



## MATTO New Ventures Showcase 2018

Welcome to the 4th Annual MATTO New Ventures Showcase – an opportunity to meet with spin-off companies from universities and hospitals that are seeking expansion investment.

This year we feature two success stories from previous presenters at the MATTO New Ventures Showcases. We also have 20 presenting companies that have already raised nearly \$15 million. Each one is looking for additional capital to further their product development, grow their management team and/or support product launch. Our presenters represent the broad diversity of research and industries that make up our ecosystem from new materials and robotics to digital health and novel drug candidates.

We hope you enjoy this opportunity to meet these inventor entrepreneurs who represent the very best in our research institutions and will continue to drive the growth of the Massachusetts innovation economy. In addition to funding, our presenters are seeking new team members, along with your advice and expertise. By engaging with these entrepreneurs, you can be part of the newest and most exciting developments in your fields.

As always, we will host a networking reception at the conclusion of the event so that you can meet with and speak to the researchers and entrepreneurs who interest you most.

We would like to express our sincere gratitude to our conference supporters listed below for their financial assistance as well as to our organizing committee: Irene Abrams (Boston Children's Hospital), Abigail Barrow (Cambridge Innovation Partners), Joel Bresler (Northeastern University), Dan Castro (Partners), John Cosmopoulos (Tufts University), Tatiana Demidova-Rice (Boston Children's Hospital), Jeff DiTullio (Natick Soldier Research), Jim Freedman (MIT), Marina Freytsis (Boston Children's Hospital), David Glass (UMass Dartmouth), Alan Gordon (Harvard University), Rana Gupta (Boston University), Todd Keiller (WPI), Prarthana Khanna (Harvard University), Rebecca Menapace (Brandeis University), and Martin Son (Tufts University) for their help in putting together today's program.

Vinit Nijhawan  
Co-Chair, MATTO NVS Planning Committee

Julia Goldberg  
Co-Chair, MATTO NVS Planning Committee  
& Programs Manager, MTTC

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# CONFERENCE AGENDA

1:00 – 1:30	<p>Registration, Dessert Bar, and Networking</p> <p>Boston Room</p>	
1:30 – 1:45	<p>Welcome</p> <p>MATTO New Ventures Showcase Success Stories:            Joyce Lonergan, Co-Founder &amp; CEO, Mellitus LLC            Ken Rapp, CEO, Blustream Corp.</p> <p>Boston Room</p>	
1:45 – 2:45	<p>Company Pitch Presentations - Session One</p>	
	<p>Life Sciences Boston Room</p> <p>Dynocardia, Inc            ThermaGenix, Inc            SHEAR Therapeutics            Myofinity Biosciences</p>	<p>Physical Sciences Lowell Room</p> <p>Cambridge Crops            Ubiros            Xibus Systems            ZwitterCo, Inc.</p>
2:45 – 3:15	<p>Coffee Break</p> <p>Boston Room</p>	
3:15 – 4:30	<p>Company Pitch Presentations - Session Two</p>	
	<p>Life Sciences Boston Room</p> <p>Velum Inc.            EYEnexo            Ernest Pharmaceuticals, LLC            Hunter BioDiscovery            Ossanex, Inc            ConsortiaTx</p>	<p>Physical Sciences Lowell Room</p> <p>AirCrew Technologies, Inc.            Singularity            SolaBlock, LLC            GTL Biofuel Inc.            Aclarity, LLC            Solchroma Technologies, Inc.</p>
4:30 – 6:30	<p>Networking Reception</p> <p>Boston Room</p>	

# Speaker Bios

## **Joyce Lonergan**

### **Co-Founder & CEO, Mellitus LLC**

Joyce Lonergan has over 25 years of experience in industry, venture capital and Wall Street with emerging healthcare companies. Ms. Lonergan previously served as a Managing Partner at SR One. Prior to that, Ms. Lonergan co-founded and served as Managing Director of Caxton Healthcare Venture Management, LLC. She previously served as Vice President of Corporate Development and Corporate Communications and Investor Relations at Chiron Corporation. Earlier in her career, Ms. Lonergan was a Biotechnology Equity Research Analyst at Cowen and Company. She also had previous investment and business development roles at Vector Fund Management and Repligen Corporation. Ms. Lonergan began her career in research at Tufts Medical Center.

