



PCI VENTURES

PCI
VENTURES



2017 SPOTLIGHT
FOSTERING THE ENTREPRENEURIAL SPIRIT

PENN
CENTER FOR
INNOVATION



ABOUT PCI VENTURES

OUR MISSION

PCI VENTURES' MISSION IS TO MAXIMIZE THE POTENTIAL OF PENN'S PIONEERING RESEARCH TO THE BENEFIT OF THE UNIVERSITY, THE INVESTIGATIVE TEAM, AND SOCIETY IN GENERAL THROUGH THE CREATION AND STIMULUS OF ENTREPRENEURIAL ENDEAVORS.

We provide a suite of products and services to incubate the development of early-stage technology-based businesses as they make their way towards commercial success.

PCI Ventures actively seeks entrepreneurs to lead our companies and investors to provide funding for our portfolio of new ventures in development.

OVERVIEW OF OUR SERVICES

- Addressable Market Analysis
- Marketing Material Development
- Legal Agreement Templates
- Board-level Support
- Entrepreneur Coaching
- Mentors in Residence
- Commercialization Grant Support
- Executive-level Recruitment
- Preferred Vendor Relations
- Company Registration
- Fundraising
- Strategic Partner Outreach
- Conflict of Interest Guidance
- IP Strategy Development
- Weekly Office Hours

PCI VENTURES STATISTICS

seven years in operation

2017 statistics

15-20 companies started per year

48 companies have received funding

60 active companies

130+ jobs created

\$111+ million raised in funding

\$11 million back to Penn from sponsored research

38 unique sources of funding

9 companies generating revenue

10x return on investment

5 exits

8 verticals

13 executives hired

\$11.1 million raised by 9 companies

\$1 million back to Penn from sponsored research



PORTFOLIO HIGHLIGHTS



CARMA THERAPEUTICS is developing next generation immunotherapies based on CAR-engineered macrophages with an initial focus in solid tumor oncology. The company commenced operations in summer 2017 after raising a seed financing round led by AbbVie Ventures and HealthCap. With a goal of initiating clinical studies in 2019, the company has established a supply chain for drug product and has conducted a pre-IND meeting with the FDA. CARMA Therapeutics holds broad IP rights covering the CAR macrophage platform, which has therapeutic potential across multiple biological targets. The company leverages world class talent, know-how, and capabilities from the University of Pennsylvania, a world leading institution in cancer immunotherapy.

CYTOVAS has experienced a transformative year. The company, which is developing novel cell-based blood tests for cardiovascular diseases, completed a major clinical trial in non-cardiac surgery patients, proving the ability of its assay to predict post-surgical cardiovascular events with unprecedented accuracy. This same trial also pointed the way to a novel, vesicle-based blood test for atherosclerotic plaque vulnerability – the holy grail of cardiology – which the company is testing. CytoVas signed a \$1.6 million research collaboration with a major pharmaceutical company in the area of heart failure, which is expected to lead to new intellectual property and a new heart failure liquid biopsy. The company is currently raising its first capital round to finance pivotal clinical trials.



ED LEADERSHIP SIMS creates computer-based training simulations to bolster the experience, skills, and judgment education administrators must possess to navigate complex real-life situations. ELS' library of SIMs include scenarios such as delivering critical feedback to a subordinate to managing a suicidal student. More than 60 customers from school districts, universities, and state agencies are relying on the simulations for employees' professional development. ELS boasts a 90% customer retention rate year after year and recently signed partnerships with Teach for America and Frontline Education. In addition to its growing English market, ELS has expanded into the Spanish-language market and now has six customers in Chile.

ENACHIP specializes in the design, process development, and contract manufacturing of micro-magnetic components and devices on silicon substrates. The technology enables cheaper, smaller, and more power-efficient electronics. This year the company raised \$1.4 million in capital to advance the technology and drive commercial engagement. Funding sources were from venture capital as well as a sub-award from the European Union Innovation grant. EnaChip also hired a technical lead to steer technology development, established a pilot manufacturing facility, and added a member to its Board of Directors.



EXCALIVIR is revolutionizing pathogen detection with its proprietary PathoChip technology, a method of identifying specific microbiome signatures associated with cancer. PathoChip can accurately detect pathogens that may cause or complicate a disease, impacting treatment, prognosis, and follow-up. The company's accomplishments over the last year include sublicensing the technology to a major diagnostics company, establishing a research collaboration with Penn, hiring lab personnel, and publishing three journal articles. Most notably, ExcaliVir received a \$2.2 million investment to support its breast cancer microbiome research. Significantly, the research suggests that the tumor-specific microbiome signatures may provide diagnostic and prognostic capabilities.



