VIRGINIA COMMONWEALTH UNIVERSITY

VIRGINIA COMMONWEALTH UNIVERSITY BOARD OF VISITORS
ACADEMIC AND HEALTH AFFAIRS COMMITTEE
May 11, 2023
James Branch Cabell Library
901 Park Avenue – Room 303
RICHMOND, VIRGINIA

MINUTES

DRAFT

COMMITTEE MEMBERS PRESENT

Dr. Tonya Parris-Wilkins, *Chair*
Dr. Shantaram Talegaonkar, *Vice Chair*
Ms. Ellen Fitzsimmons
Dr. Dale Jones
Ambassador Carmen Lomellin
Rev. Tyrone E. Nelson
Mr. Keith Parker

OTHER BOARD MEMBERS PRESENT

Mr. Ben Dendy, *Rector*
Ms. Carolina Espinal, *Vice Rector*
Mr. Todd Haymore

OTHERS PRESENT

Dr. Michael Rao, *President*
Dr. Fotis Sotiropoulos, *Provost and Senior Vice President for Academic Affairs*
Dr. Marlon Levy, *Interim Senior Vice President for Health Sciences and CEO of the VCUHS*
Dr. Aaron Hart, *Vice President for Student Affairs*
Dr. Hernan Bucheli, *Interim Vice President for Strategic Enrollment Management and Student Success*
Dr. Srirama Rao, *Vice President for Research and Innovation*
Ms. Jamie Stillman, *Director of Strategic Communications, Office of the Provost*
Members of the VCU Board of Visitors Presidential Cabinet of VCU
VCU students, faculty and staff
Members of the media

CALL TO ORDER

Dr. Tonya Parris-Wilkins, Chair of the Academic and Health Affairs Committee, called the meeting to order at 2:45 p.m. The public was able to view the open session of the meeting via livestream at https://mssvideo.vcu.edu/BOV.

ACTION ITEMS

Dr. Parris-Wilkins began by asking the committee to consider approving three items that were provided in advance for review: the March 23, 2023 committee meeting minutes, a proposal to close a partially-exempt off-campus instructional site used by the Department of Nurse Anesthesia at 6295 Edsall Road, Alexandria, Va., and a proposal to open a partially-exempt off campus instructional site for use by the Department of Nurse Anesthesia at 5285 Shawnee Road, Alexandria, Va. On a motion duly made and seconded, each of the three items were approved. The meeting minutes are posted at https://bov.vcu.edu/meetings/minutes/. Copies of the two proposal briefs are attached hereto as ***Attachment A*** and are made a part hereof.

REPORTS

Provost and Senior Vice President for Academic Affairs Fotis Sotiropoulos introduced a panel of faculty who have received National Science Foundation (NSF) awards. The panelists discussed their research and its impact. A copy of the handout profiling each of the six panelists and their slide presentations is attached hereto as ***Attachment B*** and is made a part hereof.

Dr. Marlon Levy, interim senior vice president for health sciences and CEO VCU Health, provided updates on updates on issues pertaining to the health sciences schools and campus. A copy of the presentation slides is attached hereto as ***Attachment C*** and is made a part hereof.

Vice President for Research and Innovation P. Srirama Rao provided an annual overview on VCU's Technology and Commercialization Program. A copy of the presentation slides is attached hereto as ***Attachment D*** and is made a part hereof.

ADJOURNMENT

There being no further business, Dr. Parris-Wilkins adjourned the meeting at 4:20 p.m.

ATTACHMENT A

Virginia Commonwealth University
Proposed Organizational Change Brief

Proposal
Virginia Commonwealth University (VCU) requests approval to close a "partially-exempt" off-campus instructional site at 6295 Edsall Road, Alexandria, VA.

Overview
The purpose of the proposed change is to close an off-campus instructional site that is no longer available or suitable for ongoing academic operations. VCU's presence in northern Virginia dates back to 2012 with the opening of an off-campus instructional site at 6295 Edsall Road. Since its establishment, the off-campus site has offered the Doctor of Nurse Anesthesia Practice (DNAP) program. Multiple lease renewals for the space were executed until the off-campus site at Edsall Road was scheduled for demolition in 2022 by the owner of the building. Subsequent changes in building ownership and plans for the Edsall Road location, a lack of lease renewal options at the site, and the limitation of the space to support the educational and career needs of CRNAs necessitates the need to close the Edsall Road "partially-exempt" off-campus instructional site.

Target Implementation Date

August 13, 2023

Impact on Existing Programs/Policies
There is no impact to existing programs and policies. There will be no interruption to activities for nursing students in the DNAP program and students will be transitioned to a new location.

Impact on Faculty
There is no impact on faculty.

Funding
The proposed organizational change to close the Edsall Road off-campus instructional site is executable within the budget of the VCU College of Health Professions' currently authorized funds. No additional expenses are required to implement the change.

