapy systemically in a tumor-targeted manner.

“Tumor cells have co-opted the machinery that prevent our immune system from attacking our own cells,” says Sgouros, the director of radiopharmaceutical dosimetry and a professor of radiology and radiological science at Johns Hopkins. “Interestingly, immune cells infiltrate tumors, but they don’t act because they get signals that tell them not to.”

Recent research has found that certain drugs can block the “cloaking signal” that tumor cells give off, triggering the immune cells to action. In addition, Sgouros says, the immune cells will develop a memory that allows them to recognize and fight tumor cells in the future. This novel treatment combined with radiation therapy that calls immune cells to action by killing a tumor cell and releasing parts of it outside its membrane has shown improved patient outcomes.

“This event was a great opportunity to get updated on the latest science in an interactive way,” Sgouros says.

Though Bayer’s current collaboration with Johns Hopkins focuses on ophthalmology, the German-based company chose to have one of its four annual workshops in Baltimore to provide a diverse, strong learning experience for its scientists and to explore further synergies for its established relationship with Johns Hopkins.

“We designed this event to have real scientific purpose and to serve as a platform for thought exchange,” says Marion Hitchcock, Bayer’s alliance manager to Johns Hopkins and a member of the event’s organizing committee. “We wanted to bring our scientists into a setting where they could discuss cutting-edge science, and in particular Targeted Alpha Therapy (Ra 223 and Targeted Thorium Conjugates).” This new platform, with currently the most advanced molecule in early clinical development, uses the combination of tumor-specific antibodies complexed with the alpha-emitting radionuclide thorium-227.

“Additionally, from Bayer’s side, we wanted to get more exposure to other indication areas at Johns Hopkins, particularly in oncology,” Hitchcock says.

According to Hitchcock, the event took about eight months to plan and intentionally took place just before the American Association for Cancer Research’s annual meeting in Washington D.C. By having the workshop on the eve of AACR’s meeting, Bayer’s mostly Europe-based scientists could attend both events within one trip. For both Bayer and Johns Hopkins, the ability to meet and discuss science in-person together with other U.S.-based thought leaders in the field paid dividends.

“It’s meaningful when we can come together with industry collaborators and learn from each other. This event went beyond research and funding to truly focus on scientific exchange and learning opportunities,” says Mary Beth Thanhouser, a business development associate at Johns Hopkins Technology Ventures who helped organize the event.

Though too early to determine how the relationship between Bayer and Johns Hopkins will progress in terms of research collaboration, additional scientific exchanges where both organizations share what they have learned appears certain.

“Many discussions created excitement for both sides,” Hitchcock says. “We definitely look forward to having similar events with Johns Hopkins in the future.”

Why Baltimore with Christy Wyskiel

The five-year employment growth from new startups in the Greater Baltimore region ranks ahead of Boston’s, San Diego’s and Denver’s. Christy Wyskiel went on WYPR to explain how Baltimore’s startup ecosystem continues to grow and what JHTV is doing to help.

http://wypr.org/post/christy-wyskiel
**Startup News:**

- Last month, TEDCO recognized two FastForward startups at its annual ICE awards, which recognize Maryland startups for innovation, corporate excellence and entrepreneurship. **Glyscend**, a startup developing a new treatment for Type 2 diabetes, won in the innovation category. Wendy Perrow, the CEO of Asclepix Therapeutics, was named Entrepreneur of the Year. **Technical.ly Baltimore**

- **Project Charmify**, a member of the Social Innovation Lab’s 2016-2017 cohort, was one of six projects to receive funding through Johns Hopkins’ Idea Lab. The nonprofit is teaching Baltimore City high school students neighborhood leadership and community development skills and then helping them create community programs in underutilized spaces. **The Hub**

- **Personal Genome Diagnostics (PGDx)** has secured a new contract from the U.S. Department of Veterans Affairs. The contract allows the company based in Baltimore’s Canton neighborhood to provide a test for cancer through a liquid biopsy instead of through tissue samples. **Technical.ly Baltimore**

- FastForward 1812 tenant **emocha Mobile Health** is using a $1.7 million grant to launch pilots to determine if its technology can help those recovering from opioid addiction to adhere to their drug regimens. Emocha will be working on the pilot with the opioid recovery clinics at the University of Washington and Boston University. **Baltimore Business Journal, Technical.ly Baltimore**

