

ANNUAL REPORT

Bringing Ideas to Life

19



VCU

Innovation Gateway

Office of the Vice President
for Research and Innovation

Bringing Ideas to Life

19

Annual Report



Letter from the VP for Research and Innovation and the Senior Executive Director

1

The Year at a Glance

2

Inventor of the Year

4

Violin Coach

6

Transcending Self Therapy

8

Blood Cancer Diagnostic

10

Tubie Vent

12

Cancer Therapy

14

Surface Science

16

VCU Commercialization Fund

18

VCU Technology Transfer Process

20

VCU Innovation Gateway Team & Board of Directors

21

Mission

Our mission is to facilitate commercialization of university inventions for the benefit of the public, to foster a culture of innovation at the university, to promote industry collaborations and to support regional economic development.

LINKEDIN: VCU INNOVATION GATEWAY 

FACEBOOK: VCU INNOVATION GATEWAY 

TWITTER: @VCUINNOVATION 

COVER PHOTO: ATOMIC FORCE MICROSCOPE USED FOR BLOOD CANCER DIAGNOSTIC

Design: BN Design & Advertising
Photography: Karl Steinbrenner

Dear Colleagues and Friends,

We are pleased to share with you that Innovation Gateway has closed on a very successful year. Some of the highlights include: 114 new invention disclosures; 178 patent application (a record); 22 patents issued; seven copyrights (a record); 21 licensing deals, up by 16%; six licenses to start-ups, up by 50%; revenues from royalties, fees and other cash payments up 21% to \$2,089,526; number of industry engagements 70 (a record), up 13%; and sponsored research related to licenses, up 60%.

This caps a decade of significant growth. In the past 10 years, 29 products based on VCU inventions have been taken to market, producing more than \$25 million in licensing revenues. Moreover, the team facilitated close to \$7 million in industry-sponsored research and \$5 million in proof-of-concept funding. Forty start-up licensing and options were executed, with about half going to Virginia start-up companies. Our start-ups have raised a total of \$64 million in start-up funding and have introduced six products to market. We are very excited and happy with their success.

In the past year, we developed a new business-friendly licensing template. We developed and adopted several new initiatives aimed at streamlining licensing: PartnerEASY, with pre-negotiated terms for easy licensing, and TestDrive, a 6-month free option to test and evaluate technologies. In addition, we are ready to launch a university-wide PartnerSMART program that offers prepaid licensing and lessens uncertainty and financial concerns for companies sponsoring research at VCU.

These flexible and collaborative licensing practices create opportunities to generate value for both our licensing partners and the university and ensure VCU innovations reach the marketplace to benefit the public.

VCU Innovation Gateway led the effort of the Virginia universities tech transfer offices to create a common licensing term sheet for Virginia start-up companies. The term sheet, dubbed Virginia Advantage, is based on national best practices and offers preferential treatment to Virginia based start-ups.

The VCU Commercialization Fund, established to mature and validate early stage inventions, has invested \$1,225,000 in support of 40 faculty projects. In less than four years since the fund's launch, these projects have secured more than \$18.5 million in follow-on funding, seven licensing deals and four start-ups – an amazing return on investment.

We look forward to build on these accomplishments and achieve new VCU commercialization successes in these new and challenging times.

With sincere gratitude,

P. Srirama Rao, Ph.D.
Vice President for Research and Innovation

Ivelina Metcheva, Ph.D., MBA
Senior Executive Director
VCU Innovation Gateway

19

FISCAL YEAR AT A GLANCE

114

Invention Disclosures

23

Options/
Licenses

6

Start-Ups

187

Patents Filed

23

Patents Issued

7

Copyrights Filed

DEPARTMENTS WITH TEN OR MORE INVENTION DISCLOSURES

18 Chemical and Life Science Engineering

11 Biomedical Engineering

DEPARTMENTS WITH FIVE TO NINE INVENTION DISCLOSURES

9 Internal Medicine

9 Medicinal Chemistry

8 Physics

8 Electrical and Computer Engineering

6 Human and Molecular Genetics

6 Mechanical and Nuclear Engineering

5 Physiology and Biophysics

Distribution of Invention Disclosures

College of Humanities and Sciences 9

College of Health Professions 3

School of Business 3

School of Dentistry 3

School of Education 1

College of Engineering 37

School of Medicine 51

Technology Services 1

School of Pharmacy 19

Division of Inclusive Excellence 1

Office of the VP for Research and Innovation 1

VCU PATENTS

7/3/2018 Patent No. 10,010,692

P. Worth Longest Ph.D., Michael Hindle Ph.D. Systems, Devices, and Methods for Changing Therapeutic Aerosol Size and Improving Efficiency of Ventilation and Aerosol Drug Delivery

7/19/18 Patent No. 2011317105

Richard T Marconi Ph.D., Christopher Earnhart Ph.D. Polyvalent Chimeric OSPC Vaccinogen and Diagnostic Antigen

8/7/18 Patent No. 10,039,831

Barbara D Boyan Ph.D., Zvi Schwartz DMD, Ph.D. Polymer Hydrogels For In Vivo Applications And Methods For Using And Preparing Same