EXYN TECHNOLOGIES, a designer of fully autonomous aerial robot systems, made significant progress on its commercialization goals in 2017. In addition to signing its first pilot customer, Exyn completed multiple technical milestones to advance its core technology. The company's demonstration of its leading-edge capabilities led to a feature article in TechCrunch, which drove significant exposure and resulted in highly qualified interest for its solution. The company raised \$6.3 million, which will fuel its continued growth as the team recently hired its twelfth full-time employee and moved into an expansive new office and lab space.

LIGNAMED continued to develop its compound, LGM2605, as a therapeutic for multiple diseases and conditions and as a device to improve and rehabilitate donor lungs before transplantation. The company won two Phase I STTR grants: one from NASA as part of the agency's Journey to Mars mission and another from the NIH to study LGM2605 as a treatment for asthma in non-human primates. The company's encouraging results for using its molecule to mitigate radiation poisoning also led to the NIAID exercising year three of its \$6 million contract. LignaMed is also entering into discussions with the FDA to pursue an orphan disease product application for consideration of its molecule as a medical device.



QUANTITATIVE RADIOLOGY SOLUTIONS reduces side effects experienced by cancer patients undergoing radiation therapy by leveraging population-based models and artificial intelligence to provide accurate delineation of healthy tissues, thus decreasing the amount of unnecessary radiation exposure they experience. In the last year, the company completed two Phase I STTR grants and demonstrated the effectiveness of its technology when treating head & neck and lung cancers. Its results have been presented at several conferences and have earned QRS accolades such as Best Pitch at MedCity INVEST in the Health IT category and selection as one of the Top 30 Life Sciences Startups in the RESI Innovation Challenge.

UPSTART LUMINARIES



POLYAURUM

"Oncology is something I'm passionate about because of my own experience with cancer. It is so rewarding to think that what we're doing could help cancer patients live longer and with fewer side effects"

DEB TRAVERS, CEO OF POLYAURUM

When it came time to select the PCI Ventures 2017 CEO of the Year, Deb Travers was an obvious choice. Since Deb joined PolyAurum in December 2015, she has been indefatigable in her efforts to bring its gold nanoparticle cancer therapeutic to the clinic. Her determination partly stems from perseverance hard-won as a cancer survivor: "Oncology is something I'm passionate about because of my own experience with cancer. It is so rewarding to think that what we're doing could help cancer patients live longer and with fewer side effects." So impressive is Deb's determination that *The Philadelphia Inquirer* published a profile of her on the front page of the Sunday Business section. However, Deb's natural sense of adventure and boldness play an even larger part in her success. "I like the fast pace and even the uncertainty of a startup. I love being in on the start of something. I have moments of self-doubt every now and then, but I keep telling myself that the biggest leaps in my career came when I've said 'Why not?' and just plunged in."



"The most rewarding aspect hasn't happened yet – that will be when we find out that someone who has trained on one of our platforms has saved a life. That is our ultimate goal. That is why we do this."

MARION LEARY, FOUNDER OF IMMERGE LABS

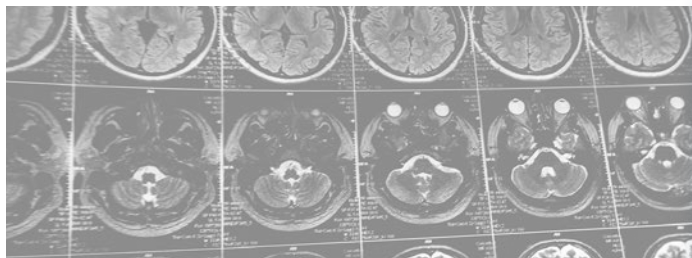
Marion Leary is a tireless innovator. Whether it's in her formal role as Director of Innovation Research at Penn's Center for Resuscitation Science or in her honorary role as Philadelphia's Geek of the Year, she is always working to develop new ways to use "tech for good." It is not surprising, then, that Marion's company, ImmERge Labs, is harnessing virtual and augmented reality systems to modernize emergency response training, including CPR. Over the last 50 years, training courses have taken place in unrealistic environments that are entirely devoid of the stress and emotion that characterize sudden cardiac arrest events. Marion plans to turn that antiquated training model on its head by using multisensory, immersive VR/AR platforms to make "learning by doing" opportunities accessible to everyone. When asked what the most rewarding aspect of founding ImmERge Labs has been, Marion pauses. "The most rewarding aspect hasn't happened yet – that will be when we find out that someone who has trained on one of our platforms has saved a life. That is our ultimate goal. That is why we do this."

TESTIMONIALS

“Working with PCI Ventures has been tremendously helpful. Moving to contributions in the commercial sector rather than the academic world is not an easy one for faculty. PCI Ventures’ broad knowledge, willingness to help, and proactive guidance has made it possible to be both a professor and a founder in a medical device company - something I would never have imagined to be possible.”



