

PCI VENTURES

2019 SPOTLIGHT  
FOSTERING THE ENTREPRENEURIAL SPIRIT

PCI  
VENTURES



PENN  
CENTER FOR  
INNOVATION



# ABOUT PCI VENTURES

## OUR MISSION

PCI VENTURES, A DIVISION OF PENN CENTER FOR INNOVATION, HAS A MISSION 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.

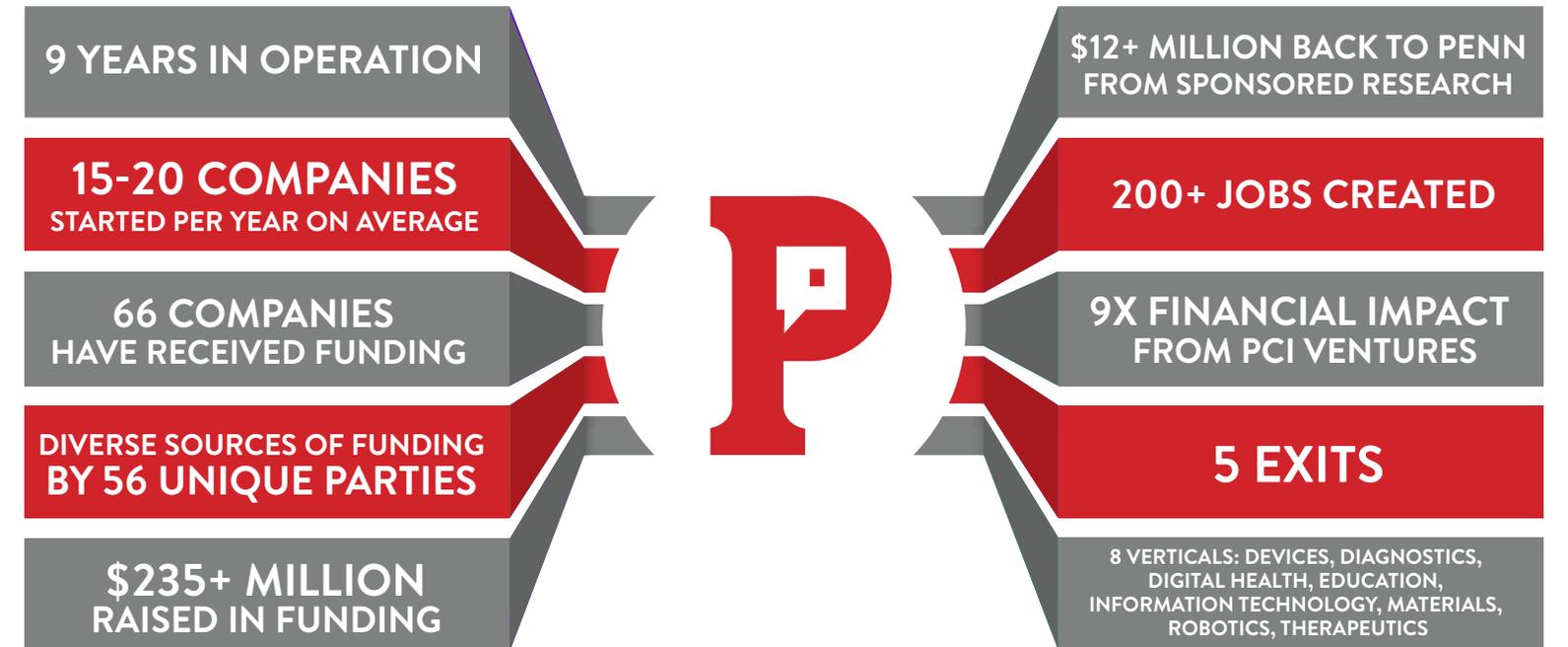
PCI Ventures actively seeks entrepreneurs to lead our companies and investors to provide funding for our portfolio of new ventures in development.