Next Steps
April 27, 2023 - University Committee on Academic Affairs and University Policies (UCAAUP) Meeting
May 4, 2023 - University Council Meeting
Electronic Vote - President's Cabinet Meeting
May 12, 2023 - Board of Visitors' Meeting
May 13, 2023 – Proposal shared with SCHEV

Virginia Commonwealth University
Proposed Organizational Change Brief

Proposal

Virginia Commonwealth University (VCU) requests approval to establish a "partially-exempt" off-campus instructional site at 5285 Shawnee Road, Alexandria, VA.

Overview

The purpose of the proposed organizational change is to establish a new "partially exempt" off-campus site to replace an off-campus site slated for closure. The new off-campus site will continue to provide an academic program in an area of the state where there is a pressing and ongoing need for certified registered nurse anesthetists (CRNAs). VCU's presence in northern Virginia dates back to 2012 with the opening of an off-campus instructional site at 6295 Edsall Road. Since its establishment, the off-campus site has offered the Doctor of Nurse Anesthesia Practice (DNAP) program; training future nurse anesthesia students to meet the ongoing demand for Certified Registered Nurse Anesthetists at hospital facilities in the geographic region. Multiple lease renewals for the space were executed until the off-campus site at Edsall Road was scheduled for demolition in 2022 by the owner of the building. Subsequent changes in building ownership and plans for the Edsall Road location, a lack of lease renewal options at the site, and the limitation of the space to support the educational and career needs of CRNAs necessitates the need to establish a new "partially-exempt" off-campus instructional site. This new site will be located Poplar Run Office Building, 5285 Shawnee Road, Alexandria, VA.

Demand

There are no other nurse anesthesia programs operating in the northern Virginia region of the state of Virginia. For the three most recent admissions cycles, the DNAP program received three to five times the number of applications for admission (36 in 2020, 43 in 2021, 53 in 2022) relative to the number of available spaces.

Target Implementation Date

August 13, 2023

Impact on Existing Programs/Policies

There is no impact to existing programs and policies. There will be no interruption to activities for nursing students in the DNAP program. Furthermore, the new space will have a positive impact on the learning environment and the reputation of the DNAP program and VCU.

Impact on Faculty

There is no impact on faculty.

Funding

No additional expenses are required to implement the change. All costs for administrative positions, faculty, and operating expenses will be funded by tuition and fees collected at the proposed off-campus site.

Next Steps

April 27, 2023 - University Committee on Academic Affairs and University Policies (UCAAUP) Meeting
May 4, 2023 - University Council Meeting
Electronic Vote - President's Cabinet Meeting
May 12, 2023 - Board of Visitors' Meeting
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ATTACHMENT B

VCU Office of the Provost

Board of Visitors
Academic and Health Affairs Committee
Faculty Panel
May 11, 2023

John Fife, Ph.D., assistant professor
Department of Foundations of Education
School of Education

Dr. Fife is an Associate Research Professor of STEM Education in the department of Foundations of Education at Virginia Commonwealth University. His current research focuses on building resilience and STEM identity in underserved youth by constructing and implementing culturally relevant interventions. He currently serves as the Principal Investigator on two NSF grants. The Building Capacity in STEM Education Research award (BSCER), utilizes an innovative psychological theory (PVEST) to explore STEM interest, attitudes and resilience among underserved middle school students. The MCA award is designed to create and implement a comprehensive and robust STEM learning ecosystem in Central Virginia.

Priscilla Hwang, Ph.D., assistant professor
Department of Biomedical Engineering
College of Engineering

Priscilla Hwang, PhD is an Assistant Professor in Biomedical Engineering and associate member of Massey Cancer Center. She received her BS degree in biomedical and electrical engineering from Duke University. After her bachelor's degree, Priscilla was a Whitaker International Research Fellow in Holland where she developed ex vivo models of musculoskeletal pathologies, before returning to Duke to pursue her MS and PhD in biomedical engineering as a NSF Research Fellow. Prior to joining VCU, Priscilla was an American Cancer Society Postdoctoral Fellow at Washington University in St Louis where she developed 3D microphysiological systems to study cancer invasion. Currently, her overarching research interests lie in developing microphysiological models to study disease progression, including cancer, with funding from NSF and NIH.

Carlos Castano Londono, Ph.D., assistant professor
Department of Mechanical and Nuclear Engineering
College of Engineering

Carlos Castano is a Tenure-Track Assistant Professor in the Department of Mechanical and Nuclear Engineering VCU. Dr. Castano received a B.S. in Engineering Physics and an M.S. in Engineering from the National University of Colombia. He worked for four years in industry before obtaining his Ph.D. in Materials Science and Engineering at Missouri S&T. He joined VCU in 2014, holding appointments as Postdoctoral Fellow, Research Associate at the NCC, and Assistant Research Professor before the tenure-track position. Dr. Castano has received numerous recognitions, including the NSF Career Award, honorary ALPHA SIGMA MU member, Roberto Rocca Fellow, and inducted into the National Academy of Inventors chapter at VCU.