DR. MARK YIM,
FOUNDER OF PRENDO SYSTEMS AND GREPPO TECHNOLOGIES 



 **JOE CAMARATTA,**
CEO OF QUANTITATIVE RADIOLOGY SOLUTIONS

“PCI Ventures offers an excellent program for commercializing innovative technologies from the University of Pennsylvania. The organization was instrumental in helping Quantitative Radiology Solutions receive non-dilutive funding from the National Science Foundation and the National Institutes of Health STTR grant programs, and connecting us with providers of accounting, insurance, and payroll services. PCI Ventures offers multiple opportunities for entrepreneurs to network and support each other in building successful companies.”

“We have been a proud partner of PCI Ventures for several years. They have been instrumental in both facilitating our ability to invest in emerging technologies from Penn as well as supporting the evolution of these technologies into viable and compelling commercial enterprises. From our vantage point as a dedicated, University-focused, hard science investment platform, PCIV provides Penn with a unique and highly valuable capability to engage with partners such as ourselves and to drive the successful commercial exploitation of its research and intellectual property.”



MICHAEL BURYCHKA,
MANAGING DIRECTOR, NORTH AMERICA, IP GROUP 

PCI VENTURES PARTNERS



PCI VENTURES PROGRAMS

UPstart OFFERS PENN FACULTY AND STAFF MEMBERS HANDS-ON SUPPORT TO LAUNCH AND GROW COMPANIES BASED ON PROMISING TECHNOLOGIES.

UPadvisors PROVIDES PENN ENTREPRENEURS WITH GUIDANCE AND A COMPREHENSIVE ROADMAP AS THEY PURSUE THEIR COMMERCIALIZATION GOALS.

AppltUP IS AN ANNUAL CHALLENGE THAT COLLECTS THE BEST MOBILE ENTERPRISE IDEAS FROM THE PENN COMMUNITY AND DISTILLS THEM INTO MARKETABLE PRODUCTS BY PARTNERING WITH INDUSTRY LEADERS IN SOFTWARE DEVELOPMENT, FUNDING, AND MARKETING.

DevelUPmed IS A MEDICAL DEVICE ACCELERATOR THAT IDENTIFIES TOP MEDICAL DEVICE IDEAS FROM THE PENN COMMUNITY AND PROVIDES THEM WITH PROTOTYPING SUPPORT, BUSINESS EXPERTISE, AND FINANCING NECESSARY FOR COMMERCIALIZATION.

UPtheOdds IS A SERVICE THAT GIVES COMPANIES PRACTICAL SUPPORT IN THE SBIR/STTR GRANT PROCESS FROM PROJECT INCEPTION THROUGH SUBMISSION.

Mentors-in-Residence PAIRS COMPANIES WITH ACCOMPLISHED ENTREPRENEURS AND INDUSTRY LEADERS WHO SERVE INFORMAL ADVISORY ROLES, PROVIDING THE STARTUPS WITH ADVICE ON BUSINESS STRATEGY, MARKET PENETRATION, AND FUNDRAISING.

Spotlight Sponsorship AWARDS UPSTART COMPANIES MICRO-GRANTS TO PRESENT AT SELECT INVESTOR CONFERENCES.

NEW COMPANIES

UPSTART

Jericho Music Labs - A mobile platform for copyrighted music distribution

Ostiio - A novel approach to correct skeletal deformities and deficiencies using a fully implantable, magnetically-driven, bony distraction device

Sapience Leadership - Tapping into the expertise of education leaders from the academic community to provide consulting services on curricula, operational issues, and strategic planning to schools, school districts, or other educational entities

FloBio - Analyzes dynamic blood flow as a diagnostic technique in trauma, ER, and clinical settings

Vital Start Health - Empowering clinicians and caregivers by giving them a digital platform to improve neonatal care

AgeingSense - A wearable physiological sensor to monitor for exacerbations of heart failure

EpiVario - Novel epigenetic therapeutics to treat complex psychiatric disorders

Aporia Therapeutics - Advanced rational drug design and discovery using novel protein biophysics techniques



UPADVISORS

Doctigo - A recruitment app for moonlighting doctors, improving the way hospitals fill vacant shifts

Radix Therapeutics - Novel targeted treatments to prevented localized recurrence of cancer

Advac Therapeutic - Developing vaccines and therapeutics for the treatment of infectious diseases and cancers

TAIRIS - Applying artificial intelligence to surgical care

OsciFlex - Developing medical devices for the prevention of thrombosis

MIKE DISHOWITZ, MICHAEL POISEL, AND RYAN MENDOZA



WHITNEY MAGRUDER AND JAIME SWEET