## OVERVIEW OF OUR SERVICES

 <b>Addressable market analysis</b>	 <b>Educational programs</b>
 <b>Board-level support</b>	 <b>Entrepreneur coaching</b>
 <b>Commercialization grant support</b>	 <b>Executive-level recruitment</b>
 <b>Company registration</b>	 <b>Fundraising support</b>
 <b>Alignment of interest guidance</b>	 <b>IP strategy development</b>
 <b>Marketing material development</b>	 <b>Legal agreement templates</b>
	 <b>Mentors in residence</b>
	 <b>Preferred vendor relations</b>
	 <b>Strategic partner outreach</b>
	 <b>Weekly office hours</b>
	 <b>Workshops</b>

# PCI VENTURES STATISTICS

## OVERALL PROGRAM STATISTICS



- 9 YEARS IN OPERATION
- 15-20 COMPANIES STARTED PER YEAR ON AVERAGE
- 66 COMPANIES HAVE RECEIVED FUNDING
- DIVERSE SOURCES OF FUNDING BY 56 UNIQUE PARTIES
- \$235+ MILLION RAISED IN FUNDING
- \$12+ MILLION BACK TO PENN FROM SPONSORED RESEARCH
- 200+ JOBS CREATED
- 9X FINANCIAL IMPACT FROM PCI VENTURES
- 5 EXITS
- 8 VERTICALS: DEVICES, DIAGNOSTICS, DIGITAL HEALTH, EDUCATION, INFORMATION TECHNOLOGY, MATERIALS, ROBOTICS, THERAPEUTICS

## 2019 STATISTICS

17 EXECUTIVES HIRED	63 ACTIVE COMPANIES	7 COMPANIES GENERATING REVENUE
\$44 MILLION RAISED BY 15 COMPANIES	\$500K+ BACK TO PENN FROM SPONSORED RESEARCH	



## PORTFOLIO HIGHLIGHTS



**CARISMA THERAPEUTICS**, founded by Michael Klichinsky and Saar Gill of PSOM, is developing a differentiated and proprietary cell therapy platform focused on engineered macrophages, cells that play a crucial role in both the innate and adaptive immune response. Over the course of the year, the company established a full discovery capability laboratory in Philadelphia and significantly expanded their team, with the leadership appointments of Debora Barton, MD as Chief Medical Officer and Tom Wilton as Chief Business Officer. Carisma also advanced their lead program CT-0508 and is preparing for clinical studies. Furthermore, the company initiated two new discovery phase programs targeting solid tumor antigens PSMA and mesothelin.

**ED LEADERSHIP SIMS (ELS)**, founded by Penn faculty Michael Johanek of GSE, offers technology-enhanced immersive learning solutions to provide leadership development for educational and other organizations. The company recently raised a Seed A round to assist with growth acceleration, and enhanced their management team with the additions of Mary Pat Fralick, as Chief Operating Officer, and Brian Biddulph-Krentar, as Chief Strategy Officer. In the past year, they expanded their customer base and now work with 45 school districts ranging in size and over 25 graduate schools of education. ELS plans to build upon their successful year and continue to expand their team in the coming months.



**EXYN TECHNOLOGIES** founded by the Dean of Penn SEAS, Vijay Kumar, is developing robot systems to autonomously navigate and collect data where maps and GPS do not exist. The company successfully brought the first industrial-grade solution for aerial autonomy to market with customers in mining and defense. “In the mining industry alone, Exyn has demonstrated the potential to revolutionize efficiency, increase productivity, and dramatically reduce human exposure to unsafe environments,” said Nader Elm, Exyn’s CEO. “And that’s just one application. We are only beginning to scratch the surface of how impactful true autonomy will be.” In July, Exyn closed a \$16 million Series A funding round. The round was led by Centricus, with Yamaha Motors Ventures, In-Q-Tel, Corecam Family Office, and Red and Blue Ventures newly participating, and IP Group, Inc. reinvesting. The funding will be used to develop the company’s advanced swarming technology and move its autonomy intelligence to ground-based robots.

**FLOBIO**, founded by Scott Diamond of SEAS, is developing point-of-care diagnostic tests to rapidly assess the bleeding risk and blood clotting status of patients in emergency and critical care settings. In 2019, the company was awarded a \$240,000 Phase 1 NIH SBIR grant from the National Heart, Lung, and Blood Institute, received a \$50,000 grant from the Philadelphia Pediatric Medical Device Consortium, and raised \$150,000 in seed funding. For their first product, FloBio is developing a point-of-care test for the emergency room to help clinicians identify patients that are at high risk of major bleeding, specifically those on a new class of drugs that inhibit blood clotting, Direct Oral Anticoagulants (DOACs). The team has begun development of the alpha prototype which will be deployed in the hospital setting to gather preliminary clinical data in 2020.



**LINNAEUS THERAPEUTICS**, founded by Todd Ridky and Christopher Natale of PSOM, continues to further the development of their small molecule oncology therapeutic. They closed a \$12 million Series B investment in early August. The round was led by Kairos Ventures, with participation by the Penn Medicine Co-Investment Fund at the University of Pennsylvania. Shortly after, they made PCI Ventures history, by being the first UPstart portfolio company to receive FDA clearance on their IND application. In October, Linnaeus began their phase 1/2 trial, treating patients with advanced cancer.