8/7/18 Patent No. 10,039,815

Jason Carlyon Ph.D. XOMPA and ASP14 In Vaccine Compositions and as Diagnostic Targets

8/14/18 Patent No. 10,046,081

Gary L. Bowlin Ph.D., David G Simpson Ph.D. Electrospun dextran fibers and devices formed therefrom

9/13/18 Patent No. 3,010,786

Swadesh K Das M. Sc. M. Agg. Ph.D., Luni Emdad Ph.D. M.B.B.S., Devanand Sarkar Ph.D. M.B.B.S., Sarmistha Talukdar Ph.D., Paul B Fisher M.Ph. Ph.D. A Method Of Modulating Survival And Stemness Of Cancer Stem Cells By MDA-9/Syntenin (SDCBP)

9/18/18 Patent No. 10,077,242

B. Frank Gupton Ph.D., Ali R Siamaki Ph.D., Katherine Belecki Ph.D., Alex Martin A Convergent Approach to the Total Synthesis of Telmisartan via a Suzuki Cross-Coupling Reaction

10/2/18 Patent No. 10,086,058

Jason Carlyon Ph.D. AIPA, OMPA, and ASP14 in Vaccine Compositions and Diagnostic Targets for Anaplasma Phagocytophilum Infection

10/2/18 Patent No. 10,086,057

Richard T. Marconi Ph.D., Lee D. Oliver Ph.D. Stage Specific Diagnostic Antigens, Assay and Vaccine for Lyme Disease

10/16/18 Patent No. 10,102,335

Stephen S Fong Ph.D., J. Paul Brooks Ph.D., Adam Fisher Ph.D. Cost-Optimized Design Analysis for Rapid Microbial Prototyping

10/23/18 Patent No. 10,105,500

Michael Hindle Ph.D., P. Worth Longest Ph.D., Yoen-Ju Son Ph.D., S.R.B. Behara Ph.D., Dale Farkas Ph.D. Dry Powder Inhaler (DPI) Design for Producing Aerosols with High Fine Particle Fractions

10/23/18 Patent No. 10,105,554

Dorin Todor Ph.D., Aditya A Bondal MS 3D Tracking of an HDR Source Using a Flat Panel Detector

11/6/18 Patent No. 10,119,035

Kenneth J Wynne Ph.D., Soucik Chakrabarty Ph.D., Wei Zhang Ph.D., Chenyu Wang Ph.D. Adhesive Coatings

11/6/18 Patent No. 10,117,436

Souvik Chakrabarty Ph.D., William Broaddus M.D. Ph.D., Kenneth J Wynne Ph.D. Antimicrobial Polymeric Compositions

11/26/18 Patent No. 10-1924162

Bruce Rubin M.Engr. M.D. M.B.A., Soichiro Kanoh M.D. Ph.D., Tsuyoshi Tanabe M.D. Ph.D. Aerosolized Dapsone as a therapy for inflammation of the airway and abnormal mucociliary transport

1/1/19 Patent No. 10,166,204

Sarah Spiegel Ph.D. Sphingosine kinase type 1 inhibitors and uses thereof

1/22/19 Patent No. 10,183,991

Jerome F. Strauss M.D. Ph.D. Antibodies That Recognize A Denn/Madd-Domain-Containing 1A Variant 2 (Dennd1A Variant 2)

3/5/19 Patent No. 10,221,333

Wei Zhang Ph.D., Kenneth J Wynne Ph.D. Ice Release Coatings

4/2/19 Patent No. 10,247,650

Alexander Ucci MS, Boris Solomonov Ph.D., David Saul, Illya Kajan Portable Alcohol Tester

4/23/19 Patent No. 10,266,571

Christopher Earnhart Ph.D., Richard T. Marconi Ph.D. Lyme Disease Vaccine

4/30/19 Patent No. 10,272,097

Shunlin Ren Ph.D. Uses of Oxygenated Cholesterol Sulfates (OCS)

5/28/19 Patent No. 10,300,029

Martin J Mangino Ph.D. Organ Protectant Solutions

6/11/19 Patent No. 10,314,870

Paul B Fisher M.Ph. Ph.D., Devanand Sarkar Ph.D. M.B.B.S. Tropism modified cancer terminator virus (AD.5/3 CTV,AD.5/3-CTV-M7)

The 2019 Billy R. Martin Innovation Award

“Their research, discovery and innovation will make a difference in the lives of countless people, which is the ultimate mission of our university.”

Michael Rao, Ph.D.
VCU President



Inventors of the Year:

From left: **Mark Baron, M.D., George Gitchel, Ph.D., Paul Wetzal, Ph.D.**

Eye-Opening Breakthrough in Diagnosing Parkinson’s Disease

Long before the telltale signs of Parkinson’s become obvious—the hand tremors, blank expression, stilted speech—look into the eyes. That’s the key for the trio of inventors behind this novel eye-tracking technology and device to help diagnose Parkinson’s disease at early stages. For them, it’s all about the eyes, a window into more than a dozen neurological diseases.