Fantasy Lozada, Ph.D., associate professor
Department of Psychology
College of Humanities and Sciences

Dr. Fantasy T. Lozada is an Associate Professor of Psychology. She completed her Ph.D. in Developmental Psychology at NC State University and an NSF Postdoctoral Fellowship at the University of Michigan. Dr. Lozada specializes in innovative methods for studying cultural processes in the emotional lives of youth and families. Her recent projects include: (1) understanding emotional code-switching among African American middle schoolers in Richmond and (2) developing a positive youth development high school leadership program for Richmond high schoolers. Dr. Lozada is a current recipient of an NSF CAREER Award and a grant recipient of over $7 million in federal funding.

Jennifer Puetzer, Ph.D., assistant professor
Department of Biomedical Engineering
College of Engineering

Dr. Jennifer Puetzer is an Assistant Professor in Biomedical Engineering. Her lab focuses on engineering meniscus, tendon, and ligament replacements, with interest in hierarchical collagen-fiber formation, bone-integration, and effects of aging. Her degrees are in Biomedical Engineering, with a B.S. from NC State, and Ph.D. from Cornell University. In 2014, she received a Whitaker International Fellowship to perform her postdoc at Imperial College London. Her contributions to tissue engineering have been recognized through selection for the *Tissue Engineering* Young Investigator Council, Wake Forest Institute of Regenerative Medicine Young Investigator Award, UK Regenerative Medicine Special Merit Award, and NSF CAREER award.

Joshua Sieber, Ph.D., assistant professor
Department of Chemistry
College of Humanities and Sciences

Joshua Sieber was introduced to chemical research initially as an undergraduate at Penn State University in the laboratories of Professor Ayusuman Sen. He received his B.S. degree in Chemistry from Penn State University with Honors in Chemistry in 2003. He then pursued a PhD degree in Chemistry working in the laboratories of Professor James Morken initially at the University of North Carolina at Chapel Hill followed by Boston College. His graduate work focused on the development and application of catalytic asymmetric diboration and conjugate allylation reactions. After receiving his PhD degree from Boston College, he became an American Cancer Society postdoctoral fellow in the laboratories of Professor Barry Trost at Stanford University where he completed the asymmetric total synthesis of Soraphen A and applied Pd-catalyzed asymmetric allylic alkylation (AAA) reactions to natural product total synthesis. After completing his postdoctoral work, he then accepted a position as a senior scientist in the process chemistry group at Boehringer Ingelheim Pharmaceuticals, Inc. in 2011 where he developed scalable processes towards new pharmaceuticals and served as a member of the Boehringer Ingleheim's Chemical Catalysis Center of Expertise developing scalable catalytic processes and new catalysts for organic synthesis. After being promoted to Principal Scientist in 2016, he accepted his current position as assistant professor of chemistry at Virginia Commonwealth University. His research interests include development of new catalysts and catalytic methods for complex organic molecule synthesis and process chemistry.

Provost's Report

Fotis Sotiropoulos, Ph.D.
Provost and Senior Vice President for Academic Affairs

VCU Board of Visitors

Academic and Health Affairs Committee

May 11, 2023

VCU

Faculty Panel

John Fife, Ph.D., assistant professor
Department of Foundations of Education
School of Education

VCU Office of the Provost

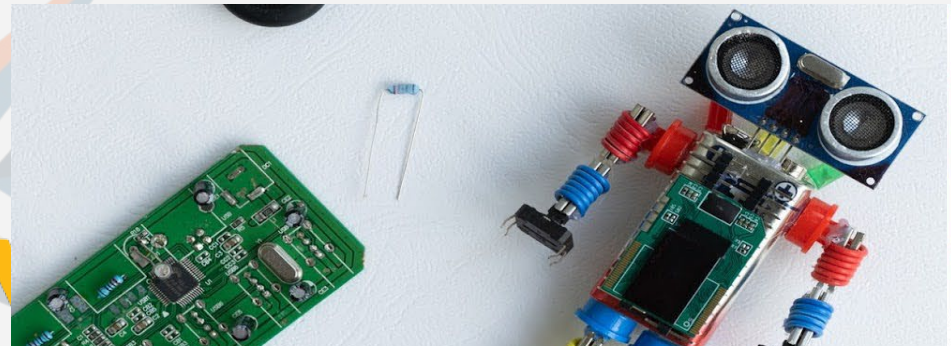
Building a STEM Learning Ecosystem in Central Virginia