**NIA THERAPEUTICS**, founded by Penn faculty Mike Kahana of SAS, is developing neural interfaces to restore memory function after brain injury. Nia hit some major milestones in 2019 and their progress did not go unnoticed. In September 2019, Nia met with the FDA to review plans for their first clinical study in patients with traumatic brain injury. The Nia team built their first prototype; designed and developed in collaboration with their hardware engineering partner, Velentium LLC. The prototype is being used to guide key architectural decisions and demonstrate functionality to potential partners. During the 2019 Neurotech Leaders Forum in San Francisco, Nia was named Most Promising Startup of 2019 by Neurotech Business Reports.

**PINPOINT THERAPEUTICS**, founded by Penn faculty Ravi Amaravadi, MD of PSOM and Jeff Winkler, PhD, of SAS, is developing dimerized autophagy inhibitors to treat cancer. In 2019, the company secured rights to the foundational patent portfolio from Penn, and hired Christian Peters, MD, PhD, as CEO. Dr. Peters was previously CMO of Realm Therapeutics and prior to that was CMO at Therakos (acquired by Mallinckrodt Pharmaceuticals). The company recently secured a Seed investment from Kairos Ventures to accelerate preclinical development. The company plans to launch a Phase I clinical trial in late 2021 or early 2022.



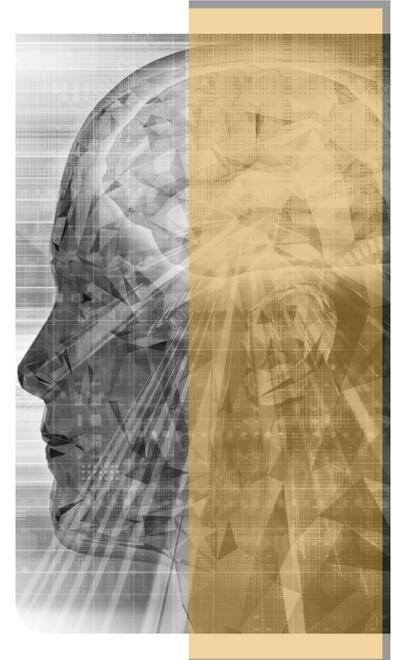
**VERIX HEALTH** (formerly Greppo Technologies) closed an \$8 million Series A financing round led by Ajax Health with support from Aperture Venture Partners and Western Technology Investment. The investment will further the development of their suite of actively steerable surgical devices enabling minimally invasive diagnosis and treatment of lesions in difficult-to-access anatomies. “From the beginning, our vision has been to create a platform capable of enabling advanced diagnosis and therapy for a spectrum of diseases,” said Sasha Schrode, CEO of Verix Health. The company, founded by Mark Yim, Asa Whitney Professor of Mechanical Engineering and Director of the GRASP Laboratory, was named the 2019 Startup of the Year at Penn’s Celebration of Innovation. The company plans to launch their first two devices within the next two years.

## UPSTART LUMINARIES



**Jerri Ann Thatcher** has spent the majority of her 27 year career in business, strategic planning and marketing roles in drug, drug-device and more recently, in-vitro diagnostics companies. She began to gravitate toward fast-paced entrepreneurial organizations and wanted to give back by lending her experience to the startup community in Philadelphia. It was Jerri Ann’s connection to the University of Pennsylvania as a graduate of The Wharton School and FloBio’s founder, Dr. Scott Diamond, that motivated her to join as the company’s Chief Executive Officer. FloBio is developing a bedside diagnostic product that can rapidly and reliably determine a patient’s risk for life threatening bleeding or clotting events in emergency, critical care hospital settings. When asked what drew her to FloBio, Jerri Ann responded, “Taking on the challenge of being a CEO in a startup allows me to leverage my business skills and experience, while also challenging me and exposing me to new experiences critical to building a company. At the end of the day, I want to do what I am passionate about while also making a difference in the lives of patients and our healthcare community.” Thanks to Jerri Ann’s leadership, the company is successfully advancing an alpha prototype and working towards generating pre-clinical data that supports use in a broad range of clinical applications.