Paul Wetzal, Ph.D., an associate professor of biomedical engineering in the VCU College of Engineering, began working on a similar diagnostic test more than 20 years ago while tracking the eye movements of Air Force pilots. Mark Baron, M.D., is a professor of neurology and interim director of the VCU Parkinson’s and Movement Disorders Center. His early work helped ramp up this eye-tracking technology from a research interest to clinical trials. George T. Gitchel, Ph.D., now director of clinical research at the Southeast Parkinson’s Disease Research, Education, and Clinical Center, originally joined the program as a Ph.D. student of Wetzal’s, fascinated by what he saw.

In 2019, VCU Innovation Gateway honored them with the university’s Billy R. Martin Innovation Award. The technology has been licensed to RightEye, a small Maryland-based company and recently has been designated a breakthrough device by the U.S. Food and Drug Administration, fast-tracking its development and commercialization in the name of public health—and the 1.2 million Americans estimated to be living with the disease by 2030.

RightEye’s noninvasive test, which only takes about five minutes, tracks a patient’s natural eye movements as they follow a dot on a tablet screen. Those with neurological problems have irregular movements. The eye-tracking technology also aims to prevent misdiagnosis and can screen for traumatic brain injury and several other neurological conditions. “When assessing Parkinson’s disease, 60% of patients are misdiagnosed at least once, with one third of patients misdiagnosed twice,” said Gitchel. “That is a terrifying and unacceptable statistic in the age of modern medicine.”

FROM LEFT: MARK BARON, M.D., PAUL WETZEL, PH.D., MICHAEL RAO, PH.D., GEORGE GITCHEL, PH.D., P. SRIRAMA RAO, PH.D.





V-Coach App: Hitting All the Right Notes

Practice makes perfect. For professional string players, however, practice also makes for injuries at an alarming rate due to a highly competitive field and less than perfect practice habits. Few are more in tune with the need for healthier practice regimens than Susanna Klein, Assistant Professor of Violin and Area Coordinator of Strings at VCU School of the Arts.

With 15 years of orchestral experience, she was inspired to study developments in health and digital technology that may relate to musicians' psychology. For Klein, how you learn is as important as what you learn. The result is V-Coach, an app that reinforces a more mindful and deliberate approach to personal practice with tools that track playing time, time away from the instrument, and also offers spaces for goal setting and reflection.

A healthy practice regimen, she says, is not only key to being a better musician, but also key to better understanding the world. "It's really about self-efficacy," Klein says, "and slowing down to analyze your behavior, and to form habits that you can be proud of."

Professor Klein was named 2018 Teacher of the Year by the Virginia American String Teachers Association (ASTA) chapter. Her research for V-Coach has led to presentations at the National Conference of ASTA and at universities music departments around the country. V-Coach was recently licensed for commercialization. Now that's music to her ears.

"Injuries in the professional musician population are the rule, not the exception. It is crucial for us to innovate how we practice and become more data driven. Fundamentally, we have to shift our perspective and treat musicians as artist athletes."

Susanna Klein
Assistant Professor of Violin
Area Coordinator of Strings
VCU School of the Arts

The Healing Power of Positivity: Transcending Self Therapy

Life requires a moral compass that, due to certain life experiences, may need recalibrating from time to time. Mental health issues, substance abuse, depression can dull our decision-making, self-worth and quality of life. All combined, these disorders can be fatal when ignored. For that reason, Transcending Self Therapy (TST), a new Integrative-Cognitive Behavioral Therapy (CBT) -based treatment, was developed by clinical psychologist Dr. Jarrod Reisweber and his colleagues Brian Meyer, Kathryn Polak, David Pomm.

As Reisweber puts it, to change the way a patient thinks, you must first help the patient get in touch with their morals. Only then can you improve unhealthy thought and behavior patterns while addressing connections with others, problem-solving, and developing coping skills and goals. In other words, thinking happy thoughts really works, at least as a starting point. Rounds of positive reinforcement, intensive individual and group therapy, often in conjunction with CBT such as a biopsychosocial-spiritual approach, work on a deeper level for a person to rediscover their higher moral standard.

The therapy has been particularly effective for veterans, something Reisweber wishes were available a couple generations ago. His grandfather was a World War II bomber pilot who later suffered an internal battle with alcohol for years.

Reisweber, always guided by his compassion, decided his mission in life was to help others reach the best version of themselves. Judging by TST's early success rate, his moral compass indicates he's heading in the right direction.

"The Innovation Gateway was paramount to the dissemination of TST. Brent Fagg has helped situate our treatment for substance use and depression in a manner that will allow it to reach more people in Virginia and beyond. TST has been extremely effective as patients in our group therapy were significantly less likely to use substances than those who didn't have TST while in treatment. Further, patients using our treatment were also significantly less likely to have a positive screen a month after treatment when compared to those that did not receive it."

Jarrod Reisweber, Psy.D.
Assistant Professor
Department of Psychology
Substance Abuse Psychologist
McGuire VA Medical Center

Kathryn Polak, MS
Jarrod Reisweber, Psy.D.
Brian Meyer, Ph.D.
David Pomm, MS



Blood Cancer Diagnostic in the Age of Personalized Medicine

Jason Reed, Ph.D.