John Fife, Ph.D.
Associate Research Professor
of STEM Education

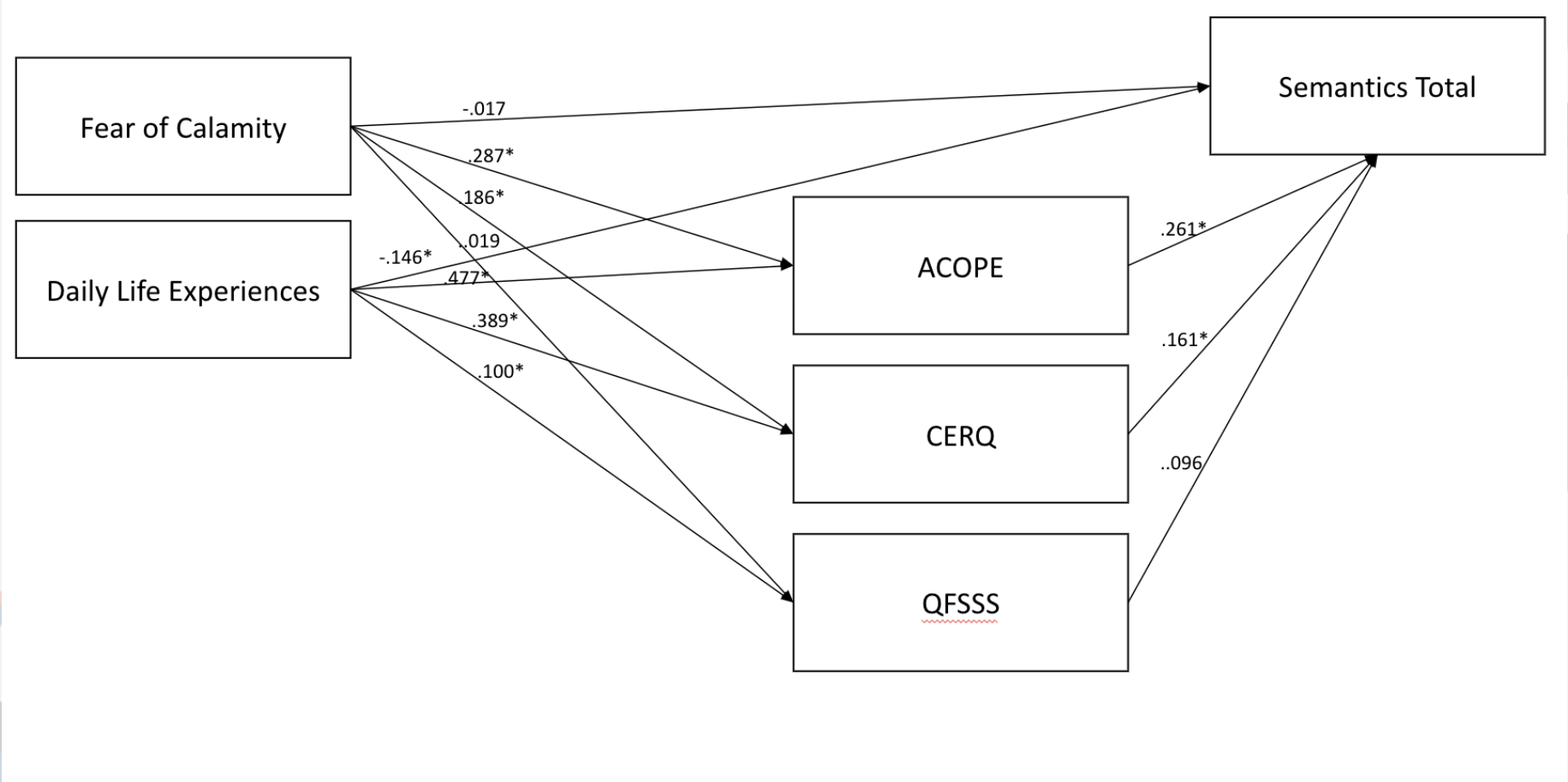
VCU School of Education

Research Interest

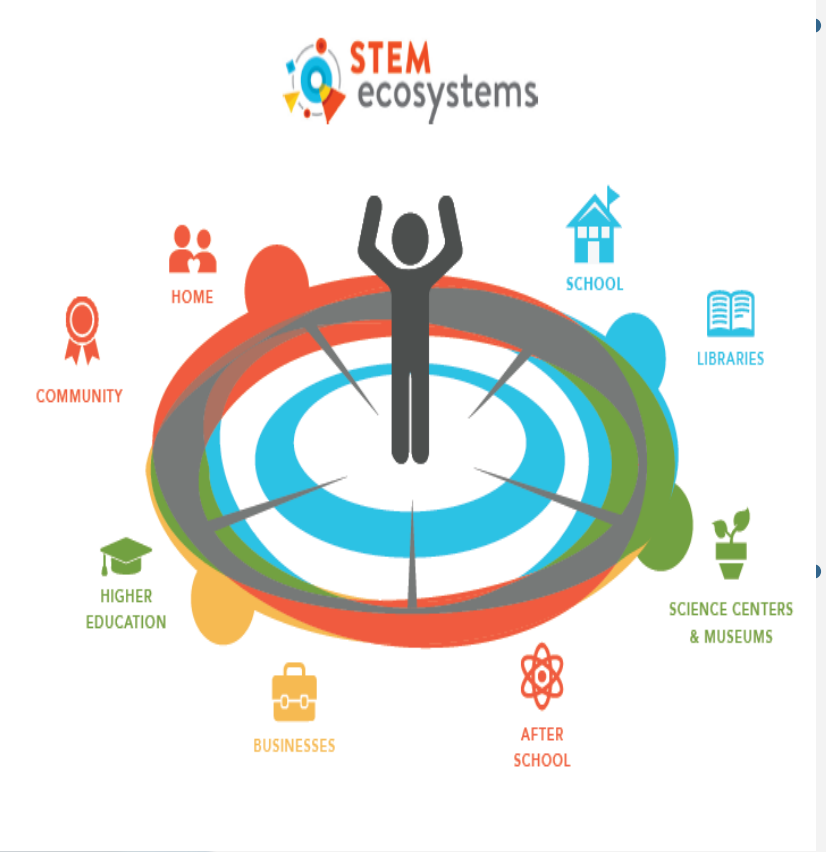
- Using PVEST to predict STEM interest and attitudes.
  - Building STEM identity and resilience among underserved youth (NSF-BCSER)
  - Use of educational Robotics to enhance computational thinking in students
- Construction and evaluation of STEM ecosystems