- **Clear Guide Medical**, a FastForward startup focused on developing medical devices that will lead to more accurate and efficient procedures, named Bob Cathcart its new CEO. Cathcart was most recently an executive at the medical robotics company Hansen Medical. **Technical.ly Baltimore**

**Features:**

- **Sunrise Health**, formerly known as Beacon Health, presented at TechCrunch Disrupt New York’s Startup Battlefield competition, unveiling the beta version of its group chat therapy app. The app is free for patients and licensed to health care providers. Through the app, Sunrise, a member of the 2016-2017 Social Innovation Lab cohort, aims to improve mental health care by allowing those in need to get support through anonymous group chats and receive guidance from professional therapists. Additionally, Sunrise’s technology helps protect its users with artificial intelligence that watches for abuse and emergency situations. **TechCrunch**

- The three founders of Sunrise Health met while students at The Johns Hopkins. Technically Baltimore featured the startup, explaining the founders’ motivation for developing this technology and showcasing how the platform has evolved since it first launched. **Technical.ly Baltimore**

- Sunrise Health has begun piloting its mental health support application with Maryland first responders and college students. The startup has received an additional 10 letters of intent from fire departments, police departments and health care companies. **Baltimore Business Journal**

- **CoolTech**, a FastForward startup based in Baltimore’s Federal Hill neighborhood is preparing to launch two trials of its body-temperature-cooling technology. One trial is at the University of Maryland, Baltimore where a resident doctor will use the device to reduce fevers in patients with head injuries. The second trial will put CoolTech’s device on ambulances to help cardiac arrest patients. **Baltimore Business Journal**

- Will tricorder technology become part of your morning routine like brushing your teeth? Sathya Elumalai, CEO of the FastForward startup Multisensor Diagnostics, believes in the near future people will use total health scanners to monitor their health. **Health Transformer**

**Baltimore News:**

- The Maryland-DC-Virginia region ranked fifth on Genetic Engineering and Biotechnology News’ list of most nurturing biopharma clusters. Among the reasons cited were the presence of institutions like the FDA and NIH and the presence of The Johns Hopkins University, the nation’s leader in federal funding for 37 consecutive years. **Genetic Engineering and Biotechnology News**

- Gemstone Biotherapeutics CEO George Davis has taken on the role as CEO of the Maryland Technology Development Corporation. Davis brings with him experience as an entrepreneur and investor, having helped build startups, led companies through growth and acquisitions and invested in seven emerging ventures. **Baltimore Business Journal, Technical.ly Baltimore**

- A 23,000-square-foot co-working space has opened in Baltimore’s Brewers Hill neighborhood. Dubbed Brewer’s Hill Hub, the space features 18 individual desks, 4 dozen cubicles, 18 offices and suites. **Baltimore Business Journal**

- Johns Hopkins ranks among the top 2 percent of universities worldwide in the 2018 QS World University Rankings. Of the 950 universities considered from 80 countries, Johns Hopkins University ranked 17th. **The Hub**

- From Sept. 29 to Oct. 7, Baltimore will once again celebrate innovation. Technically Baltimore, which runs the annual event, is looking for sponsors, hosts, speakers and startups interested in demo-ing their innovations. **Technical.ly Baltimore**

- According to Time Money, Baltimore ranks among the 20 hottest cities for tech jobs. The article cited that Baltimore had a 109 percent year-over-year increase in tech jobs from 2015 to 2016. **Time Money**

- Maryland now has the sixth largest tech workforce per capita in the country. Among the reasons for the high ranking is the presence of key federal agencies like the NIH, major health systems and potential strategic partners. **Consumer Technology Association**
Meet the Entrepreneur: 
Nikhil Panu Connecting Communities Through Sports

In five words, what does your company do?
Enable and foster active communities.

What are your goals and how will you get there?
My goals are to get access to as many clusters of sports facilities in certain locations as possible and build a user base of active sports participants, coaches and league administrators in those areas. I am looking to partner with high schools, universities, community centers and independent complexes by going through governing bodies or organizations that run them in order to allow them to rent their gyms, fields and courts out to our users.

In addition to drawing existing visitors to these spaces, I will partner with current sports organizations and social leagues to encourage their active organizers to use our platform.