Blood cancers, such as leukemia, lymphoma and myeloma, account for 10 percent of the newly diagnosed cancers in this country. In many underserved communities, diagnosis requires medical equipment that's not widely available, particularly in hospitals with less-specialized settings. Fortunately, the odds of detecting these complex diseases faster, more accurately and less costly have just soared.

A team of researchers led by VCU physicist, Jason Reed, Ph.D. have developed a revolutionary imaging technique that could transform the way these genetic mutations are spotted, diagnosed and treated on an individual basis. Remarkably, the very accessibility of Reed's approach is adding to its appeal, given the shoebox-sized footprint of the device and ease of manufacture with commercial off-the-shelf parts like DVD optical assemblies.

At its core, Reed's technology uses high-speed atomic force microscopy (AFM) combined with a CRISPR-based chemical barcoding technique to map and mark DNA molecules while processing large sections of the genome at a faster rate: A thousand times faster, according to Reed. The sooner you identify a mutation, the sooner you can treat it.

Reed is an associate professor in the Department of Physics in the College of Humanities and Sciences. The mapping innovation is a collaboration between VCU, New York University and Bristol University, with support from the National Institutes of Health and Massey Cancer Center grants.

"Our technology addresses an unmet need for researchers, clinicians and patients by identifying complex genomic biomarkers of diagnostic and prognostic importance."

Jason Reed, Ph.D.
Associate Professor
Department of Physics



Nancy Thompson, MS, RN, CPNP



Inventing Better Venting: Tubie Vent

Eat. Burp. Sleep. Simple tasks that aren't so simple for premature infants who require feeding tubes. Unfortunately, most modern feeding tubes for premature infants, and even chemotherapy patients, lack any sort of venting system for air to escape. As a result, air pressure builds in the stomach cavity leading to significant discomfort.

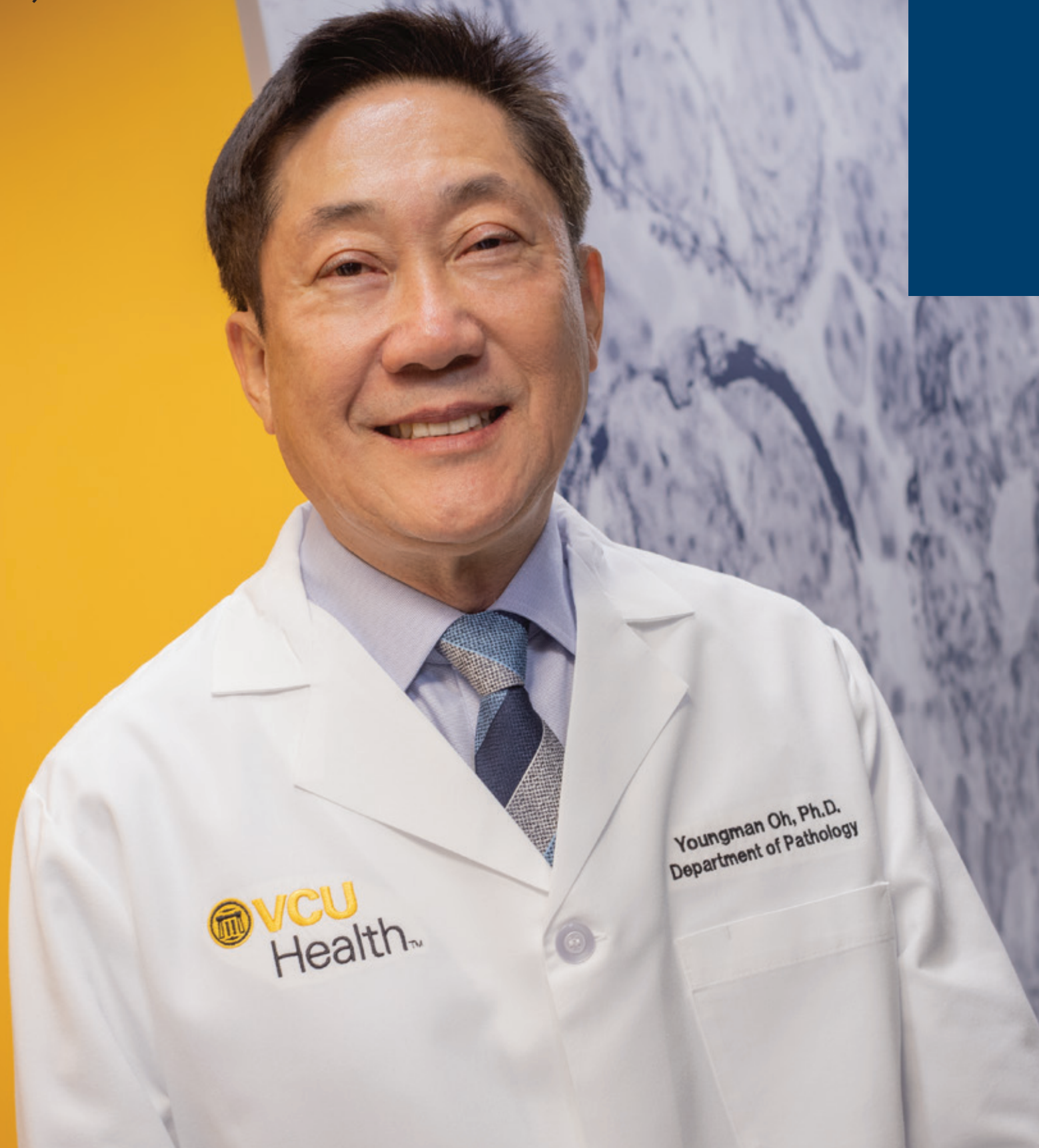
Even the best feeding tube technology in hospitals today is cumbersome, cost prohibitive for families, and only addresses a portion of the problems. Difficulties that Nancy Thompson wants to change: her novel gastrostomy venting device, Tubie Vent, ambitiously solves a number of problems at once. An innovative, yet simple cap system reduces the spill risk and allows for easier and faster venting, or burping during feeding. A separate channel allows air to pass through, but not liquid, so the device can operate as both a venting system and safe feeding system.