Ms. Lonergan holds a B.S. in biology from Emmanuel College and an MBA from the Simmons College Graduate School of Management.

## **Ken Rapp**

### **CEO, Blustream Corp.**

Ken is a dynamic entrepreneur and commercialization leader. He has founded businesses, created markets, and provided significant return to shareholders. Ken is passionate about marrying unmet needs with practical solutions and he specializes in enterprise value creation thru commercialization. His expertise includes launching products, building scalable business models, and creating culture that enables employees to thrive. Ken is a member of the Accelerator Fund Investment Committee and an active TAN Advisor at Worcester Polytechnic Institute (WPI). He is a Trustee of the Zenie Foundation, helping young people become effective adults and make fiscally responsible choices.

Ken holds a BS degree from Northeastern University, is named on four Patents, and has co-authored several publications. He received the distinct honor of being one of Pharma Voice's top 100 leaders in 2013. When Ken is not working, he can be found with his family outdoors, or shredding on his guitar with the South Street Band in the Boston Metro-West area.

# Company Profiles

## **Aclarity, LLC**

**Contact person:** Julie Bliss Mullen, CEO

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**Technology from:** University of Massachusetts Amherst

### **Company Overview**

Aclarity has developed a patent-pending electrochemical water treatment technology that will offer peace-of-mind to homeowners globally. The technology uses low levels of electricity to remove metals, disinfect bacteria and viruses, and destroy harmful carcinogens all in a single device. No technology on the market can currently make these claims. Current technologies are ineffective in treating a wide range of containments, are costly to purchase and maintain, and complicated to operate. Aclarity offers a more comprehensive, less costly and essentially maintenance free solution. The technology is scalable and can be as small as a water bottle or be scaled up for large industry water solutions. Aclarity plans to partner with an industry leader, utilize their existing channels to bring this product to the residential market and then expand into other applications and markets thereafter.

The Aclarity technology utilizes low amount of DC power to treat contaminants by oxidation and reduction reactions which disinfect pathogens, precipitate metals, and destroy organic chemicals. Automated by smart sensors, highly reactive oxidant species are generated on the anode surface which destroy contaminants as opposed to filtration.

## **AirCrew Technologies, Inc.**

**Contact person:** Sissi Liu, Business Lead

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**Technology from:** Harvard University

### **Company Overview**

AirCrew enables clean transportation by reducing automotive greenhouse gas and air pollutant emissions (up to 250 MM tons of CO<sub>2</sub>-eq) through tackling problems associated with catalytic converters (\$10 billion market). They address key industry challenges by providing benefits in catalyst cold start improvement, operating temperature decrease, longevity extension, and cost savings.

The patented platform technology—rational design of advanced catalytic coatings was developed at Harvard University. AirCrew has the exclusive option to license the technology. AirCrew have entered into commercial discussions with automotive strategic partners and customers regarding scale up and testing. Beyond automotive emission control, their technology has applications in multiple verticals, including fuel cells and electrolysis, CO<sub>2</sub> conversion, energy storage, and indoor air purification.

AirCrew is raising a pre-seed round to scale their technology, validate key performance criteria, establish path to market.

## **Cambridge Crops**

**Contact person:** Adam Behrens, CEO

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**Technology from:** Tufts University

### **Company Overview**

Cambridge Crops is developing edible and natural coatings that drastically extend the shelf life of perishable foods and reduce reliance on refrigeration. Cambridge Crops' customers are food producers, food processors, and retailers who need natural and cost-effective solutions to extend shelf life, reach new markets, and reduce waste. The management team currently consists of Adam Behrens (CEO) and Sezin Yigit (VP of R&D). Adam has spent his career developing and translating polymer-related technologies in the areas of agriculture, healthcare, and nutrition. He is a former Postdoctoral associate in the Langer lab at MIT and a former Entrepreneur in Residence at the MIT Martin Trust Center for Entrepreneurship. Sezin has spent her career in research and development focusing on biopolymers and protein science. She received her PhD from the Tufts SilkLab and has extensive experience in biopolymer engineering and characterization focusing on variety of silk types with publication record spanning the fields of organic chemistry, polymer science, and protein engineering and cell biology.