In terms of startups and innovation, what’s one thing that separates Baltimore from other tech hotbeds?
Having grown up and worked in Silicon Valley, the general willingness to collaborate is something I have noticed that stands out in the tight-knit Baltimore startup community. People are always willing to lend a hand or make an introduction because they have a genuine interest in helping fellow entrepreneurs.

What’s next for Squadz and why is Baltimore a good playground in which to grow this app?
Currently, we are working with the city to activate their community centers and schools and bring them onto our platform. Once we have that solid base of venues ready to go, we will be able to officially launch the mobile app in Baltimore later this summer. We are also planning on launching in the San Francisco Bay Area in July with some of the partnering facilities we have developed there. Stay tuned for announcements on both upcoming launches!

In addition, Baltimore has displayed a tremendous interest in providing health and recreation opportunities to members of its various neighborhoods and communities. People want to stay active, and the city wants to help them do so. There are not many cities around the country that have such a dense distribution of community recreation centers. That has made working with the city seamless and has provided us the necessary support to grow the platform.

Although the interest is apparent, there are definitely processes and points that need improvement. That is where Squadz can help. There is a clear opportunity for us to make an impact in Baltimore by keeping local recreation centers operational.

If you could give your past self one piece of advice for creating a startup, what would it be?
As much as you want everything to be perfect, it’s impossible. It is so important to gather as much data through research and user feedback as possible to learn, improve and make informed decisions.

What book are you currently reading?
I am currently reading Shoe Dog by the Nike founder Phil Knight.

What innovator do you look up to? Why?
I have and will always look up to my dad, who built one of the fastest growing early SaaS companies. From a young age, he shared his experiences with me and let me observe what he did firsthand. He always led his employees with passion, dedication and integrity and constantly strived to innovate. He’s the reason I ever had an interest in starting my own company, and I hope to be half the entrepreneur he is.

It’s after a long day of work, and you don’t feel like cooking. What is your go-to Baltimore restaurant?
Chicken Rico is definitely my go-to place. They’ve got a great chicken dinner combo that always hits the spot!

What’s your favorite non-work-related thing to do in Baltimore?
As a student, a lot of my time outside of work was spent in the classroom or competing with the varsity basketball team at The Johns Hopkins University. However, when our team was out of season, I frequently played and still play pickup basketball at many of the local community centers like Madison Square, Virginia S. Baker and 29th Street. I also like to catch Orioles or Ravens games when I get the chance.

Weekend warriors head to nearby courts and fields for exercise, competition and fun, but too often they find either long waits or too few players. That reality plagued Nikhil Panu as a high school student-athlete in San Jose, California and followed him across the country when he enrolled at The Johns Hopkins University. It also inspired a solution.

Panu—the most recent captain of the Johns Hopkins basketball team and a recent master’s graduate from the Whiting School of Engineering’s computer science program—is developing Squadz, a mobile app that follows principles from Airbnb and OpenTable to establish a facility and sports event marketplace.

The app allows people looking for a game, whether it be basketball, tennis, golf or nearly any other sport, to find teammates and competition at a nearby venue. By connecting athletes and coaches to players, events and venues, Panu believes he can make Baltimore’s communities stronger and more active.

Panu participated in the Social Innovation Lab’s 2016-2017 cohort, and the five-month accelerator for social ventures supported him as he launched a pilot program. In the pilot, Squadz produced encouraging results, including 130 bookings of facilities in recreation centers over only a few weeks. Those bookings linked people from across Baltimore, allowing them to gather through the positive outlet of sports.

Below, Panu discusses Squadz, Baltimore and the goals he has for his social venture.
Johns Hopkins in Top 10 of Universities Granted U.S. Utility Patents for Third Consecutive Year

Based on data from the U.S. Patent and Trademark Office, the report showed that The Johns Hopkins University had 167 U.S. utility patents granted in 2016, up from 143 the previous year. This marks the third consecutive year that Johns Hopkins has placed in the top 10 and is the university’s highest ranking in the report’s five-year history.

“One of the primary goals of The Johns Hopkins University is to bring the benefits of discovery to the world,” says Christy Wyskiel, head of Johns Hopkins Technology Ventures (JHTV) and senior advisor to the President of The Johns Hopkins University. “The extraordinary researchers, faculty members and students at Johns Hopkins take pride in translating innovation into products that provide tomorrow’s solutions to today’s biggest challenges.”