Results

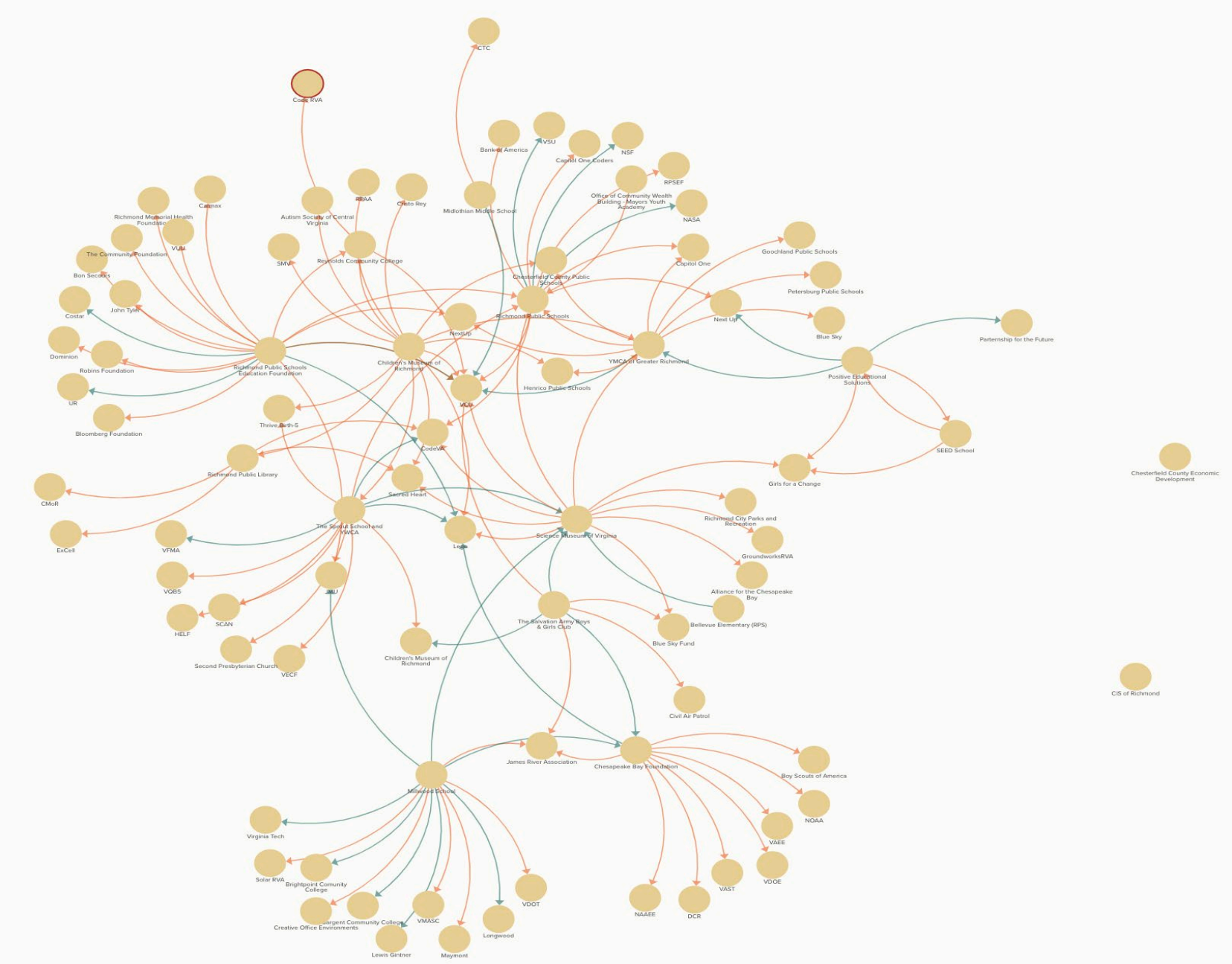

Fear of Calamity
Daily Life Experiences
Semantics Total
ACOPE
CERQ
QFSSS
-.017
.287*
.186*
.019
-.146*
.477*
.389*
.100*
.261*
.161*
..096

What are STEM Learning Ecosystems?