## **ConsortiaTx**

**Contact person:** Greg McKenzie, CSO & Lynn Bry, Founder, SAB Chair

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**Technology from:** Brigham & Women's Hospital

### **Company Overview**

ConsortiaTX develops microbial therapies to prevent and treat human disease. ConsortiaTX, Inc. (CTX) is a seed stage, pre-clinical bio-therapeutics company that emerged from research laboratories at Brigham & Women's Hospital (BWH), Boston Children's Hospital (CHB) and Harvard Medical School (HMS).

CTX has developed a defined human-origin commensal anaerobic bacterial consortium that both prevents and cures food allergies in a commonly-used model of food allergy. CTX will modify this consortium to create CTX-944, which contains the consortium of bacteria that will colonize the gut of human patients to treat food allergy.

The company has obtained intellectual property rights to inventions around food allergies and the human gut microbiome based on the work of Lynn Bry, M.D., Ph.D., Georg Gerber, M.D., Ph.D. (both at BWH), and Talal Chatilla, Ph.D. (at CHB), and others, that provide the basis for the development of potential therapies to help prevent or cure such allergies in both children and adults. CTX is led by CEO Kent Smith, serial entrepreneur, CSO Gregory McKenzie, microbiome product development expert, EVP Business Development, Neil Herring, experienced life sciences executive. Founder and chair of SAB, Lynn Bry is Director of the Massachusetts Host Microbiome Center and pathologist at Brigham & Women's Hospital.

## **Dynocardia, Inc**

**Contact person:** Mohan Thanikachalam, MD CEO

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**Technology from:** Tufts University

### **Company Overview**

Current blood pressure (BP) devices rely on occlusive arm cuffs, which are uncomfortable, provide only single point BP measurement, associated with 30% misdiagnoses, and are a major constraint to hypertension management. In addition, continuous BP parameters - mean 24-hr BP, BP variability and nocturnal BP are better predictors of hypertension related outcomes than the single-point BP. In hospitals, intermittent monitoring with cuff-based devices lead to monitoring gaps; while continuous monitoring requires invasive intra-arterial catheters associated with patient discomfort and complications. To address need for continuous, non-invasive blood pressure monitoring (cNIBP), ViTrack™ technology was developed jointly at Tufts and MIT. ViTrack™ is the first-of-its kind, cuff-less, wearable device for cNIBP. Dynocardia was recently established to commercialize ViTrack and is at the beginning stages of fundraising campaign to develop a commercially viable ViTrack device in 18 months. The core team includes Mohan Thanikachalam, MD (cardiothoracic surgery and public health), co-founder and CEO; Christopher Joyce, MBA (30+ year experience in operations and finance in medical device industry), COO/CFO; David Robson (30 years of medical product development experience), Chief Product Development Officer; Edward Adelson, PhD (computer vision and optics) and Mandayam Srinivasan, PhD (haptics and skin mechanics) co-founders and Core Technology Leads.

## **Ernest Pharmaceuticals, LLC**

**Contact person:** Nele Van Dessel, Cofounder

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**Technology from:** University of Massachusetts Amherst

### **Company Overview**

The vision of Ernest Pharmaceuticals is to create a new bacterial toolbox for cancer therapies that will increase translation of cutting-edge discoveries in fundamental cancer research into clinical treatments. Ernest Pharmaceuticals' focus will be on tumors with low survival rates, such as liver, pancreas, ovarian and metastatic breast cancer. Bacterial cancer therapies have the potential to change these high mortality rates and to make a significant impact in the lives of patients that have exhausted all treatment options.