What makes her patent-pending Tubie Vent most unique is that it is already a welcomed solution by parents—and less painful for nurses and their little patients alike.

“Working with children who have special needs and feeding problems is very rewarding. The Innovation Gateway provided me the opportunity to bring my idea for venting the stomach to reality for children with feeding tubes. The professionalism and assistance received from the team has been exceptional. They have walked me step by step through the process. What an amazing opportunity.”

Nancy M. Thompson, MS, RN, CPNP
*Children's Hospital
of Richmond at VCU*

Youngman Oh, Ph.D.



Pioneering a Powerhouse Cancer Treatment

Nearly one in four adults is likely insulin resistant. When the body can't respond properly to the insulin hormone that it makes, glucose builds up and blood sugar levels soar over time. This dysregulation leads to obesity, type 2 diabetes and other metabolic disorders. Evidence also suggests that these individuals are at risk of kidney, pancreatic or colorectal cancers, all of which inspired one VCU scientist to create a technology just for them.

Youngman Oh, Ph.D., a professor of pathology in the Division of Cellular and Molecular Pathogenesis, is widely regarded for his strong translational research on endocrine-related cancers and metabolic diseases, as well as in the insulin-like growth factor (IGF) field. He has engineered several novel insulin-like binding proteins that, when taken together, target certain cancers, metabolic diseases and respiratory disorders.

A recipient of Innovation Gateway's commercialization fund, Youngman has also received over \$6 million in external backing, collected 15 patents for treatment of cancer and metabolic disorders, and shows no signs of slowing down. He is actively looking for a partner to help take his latest innovation to the next level.

"This project represents the first antibody drug development from VCU. The Innovation Gateway and the VCU Commercialization Fund helped us get critical proof-of-concept data and move towards the preclinical studies. I hope this novel targeted antibody therapy would be developed as a monotherapy and a combination therapy with immune-modulating therapies for various cancer including breast, lung and colon cancer."

Youngman Oh, Ph.D.
Professor
Department of Pathology

Discovering White Space within Surface Science

Olga Zolotarskaya, Ph.D.
Kennard Brunson, Ph.D.
Kenneth J. Wynne, Ph.D.
Rebecca Jarrell
Chenyu Wang, Ph.D.

Kenneth Wynne, Ph.D., is not your run-of-the-mill retired professor. After 19 years at the VCU College of Engineering, he remains every bit the enthusiastic engineer, prolific inventor and passionate problem-solver who has inspired students and colleagues for decades.

His nanotechnology start up, WynnVision, specializes in creating antimicrobial, biocompatible tubes that have shown promise for preventing a number of infections including those caused by “super-bugs.” Last year, WynnVision received a \$1.5 million grant from the National Heart, Lung and Blood Institute of the National Institutes of Health to continue developing safer devices such as catheter and endotracheal intubation tubes.

As professor emeritus in VCU’s Department of Chemical and Life Science Engineering, Wynne was named a Distinguished Career Professor by the Office of the Provost, a program created to honor sustained excellence in teaching, research and/or service and outstanding contributions.

Wynne continues to push the boundaries of surface sciences, and has pioneered processing technology for silicones, polyurethanes and fluoropolymers. He is even working on how to minimize ice build-up on wind turbines in the coldest climates. Seems like he’s just warming up.



“Wynne’s many outstanding accomplishments have brought national and international visibility to the college and the university.”