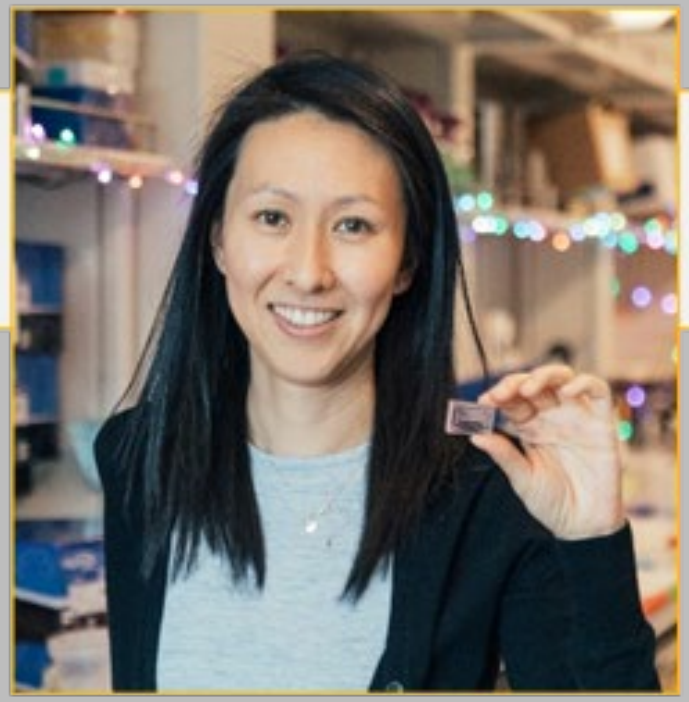
- *"...An intentional, collaborative, **systems-thinking** approach to help communities optimize STEM as a tool advancing students, educators, educational systems, and business and industry towards a **dynamic**, responsive, nimble and **thriving workforce and local economy**."*

- NSF Award # 2219175- MCA - Title: Using STEM Interest Profiling to Build a STEM Learning Ecosystem in the Central Virginia Area


CTC
Code RVA
Bank of America
VSU
Capitol One Coders
NSF
RPSEF
Office of Community Wealth Building - Mayors Youth Academy
NASA
Midlothian Middle School
Cristo Rey
RRAA
Autism Society of Central Virginia
Carmax
Richmond Memorial Health Foundation
VUU
The Community Foundation
Bon Secours
SMV
Reynolds Community College
Chesterfield County Public Schools
Capitol One
Goochland Public Schools
Petersburg Public Schools
Next Up
Blue Sky
Parternship for the Future
Costar
John Tyler
Dominion
Robins Foundation
UR
Bloomberg Foundation
Richmond Public Schools Education Foundation
Children's Museum of Richmond
Richmond Public Schools
Henrico Public Schools
YMCA of Greater Richmond
Positive Educational Solutions
VCU
Thrive Birth 5
CodeVA
SEED School
Richmond Public Library
Girls for a Change
Chesterfield County Economic Development
CMoR
Sacred Heart
Richmond City Parks and Recreation
ExCell
VFMA
The Scout School and NWCA
Lego
Science Museum of Virginia
GroundworksRVA
VOBS
JMU
Alliance for the Chesapeake Bay
HELF
SCAN
The Salvation Army Boys & Girls Club
Bellevue Elementary (RPS)
Blue Sky Fund
Second Presbyterian Church
VECF
Children's Museum of Richmond
CIS of Richmond
Civil Air Patrol
James River Association
Chesapeake Bay Foundation
Boy Scouts of America
Maymont School
NOAA
Virginia Tech
VAEE
Solar RVA
Brightpoint Comunity College
VDOE
VAST
VDOT
NAAEE
DCR
Creative Office Environments
Largent Community College
VMASC
Longwood
Lewis Gintner
Maymont

Faculty Panel

Priscilla Hwang, Ph.D., assistant professor
Department of Biomedical Engineering
College of Engineering