The business plan of Ernest Pharmaceuticals is twofold: (1) the generation of Ernest Bacterial Vectors to deliver biologicals into cancer and (2) the development of EBT-001 to target primary HCC.

1. The bacterial platform: this will be engineered to deliver macromolecules specifically into cancer cells. Via licensing or sponsored research, this will be offered to other pharmaceutical companies to use with existing or new drugs.
2. EBT-001: this is a combination of the bacterial platform with toxic peptide. Ernest Pharmaceuticals will develop this therapy to treat unresectable liver cancer.

Ernest Pharmaceuticals is founded by Dr. Neil S. Forbes, a world leader in the field of bacterial therapies and Dr. Nele Van Dessel, a Ph.D. in biomedical sciences.

## **EYEnexo**

**Contact person:** Matteo Tomasi, PhD, CEO

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**Technology from:** Schepens Eye research Institute

### **Company Overview**

EYEnexo delivers eye exams via telemedicine. They bring eye testing to the patient's location, 1) overcoming barriers to access, 2) saving time and cost for patients and doctors, and 3) generating standardized, digital, EHR-ready records. Their core mobile technology, developed at the Harvard-affiliated Schepens Eye Research Institute, quantifies eye misalignment, inter-pupillary distance, refractive error, and pupil size. The system is capable of automatic detection and tracking of human eyes, testing a variety of eye conditions that usually require the presence of specialized ophthalmologists. The technology has broad applicability but immediate value for groups at risk for strabismus and related-amblyopia, including school- and pre-school-age children, stroke and brain trauma victims, and individuals recovering from eye surgery.

EYEnexo first product, Eye XM™, has been developed in collaboration with Mass Eye and Ear Infirmary. They created a tablet-based, multi-step eye exam that can be performed locally. EYEnexo team has deep domain knowledge relevant to their objectives. Dr. Tomasi (CEO) is expert in image processing and app development for vision care, and is co-inventor of the core IP. Dr. Amparo (CMO) is an internationally recognized ophthalmologist and clinician scientist. Dr. Titus (VP) has held multiple management positions in biomedical marketing and product development.

## **GTL Biofuel Inc.**

**Contact person:** Bob Meng, CEO

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**Technology from:** MIT

### **Company Overview**

#### **Vision:**

Renewable liquid fuel provider with global impact

#### **Core technology:**

Genetic editing methods for two strains of engineered microbes that can convert carbon-containing feedstocks, such as industrial off gas and shale gas, into liquid fuels, such as biodiesel. The first microbe converts CO<sub>2</sub>, CO, H<sub>2</sub> to acetic acid at 60°C. The second microbe converts acetic acid to lipids and animal feed protein at 60°C. Lipids can be further converted to biodiesel by conventional technology. The breakthrough of the technology lies in its cost-competitiveness. The cost of the biodiesel produced through the technology is only \$400-480 per ton. While the cost of traditional biodiesel is about \$800. Based on the operation of their pilot plant, the technology is still economically viable at \$40 per barrel of the crude oil price. Facility investment is \$300 per ton for lipids/protein production from gas feedstock. There are plentiful biodiesel production capacity in the US, Europe and other parts of the world. The capacity of minimum scale is 2k tons per year. There is no limit for scaling up.

## **Hunter BioDiscovery**

**Contact person:** Tal Raz, CSO

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**Technology from:** Harvard University

### **Company Overview**

Hunter BioDiscovery is developing a drug discovery platform for extensive drug screening on live cells. Unprecedented ultra-high throughput is enabled by emulsion microfluidic technology where up to millions of drugs and drug-combinations can be tested in a single screen with orders of magnitude lower cost, and higher speed than current technologies enable.

In the next three years, Hunter will complete development of its platform against real-life applications, market drug discovery tools to pharma, and perform in house screening to discover, patent, and license out, effective drug combinations from publicly available drug libraries, and in co-development with pharma. Intellectual property around drug combinations will open the option for continued development of a drug pipeline.