Barbara D. Boyan, Ph.D.
Dean
VCU College of Engineering

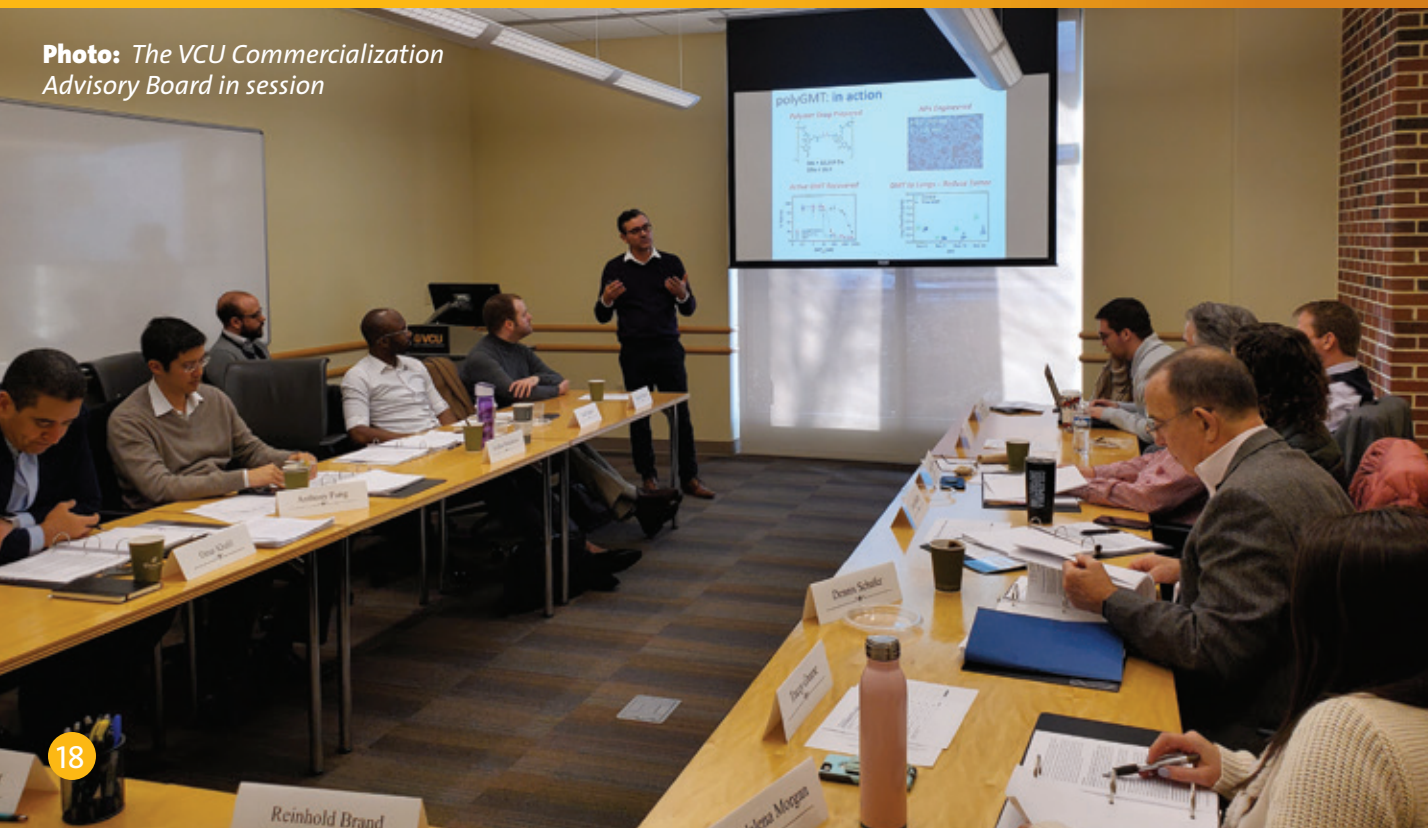
VCU Commercialization Fund

The VCU Commercialization Fund is a resource dedicated to the advancement of VCU inventions. Offered in the spring and fall, its purpose is to validate and mature VCU inventions. As a technology matures, it becomes more licensable and available quicker to the public in the form of new products or services.

Competitive review and funding decisions are by an independent, external Commercialization Advisory Board of industry experts, entrepreneurs and investors. Funding is milestone driven. Types of projects that are funded are: prototype development, animal studies and other proof-of-concept experiments, development of new applications, software coding and user interface work.



Photo: The VCU Commercialization Advisory Board in session



Funded Projects

Fall 2015

N-Chelation-directed C-H activation reactions catalyzed by heterogeneous palladium(II) on multi-walled carbon nanotubes [Pd(II)/MWCNT]
Keith Ellis, Ph.D.

Commercialization of the SIPP3 (Self Initiated Prone Progressive Crawler)
Peter Pidcoe, Ph.D., DPT

Development of prototype electrical ultrafine particles sizers (eUPSs) with curved size-classifiers
Daren Chen, Ph.D.

Development of an effective diagnostic assay for granulocytic anaplasmosis
Jason Carlyon, Ph.D.

Spring 2016

Android Application Security through Crowdsourcing
Carol Fung, Ph.D.

Frequency Selective Surfaces for Electromagnetic Shielding
Erdem Topsakal, Ph.D.

Wireless, Intraoral Electronics for Sodium Intake Monitoring for People with Hypertension
Woon-Hong Yeo, Ph.D.

A rotational platform-driven microdevice for differential separation, purification & amplification of sexual assault forensic samples
Tracey Dawson Cruz, Ph.D.

Polyethylene Glycol-20k based low volume resuscitation solutions for severe hemorrhagic shock: Safety testing for coagulation, platelet function, and clot strength
Martin Mangino, Ph.D.