VCU Office of the Provost

Microphysiological systems to study cell migration

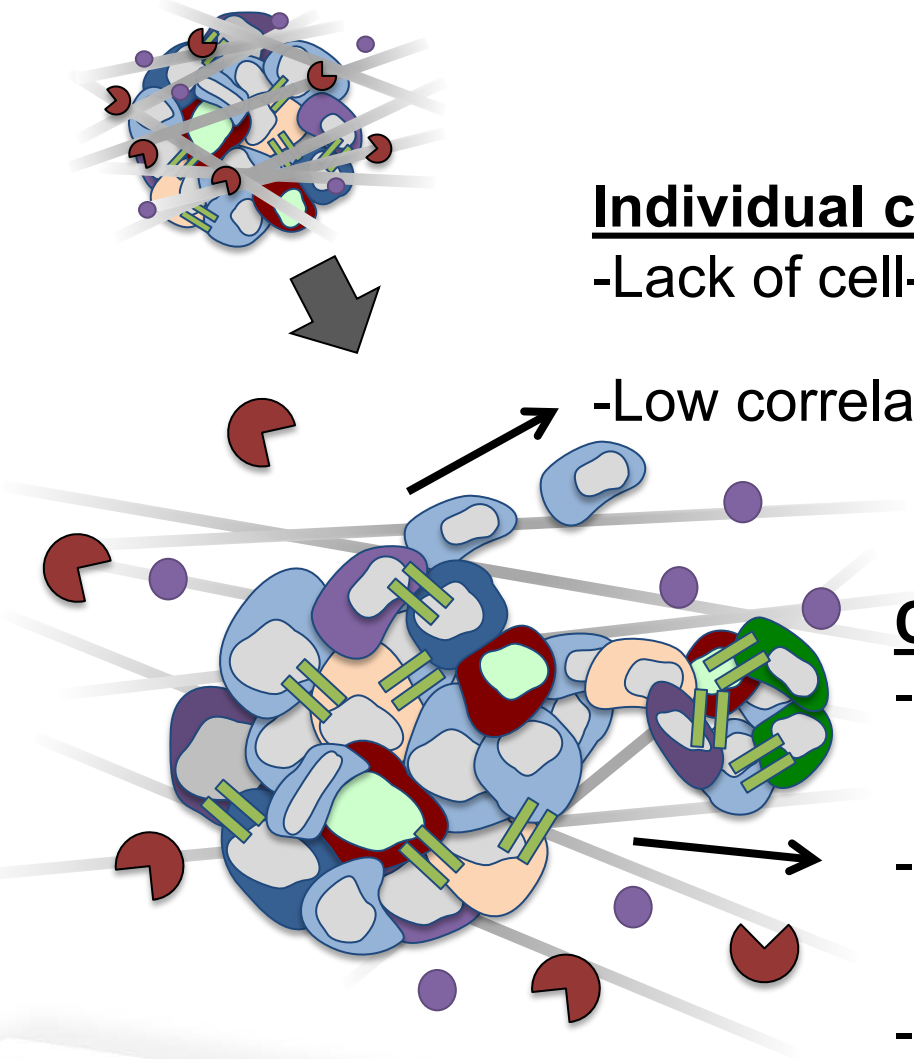
Priscilla Hwang, PhD
Assistant Professor
Biomedical Engineering
Massey Cancer Center