**CEO and founder:** David Weitz, PhD. Harvard Professor of Engineering. Serial entrepreneur of successful ventures including Capsum (acquired by Chanel), RainDance (acquired by Bio-Rad), GnuBio (acquired by Bio-Rad)

**Founder and scientific advisor:** John lafrate, MD, PhD. Harvard Professor of Pathology. Director, Center for Integrated Diagnostics, Massachusetts General Hospital. Founder of Archer Dx (acquired by Enzymatics).

**CSO:** Tal Raz, PhD. 15 years of experience developing biochemical assays using emulsion microfluidics, cancer drug resistance, and next generation sequencing. Founder of GnuBio (acquired by Bio-Rad).

## **Myofinity Biosciences**

**Contact person:** Richard Horgan, CEO

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**Technology from:** Boston Children's Hospital

### **Company Overview**

Myofinity Biosciences envisions becoming the world's leading muscle therapeutics company with a leading focus on Duchenne muscular dystrophy. They have assembled the world's leading scientific advisory board and have a pipeline under development. Their lead technology is a recombinant human protein that has been shown to aid in the membrane resealing of disease model animals. There is a core team in place consisting of two, highly-experienced development consultants (Sophie Roy, Michael Boss) along with their R&D lead, Angela Lek and CEO, Rich Horgan.

In terms of background, Sophie Roy has over 25+ years of experience, previously as an executive at Merck and Sanofi with expertise in rare disease. She acts as a translational consultant currently. Michael Boss is previously the CTO of Summit Therapeutics and has extensive translational experience within the Duchenne muscular dystrophy space. Angela Lek is a previous post-doc of the world-renowned Dr. Louis Kunkel, responsible for discovery and cloning of the dystrophin gene. Rich Horgan has an MBA from Harvard and is a Duchenne advocate and Blavatnik Fellow.

## **Ossanex, Inc.**

**Contact person:** Ara Nazarian, PhD, Co-founder

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**Technology from:** BIDMC and WPI

### **Company Overview**

Ossanex is developing a reliable and non-invasive technology to assess fracture healing in-vivo. This technology will allow physicians to monitor patients at risk for nonunion or malunion and will provide a tool with a clinically relevant outcome measure to pharmaceutical companies aiming to develop new therapeutics to augment bone healing. Ossanex has developed a non-invasive system, consisting of hardware and software components that allows for the measurement of stiffness of a healing fracture site over time. This approach provides a repeatable mechanical assay to evaluate the mechanobiological process of bone healing in-vivo. The company was co-founded by Drs. Ara Nazarian (PhD in Biomedical Engineering, Beth Israel Deaconess Medical; Center and Harvard Medical School), Jack Wixted (Orthopedic and Trauma Surgery, Beth Israel Deaconess Medical; Center and Harvard Medical School), and Karen Troy (PhD in Biomedical Engineering, Worcester Polytechnic Institute). They have extensive experience in orthopedic biomechanics, bioimaging, cadaveric studies, software development and orthopedic surgery. Mr. Matthew Palmer is the CEO of the company, with extensive experience with orthopedic product development and successful acquisition of a previous startup in the field.

## **SHEAR Therapeutics**

**Contact person:** Frank Bobe, President & CEO

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**Technology from:** Harvard University (Wyss Institute)