Fall 2016

Development of a novel targeted antibody therapy for triple-negative breast cancer
Youngman Oh, Ph.D.

Treatment of MI Using Alpha-2-Macroglobulin
Antonio Abbate, M.D., Ph.D.

Energy Efficient Memory Devices Based on Skyrmions
Jayasimha Atulasimha, Ph.D.

A Dual-Channel Jetting Apparatus for 2D/3D Electro hydrodynamic (EHD) Printing
Hong Zhao, Ph.D.

Novel Anesthesia Equipment Bracket
W. Paul Murphy, M.D.

Electronic Alcohol Tester
David Saul

Spring 2017

A new method for medication reconciliation in trauma and emergency medicine settings
Sudha Jayaraman, M.D., MS

A pilot study of the role of type IV pili in Clostridium difficile colonization
Michael Donnenberg, M.D.

No Guidewire Left Behind
Bennett Ward, Ph.D.

A new method to treat and prevent bacterial vaginosis
Kimberly Jefferson, Ph.D.

Advanced Microsurgical Trainer
Peter Pidcoe, Ph.D., DPT

Fall 2017

Novel Flavonoid based oligomer modulators of elastase and iron
Masahiro Sakagami, Ph.D.

Functionalized Dendrimeric Nanoparticle Platform for Reducing Atherosclerosis
Shobha Ghosh, Ph.D.

PRECYSE diagnostic tool for blood cancer
Jason Reed, Ph.D.

LCMO bases magnetic refrigeration
Everett Carpenter, Ph.D.

Development of Secure Compartmentalized Automated Refrigerated storage (SeCARS) for Controlled Medicines
Thomas Roper, Ph.D.

The Nuzzi: A Breastfeeding Aid
Kristina Bonovitch, RNC

Spring 2018

Optimization of metal oxides for enhanced magnetic refrigeration
Everett Carpenter, Ph.D.

New analytical platform for rapid, high-throughput cell diagnostics
Christopher Ehrhardt, Ph.D.

Novel synthetic antisickling agents
Martin Safo, Ph.D.

Nanoparticle conjugated NAP as novel treatment for opioid induced constipation
Yan Zhang, Ph.D.

Fall 2018

Validation of Rapid Forensic Cell Typing Technology for DNA Casework
Christopher Ehrhardt, Ph.D.

Dapsone aerosol for therapy of lung disease
Bruce Rubin, M.D.

FDA Approval of a Next Generation Intravenous Low Volume Resuscitation Solution
Martin Mangino, Ph.D.

PneumoRx: Effectively and efficiently decompresses pneumothoraces without the current 50% failure rate
Jonathan DeAntonio, M.D.

Thompson Tubie Vent (Gastrostomy Venting Device)
Nancy Thompson, MS, RN, CPNP

Spring 2019

Novel chimeric multi-protein based recombinant vaccine antigens for prevention of Lyme disease in animals and humans
Richard T. Marconi, Ph.D.

Specific Lipidic Analogs of an Anti-Cancer Stem Cell Agent to Simultaneously Enhance In Vivo Efficacy and Half Live
Bhaumik Patel, M.D.

Developmental validation of an updated rotational microdevice platform for separation and amplification of contributor DNA from sexual assault samples
Tracey Dawson Cruz, Ph.D.

An extreme sub-wavelength dual electromagnetic and acoustic on-chip antenna implemented with magnetostrictive/multiferroic nanomagnets actuated by the giant spin Hall effect
Supriyo Bandyopadhyay, Ph.D.

FDA Approval of a Next Generation Intravenous Low Volume Resuscitation Solution
Martin Mangino, Ph.D.