The NAI and IPO compile its rankings by calculating the number of utility patents granted by the U.S. Patent and Trademark Office which list a university as the first assignee. Since the first report in 2013, The Johns Hopkins University has seen its number of granted U.S. utility patents grow. In 2012, the university ranked 15th with 79 granted utility patents but slipped to 20th the following year with 82 granted utility patents. In 2014, Johns Hopkins cracked the top 10 for the first time when it ranked eighth with 140 granted utility patents. The following year, Johns Hopkins again ranked eighth with 143 granted utility patents.

“The continued increase in granted utility patents showcases Johns Hopkins’ commitment to identifying, evaluating and protecting the discoveries of our faculty, staff and students,” says Neil Veloso, JHTV’s executive director of technology transfer. “Johns Hopkins Technology Ventures is equally committed to disseminating this intellectual property through licenses to university startups and established companies.”

Company Tests Mobile Health for Tuberculosis Treatment

In 2015, the United States had 9,500 new cases of tuberculosis, a disease that requires health care providers to watch patients take every dose of their medication. The National Institute on Minority Health and Health Disparities profiles how emocha Mobile Health’s novel solution is reducing the burden on health care providers and patients while saving money, subject to extensive structure-activity relationship studies and characterization in preclinical models to identify lead compounds for potential clinical development.

“This agreement continues the longstanding relationship between Eisai and Johns Hopkins to develop technologies that can advance human health,” said Neil Veloso, executive director of Johns Hopkins Technology Ventures. “Successful collaborations like this reflect well on Johns Hopkins as the research partner of choice.”

The Johns Hopkins Drug Discovery Program consists of a multidisciplinary team of scientists with industrial experience and core expertise in drug discovery research, including medicinal chemistry, screening assay development, drug metabolism and pharmacokinetics and animal pharmacology/toxicology.

The Johns Hopkins University and Eisai Inc., the U.S. pharmaceutical subsidiary of Tokyo, Japan-based Eisai Co., Ltd., announced on Wednesday, May 31 that they have extended their drug discovery collaboration through an exclusive licensing agreement. The agreement is based upon compounds identified from collaborative research between Eisai’s Andover innovative Medicines (AiM) Institute in Andover, Mass., and the Johns Hopkins Drug Discovery Program, which was designed to translate new target discoveries into novel small molecule compounds for the development of neurology and oncology medicines.

“Our initial goal of working with Eisai to identify compounds acting at specific targets and advance the chemistry towards potential clinical candidates has been a success,” said Barbara Slusher, Ph.D., MAS, professor of neurology, neuroscience, psychiatry, medicine and oncology at Johns Hopkins and the director of Johns Hopkins Drug Discovery. “We are excited to announce the first out-licensing of a project that holds significant promise and potential to advance the treatment of patients with cancer.”

Eisai has licensed the intellectual property for further research, development and commercialization at its AiM Institute. Under the agreement, Johns Hopkins will receive an upfront payment of $500,000 for license consideration, as well as future milestones and royalties upon successful commercialization of a product based on these compounds. In recognition of the ongoing success of the collaboration, a further $500,000 will be provided by Eisai to support future Johns Hopkins Drug Discovery research.

“We are excited to continue our work with Professor Slusher and her drug discovery team at Johns Hopkins,” said Takashi Owa, Ph.D., chief clinical officer and chief medical officer of Eisai’s Oncology Business Group. “This collaboration continues to build momentum, and we ultimately hope to move it forward so it has a real benefit for cancer patients.”

In 2011, Johns Hopkins and Eisai formalized the initial joint drug discovery collaboration. Under the terms of that agreement, Johns Hopkins Drug Discovery, led by Slusher, provided Eisai with novel therapeutic targets. For the targets of interest, screening assays were developed and validated by the Johns Hopkins Drug Discovery team, and then transferred to Eisai, which utilized the Johns Hopkins assay to conduct high-throughput screening of its proprietary compound library collection to identify compounds that interact with the targets. Utilizing hybrid industry-academic drug discovery teams, the newly identified screening compounds were then subject to extensive structure-activity relationship studies and characterization in preclinical models to identify lead compounds for potential clinical development.

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Innovation is essential to our culture at Johns Hopkins. Across our campuses, faculty members and students are eager to develop their ideas and discoveries and put them to use in benefit to society – here in Baltimore and around the world.

We welcome gifts of any size. We would be happy to discuss our range of giving opportunities and other giving options.

For more info, please visit http://ventures.jhu.edu/support-our-mission/