### **Company Overview**

SHEAR Therapeutics is developing a NOVEL SHEAR-STRESS ACTIVATED VASODILATOR for the treatment of acute vasospasm. Inspired by the natural physical mechanism of platelet activation, this novel DRUG-TARGETING PLATFORM uses local high shear stress to TARGET TREATMENT to regions of partial vascular occlusions. Extensive in vivo proof-of-concept studies confirmed that the shear-stress activated drug formulation has a 10- to 100-fold HIGHER ACTIVITY than the free drug, resulting in a dramatic increase in local blood flow. This FIRST-IN-CLASS DRUG TARGETING strategy promises to be a clinical breakthrough in vascular surgery and treatment of brain hemorrhages, preventing cell death and reducing mortality and long-term adult disability among more than 3 million patients (U.S.). Co-founded by Don Ingber, MD, PhD (Wyss Institute, HMS, BCH, Harvard SEAS) and Frank Bobe, PhD (Wyss Institute), SHEAR Therapeutics will outsource its development work to contract development and manufacturing organizations (CDMOs). Don Ingber will chair the Advisory Board. SHEAR Therapeutics is led by Frank Bobe, former President & CEO of Seres Therapeutics. Prior, he was Novartis' Representative Director and Country Head in South Korea and held operational management and global corporate leadership positions at Novartis AG, with increasing responsibilities in preclinical research, sales, marketing and general management. He has extensive experience in fund raising, operational management, business development and strategic planning.

## **Singularity**

**Contact person:** Wenbo Shi, Co-founder&CEO

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**Technology from:** Harvard University

### **Company Overview**

Singularity is a Harvard spinoff that builds a distributed energy network that will transform the highly centralized power grids towards a distributed energy future. The core technology is an AI-powered, full-stack solution to maximize the value of distributed energy resources (DERs) to end users and coordinate millions of DERs in real time to reduce periods of costly peak demand, reduce carbon footprints, and increase penetration of renewables. They are a group of passionate smart grid researchers/engineers and experienced energy/IoT industry veterans who share the same vision that intelligence is the holy grail in the distributed energy future. Singularity is supported by Harvard Office of Technology and Development, Harvard Office for Sustainability, Harvard Facilities, Greentown Labs, and Schneider Electric.

Singularity's core technology is the intelligence that manages a network of DERs to deliver value to both the end users and the grid. To realize the vision of a distributed energy future, they take a bottom-up approach by first focusing on managing DERs on end-user level and then realizing the value of the network. Their end-user solution solves the problem that behind-the-meter energy system is becoming increasingly complicated to manage as end users are adopting more DERs.

## **SolaBlock, LLC**

**Contact person:** Patrick Quinlan, CEO

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**Technology from:** University of Massachusetts Amherst

### **Company Overview**

SolaBlock is the next direction in solar. They are the first to create practical building integrated photovoltaic (BIPV) masonry products. Their patented wall systems give every vertical building surface the ability to generate on-site renewable energy. Their SMU wall systems feature specially designed concrete block with an embedded solar module, while their STU tile systems target retrofitting façades. These solar options are designed with affordability and ease of installation in mind. Their wall systems cost no more than conventional brick, and they offer installation certification, pre-sales, and post-sales support including troubleshooting.

SolaBlock executive team of Patrick Quinlan and Jason Lavery bring over 40 years of relevant industry experience. Patrick Quinlan, CEO, previously was a Senior Analyst at the National Renewable Energy Laboratory (NREL) and Associate Director of the University of Massachusetts Renewable Energy Research Laboratory. Jason Lavery, COO, is a career research & development mason, masonry instructor, and active union member. He previously taught masonry in the Job Corps program, and currently manages product development, partner industry relations, and construction operations.

SolaBlock other core staff includes Shannon Carleton, Richard Hicks, and Nathan Galloway, fulfilling VP positions in Sales & Marketing, Engineering, and Business Development respectively.

## **Solchroma Technologies, Inc.**

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**Technology from:** Harvard University