Fall 2019

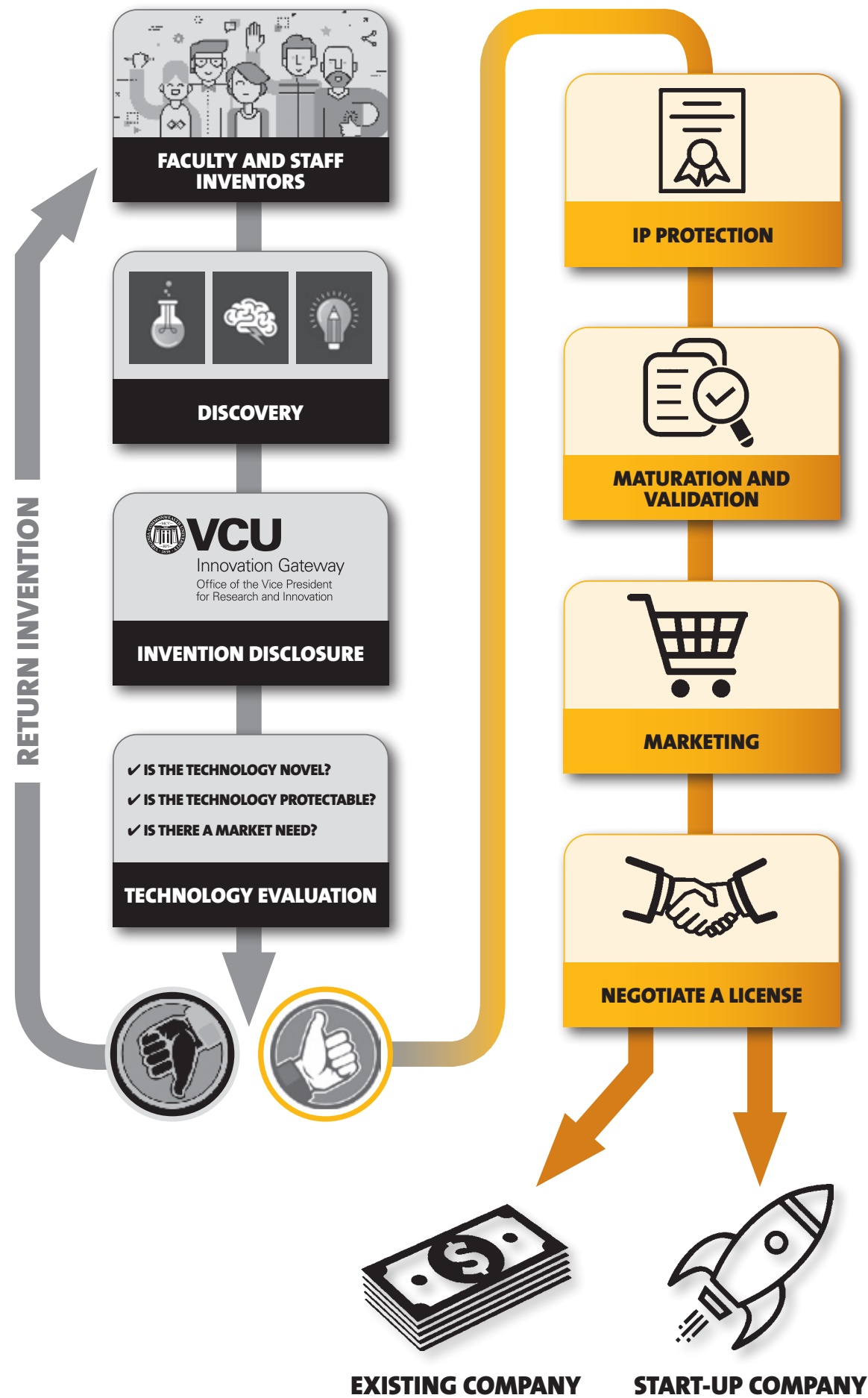
Development of NLRP3 inhibitors as therapeutics for Alzheimer's disease
Shijun Zhang, Ph.D.

Improving the Readiness Level of the "Polymer Drugs for Cancer Therapy" Technology
Sandro da Rocha, Ph.D.

Si-Sn and Ge-Sn Quantum Dots as Low-Cost, High-Efficiency Light Harvesting Materials for Generation-III Photovoltaics
Indika Arachchige, Ph.D.

Stabilization of Perovskite Solar Cells using Supercritical Carbon Dioxide
Gary Tepper, Ph.D.

The VCU Technology Transfer Process



VCU Innovation Gateway Team

Standing from left:

Brent Fagg, Ellie Linkous, Michael Mancini, Ivelina Metcheva, Koffi Egbeto, Barry Carver, Remy Cooper

Sitting from left:

Christine Benedict, Magdalena Morgan, Katharine Wise, Blaize Majdic, Brittaney Ritchie

Board of Directors

L. Franklin Bost, MBA
 Reinhold Brand, Ph.D.
 Nancy Eberhardt, MS
 Gopinath Jadhav, M.D.
 Gary LeClair, J.D.
 Spencer Williamson, MBA
Ex-officio:
 P. Srirama Rao, Ph.D.
 Ivelina Metcheva, Ph.D., MBA



VCU

Innovation Gateway

Office of the Vice President
for Research and Innovation

Non-profit Organization
U.S. Postage Paid
Permit Number 869
Richmond, Virginia

800 East Leigh Street, Suite 3000
P.O. Box 980568
Richmond, VA 23298-0568
<https://innovationgateway.vcu.edu/>
(804) 828-5188



Commercialization Advisory Board

Geoffrey D. Beecher
Mid-Atlantic Sales Manager
Focal Therapeutics

Reinhold Brand
President (retired)
Evonic USA

Kevin Corby
Research and Development
Director (retired)
DuPont

William Daughtry
Group Managing
Partner (retired)
PWC

Alex Euler
Investment Director
CIT Gap Fund

Anthony Fung
CEO
GovInsight

Jeffrey M. Gallagher
Non-profit and
Community Leader

Tracey Greene
Founding Executive Director
Charlottesville Angel Network

Omar Khalil
Vice President &
General Manager
Kaleo

Mark Lambert
Founder
VArtisans

Chris Little
Founder
SingleStone

William McPheat
Principle Scientist (retired)
AstraZeneca

John Newby
CEO
Virginia Bio

Kevin Passarello
Shareholder
Buchanan Ingersoll
& Rooney PC

Carrie Roth
President & CEO
Activation Capital

Dennis Schafer
Director
Life Science Management

William Weber
VP and General Manager
(retired)
DuPont

Vida Williams
Advanced Analytics
Solution Lead
SingleStone