**Dr. D. Kacy Cullen** is an Associate Professor of Neurosurgery & Bioengineering at the Perelman School of Medicine at the University of Pennsylvania. He is a leading innovator in neural tissue engineering and nervous system repair strategies, an inventor on numerous patents, has over 80 scientific publications and was recently selected as one of “3 People to Watch in Neuroscience” by STAT News. Dr. Cullen’s passion for entrepreneurship is evident across all aspects of his work. He designed and leads a graduate-level course on “Bioengineering Entrepreneurship” and founded two companies that are advancing a suite of tissue engineered medical products. In his opinion, “entrepreneurship is a means to fulfill the practical side of addressing unmet medical needs”. His company, Innervace, is engineering microtissues to replace brain structures lost in neurodegenerative diseases. Innervace’s lead product is the first implantable tissue engineered brain pathway for the treatment of Parkinson’s disease and has the potential to “reverse the clock” by replacing neuroanatomy lost to the progression of the disease. Innervace is currently in the process of closing on a Seed round of investment led by IP Group. The company will use the funds to grow company operations, provide support to initiate clinical-grade biomanufacturing, and perform key nonclinical safety and efficacy studies.



# TESTIMONIALS



PCI Ventures paved a smooth path for me to translate technology from the lab. They helped with all of the key aspects: streamlining the internal Penn arrangements, setting up the corporate structure, finding the right service providers, and helping secure the best initial funding partners for us. Although I have extensive previous experience in spinning out university technologies, and could have considered a 'do it yourself' approach, the professional and experienced staff at PCI Ventures made the process seem almost effortless. Perhaps most importantly, this approach allowed me to continue to focus on my students and my research (and also to continue to mature the next set of technologies for spinout). Thanks, PCIV!" - **Mark Allen, Founder of EnaChip**



**NADER ELM,**  
CEO OF EXYN TECHNOLOGIES

"PCI Ventures has been a valuable partner to Exyn. They were obviously instrumental at the company's inception and in its early days, but they have also continued to provide strategic support as a member of the board and helping with connections with potential investors, strategic partnerships and independent board member candidates."



**ANDREW HAMILTON**  
PARTNER AT MORGAN LEWIS

"We are excited to be a part of the PCI Ventures' ecosystem supporting new ventures formed around technology developed at Penn. PCI Ventures supports new ventures by providing assistance and resources through all phases of the formation of a new company, including company formation matters, license of technology and the completion of initial rounds of financing. The PCIV team is experienced and knowledgeable about a wide variety of issues facing start-up companies, and consistently delivers critical advice and support to companies through the early stages of development. It is wonderful to witness the success of so many companies that are and have been supported by PCI Ventures."

# PCI VENTURES PARTNERS



**Morgan Lewis**



**Pepper Hamilton LLP**  
Attorneys at Law



**USA PAYROLL®**  
"Payroll you can trust"



**KAIROS VENTURES**

# 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.

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

**Principles of Confident Pitching:** A FOUR-PART COURSE THAT PROVIDES COMPANY FOUNDERS AND CEOS WITH THE SKILLS THEY NEED TO DELIVER A CONFIDENT AND POLISHED PITCH.

**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.



# New PCI Ventures Portfolio Companies:



**Cartio Therapeutics** - CAR regulatory T cells to treat atherosclerosis and other cardiovascular diseases.

**Limbsalv** - Advanced technology for limb salvage and reconstruction.

**Celcure** - Sequential tumor-selected antibody and antigen retrieval platform system for the development of novel CAR-T and ADC therapies.

**Magnacarta Therapeutics** - CAR-T immunotherapy for the treatment of melanoma.

**Cerespectus** - Catheters using real time anatomic video feedback and fluoroscopic assistance for precise gene therapy delivery and treatment of other disorders of the central nervous system.

**Mikrodose** - Enhanced microdosimeter development for improved radiotherapy treatment.

**Enteropass** - Novel enteric bypass solutions to change the paradigm of enterocutaneous fistula management.

**Neuralert Technologies** - Robust wearable monitors to rapidly identify critically important neurological events such as stroke.

**Exio Biosciences** - Diagnostic test to predict a patient's responsiveness to cancer immunotherapy, with a focus on checkpoint inhibitor therapies.

**Osteome Synthetica** - Personalized synthetic bone substitutes that are precision printed.

**Hysplex** - Small molecule PARP inhibitors for the treatment of cancer and neurological disorders

**PhylloPharma** - Cost-effective and shelf-stable insulin with plant based technologies.

**IntelliGI** - Video capsule device for seamless capture and transmission of gastrointestinal images for improved patient experience and diagnosis.

**Veltion Therapeutics** - A startup focused on novel mechanisms in cancer treatment.

MICHAEL POISEL, MIKE DISHOWITZ,



JORDANA BARMISH, JAIME SWEET, RAQUEL GIRON,  
AND BHAVANA MOHANRAJ