### **Company Overview**

Solchroma is building the world's most vivid, reflective digital displays for our future Smart Cities. By means of a new way to generate bright, reflective color, Solchroma wants to modernize this industry and integrate it into our increasingly connected world. Solchroma's core technology uses electroactive polymers to hydraulically pump liquid ink in and out of the observer's view, enabling a low-cost, low-power, regulatory-friendly digital display with advertiser-quality color. Solchroma is building display hardware modules as an alternative to large-area LED signs: a full color, reflective digital display enabling digital capability with a printed aesthetic. With origins in a DARPA funded effort at Harvard, Solchroma's cuttlefish-inspired digital display is far more vivid than reflective technologies coming before it. Roger Diebold, Ph.D. (Co-founder, CEO/President), previously Postdoctoral Fellow at Harvard SEAS (Ph.D. Materials - UCSB, BS Mechanical Eng./Materials with Departmental Distinction - Duke). Samuel Shian, Ph.D., (Co-founder, CTO) previously Postdoctoral Fellow at Harvard SEAS (Ph.D. Materials - Ohio State, MS Materials - Georgia Tech). Matthew Aprea (VP BD/Marketing) is a startup veteran, having previously built the modern digital signage business unit at E-ink, also holding several technical and managerial roles at multiple HW/SW companies (MBA - Boston College, MSEE - Virginia Tech, BSEE - Tufts).

## **ThermaGenix, Inc**

**Contact person:** J. Aquiles Sanchez, Ph.D., Principal Scientist

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**Technology from:** Brandeis University

### **Company Overview**

ThermaGenix, Inc is an operating Brandeis University spin-off Company launched in 2016 by Prof. Lawrence Wangh, CSO, and his team of scientists/co-inventors for 20+ years. Peter Coassin, President/CEO, is an experienced inventor/entrepreneur who worked in both small and large companies (Millipore, Beckman-Coulter, Vertex Pharmaceuticals) to develop and market many different technologies. Charles Powell, CFO, joined Aurora Discovery as Vice President, Sales and Marketing and eventually became Chief Commercial Officer and Director. ThermaGenix' mission is to enhance nucleic acid diagnostics through introduction of High-Precision PCR. In the last 18 months, they have developed a worldwide market for their three lead products, ThermaStop™, ThermaGo™, ThermaStop-RT™. Currently, ThermaGenix sells these reagents to the multi-billion-dollar PCR market via direct sales (90 unique customers, three adoptions into upcoming commercial kits) and strategic partnerships with global commercial distributors, including Millipore-Sigma. Their customers are companies and investigators who want more accurate/sensitive detection of DNA and RNA, superior product yield/integrity for downstream applications, and better long-term enzyme/master-mix stability. ThermaGenix also applied its expertise in High-Precision PCR to launch FASTDNA-ID™, a revolutionary DNA analysis platform with applications in human diagnostics, environmental monitoring, and food authenticity-safety-monitoring, among others. FASTFISH-ID™ (described below) is their first commercial product using this exciting platform.

## **Ubiros**

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**Technology from:** Worcester Polytechnic Institute

### **Company Overview**

Ubiros' mission is to free humans from performing mundane and repetitive tasks and improve quality of life through ubiquitous robotic solutions. Their vision is to place robots in every household that can move physical objects, e.g. close windows and take the laundry. Ubiros' beachhead is food packing for vending machines. By 2020, they will become the number one robotic brand in this domain with their patent-pending technology and core team. Their technology centers around "soft and simple" robotics, hence their vision for households, not factories. They built a team around this vision with 18 years of cumulative experience in Soft Robotics and 14 years in business management: Onder Ondemir, PhD: Co-founder and President with 7 years of management experience at a Fortune 100 company. He has a PhD in Industrial Engineering; Cagdas Onal, PhD: Co-founder. He is a Professor of Robotics at WPI with 10+ years of experience in Soft Robotics; Esat Efendigil, MBA, MS: Business Development Manager with 7 years of experience in sales and business development; Yun (Lydia) Qin, MS: Robotics Engineer with 2 years of experience in Soft Robotics; and Weijia Tao, MS: Robotics Engineer with 6 years of experience in Soft Robotics, 12 papers, and 1 patent.

## **Velum Inc.**

**Contact person:** Krishna Kumar Robinson, Professor of Chemistry

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**Technology from:** Tufts University

### **Company Overview**

Metabolic diseases, including obesity, affect hundreds of millions worldwide and account for one in eight healthcare dollars spent in the US. Natural regulatory peptide hormones would make excellent clinical compounds but suffer from low metabolic stability. In addition, other neurological indications that are currently poorly served, such as Traumatic brain injury, Alzheimer's, and Parkinson's diseases are also manageable/treatable with their technology of stabilizing peptide therapeutics. Velum platform technology re-engineers the "business end" of natural peptide hormone molecules, making them both stable and equipotent as the native compound. Analogues of the human hormones currently in clinical use recapitulate the full potency of the native compound but require extensive protein engineering and sometimes compromise key pharmacological properties. Their analogues are stable and retain the full potency of the natural substances. This innovation extends to all peptide hormones that act by related mechanisms. In addition, any template that has compromised enzymatic stability to hydrolysis is a potential compound that they can rescue. Velum anticipates rapid creation of a range of molecules for metabolic and neurodegenerative diseases.

Team: Krishna Kumar, Robinson Professor of Chemistry, Tufts University; Vittorio Montanari, formerly Research Assistant Professor, Tufts, now CTO, Velum Inc.; Martin Beinborn, MD, Tufts University, have been working for years in developing agents to treat metabolic disease. Charles Cohen, PhD. has many years of management and investment experience in the pharmaceutical industry including serving as Director, Exelixis, and starting 10+ other pharmaceutical companies and initiatives.

## **Xibus Systems**

**Contact person:** Chris Hartshorn, CEO

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**Technology from:** MIT

### **Company Overview**

Food and beverage safety remains a multibillion dollar problem, with 25 to 30 product recalls occurring globally each week. A multibillion-dollar industry provides the best technology they can to test for the underlying pathogens and allergens, but faster, cheaper and more accessible solutions are needed to mitigate billions of direct and indirect cost. Xibus Systems' solution will address these needs.

The core technology leverages materials, biotechnology and optics IP from MIT. Xibus Systems' team is leveraging this cutting-edge science to engineer a product and deliver a full solution to the food and beverage industry.

It will likely comprise be delivered through a hardware plus consumables business model with consumable sales representing the key component of revenue generation. Provision of hardware can be done through sale, lease or via bundling into minimum consumables contracts. Services components including analytics support or provision of testing possible.

The founding team is comprised of Chris Hartshorn (CEO): an experienced, cross-disciplinary, technology commercialization executive including serving as Chief Technology Officer of New Zealand's government innovation agency, and as Chief Research Officer at Lux Research; Kent Harvey (Director of Application Development): A key member of the Swager Group at MIT from where the core materials technology was developed, and with experience in biosensor R&D; and Tim Swager (Science Advisor): serial start-up founder based on work from his group at MIT.

## **ZwitterCo, Inc.**

**Contact person:** Alex Rappaport, CEO

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**Technology from:** Tufts University

### **Company Overview**

ZwitterCo provides revolutionary membrane solutions to treat highly-impaired industrial wastewater based on cutting-edge zwitterionic polymer chemistry developed at Tufts University. They aim to make the treatment and reuse of every wastewater stream economically viable. ZwitterCo membranes employ a breakthrough material immune to organic fouling; their products will be standard-dimension spiral-wound and hollow-fiber cartridges. Their membranes have 1 nm pores, which uniformly block small-molecule organics to deliver effective filtration. They also feature unprecedented fouling resistance and will filter concentrated organic mixtures without frequent cleaning, will regain full performance from a water rinse, and will have 10x higher flowrates. The result will be higher efficiency, longer lifespans, and dramatically lower operating costs. The consistent nanoscale selectivity and extreme fouling resistance enable applications that would not be cost-effective with existing membrane technologies. ZwitterCo team has 15 years of experience in membrane development and wastewater treatment, has been named in 8 membrane patent families and has delivered \$50M in wastewater projects in 9 countries. Alex Rappaport (CEO) was a PM at Firecracker, Chris Drover (CTO) was an R&D manager at Oasys Water, Aditi Deorukhakar (VP BD) was an estimation engineer at Expo, and Chris Roy (VP Product) was a lead field engineer at CeraMem.

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