5/11/23

VCU College of Engineering

HWANG LAB

Modes of Migration



Individual cell migration

-Lack of cell-cell interactions

-Low correlation between neighboring cells

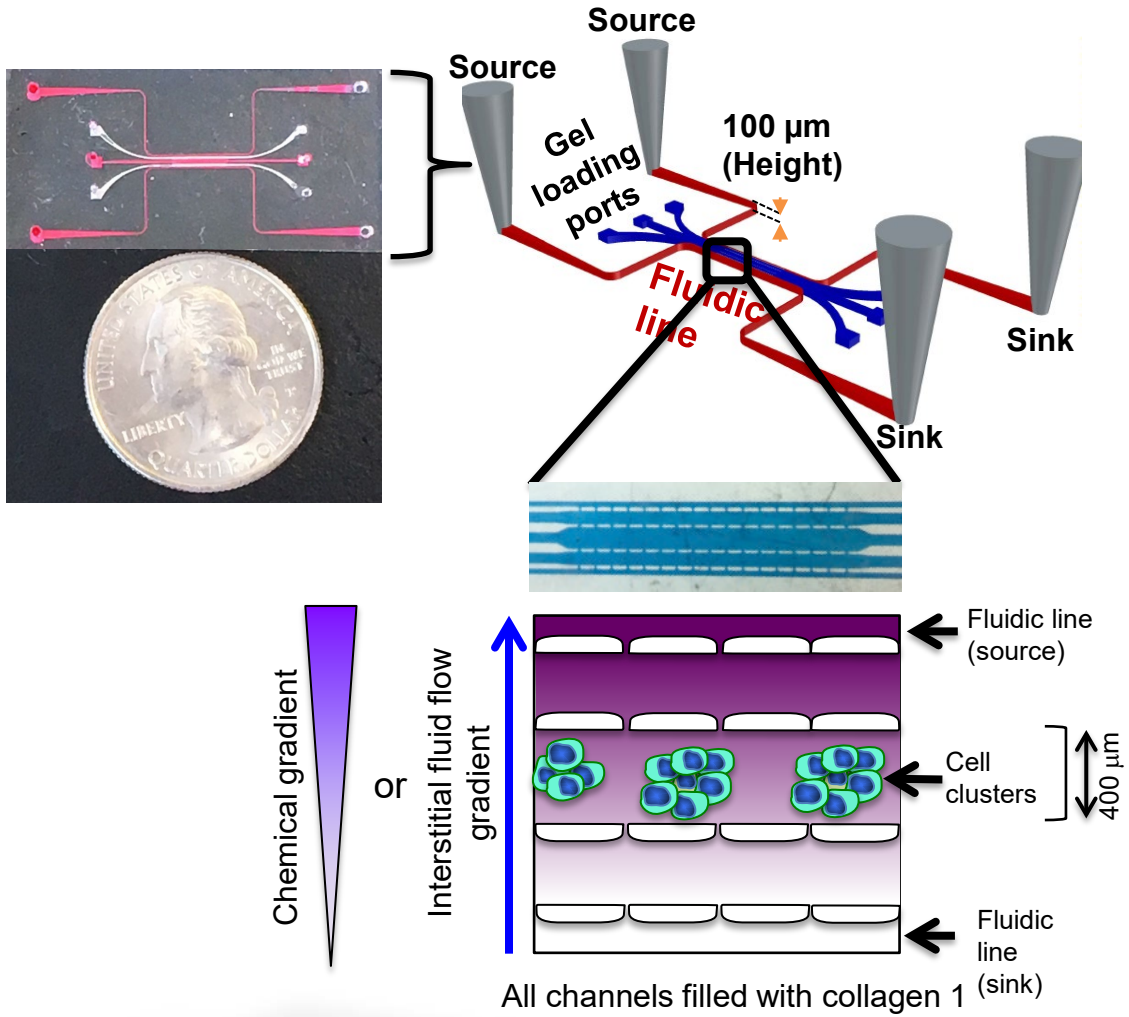
Collective cell migration

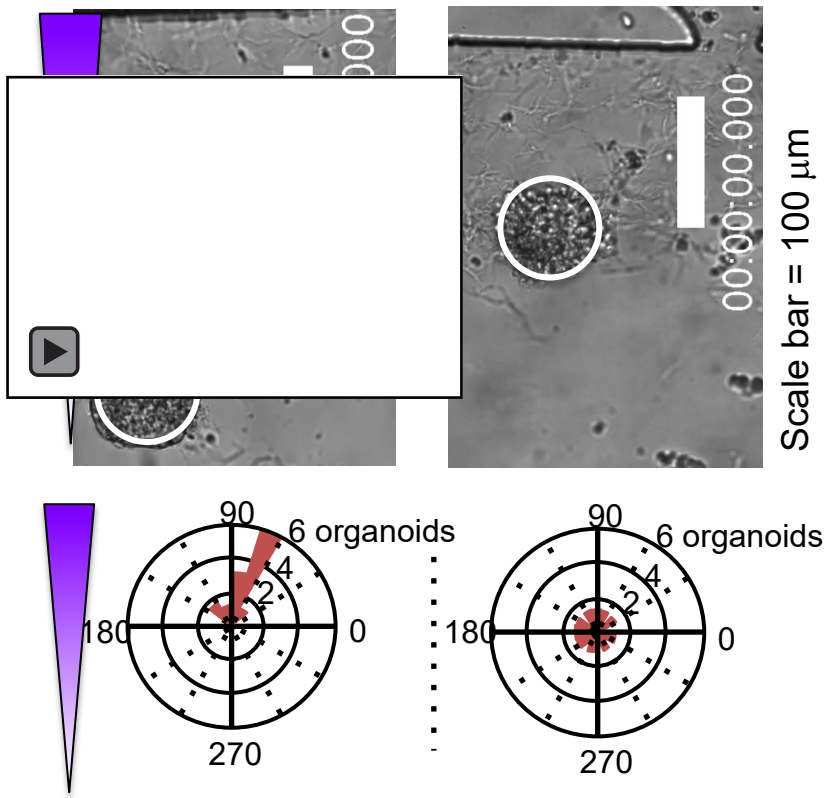
-Groups of cells retain cell-cell adhesions

-Heterogeneous cell populations

-Majority of metastasis occurs via collective migration

Microphysiological systems to mimic dynamic extracellular matrix cues *in vitro*





Hwang et al. *Developmental Cell* 2023
Hwang et al. *Cancer Research* 2019
Shirure et al. *Angiogenesis 2017*

HWANG LAB

Corinne Leonard, BS
Jessanne Lichtenberg, MS
Santiago Lopez
Amanda Pearson
Logan Petry, BS
Trey Redman
Jesse Rolston
Sydnie Tran, BS

https://pyhwanglab.wixsite.com/website

@priscilla_hwang

Collaborators

VCU
Chris Lemmon
Rebecca Heise
Paula Bos
Paul Fisher
Swadesh Das

Nanomaterials Core Characterization (NCC)

Microelectronics Center (VMC)

Gregory Longmore (Washington University)

Amit Pathak (Washington University)

Daniel Conway (OSU)

Brenton Hoffman (Duke)

Steven George (UC Davis)

NIH NATIONAL CANCER INSTITUTE

American Cancer Society®

NSF

VCU College of Engineering

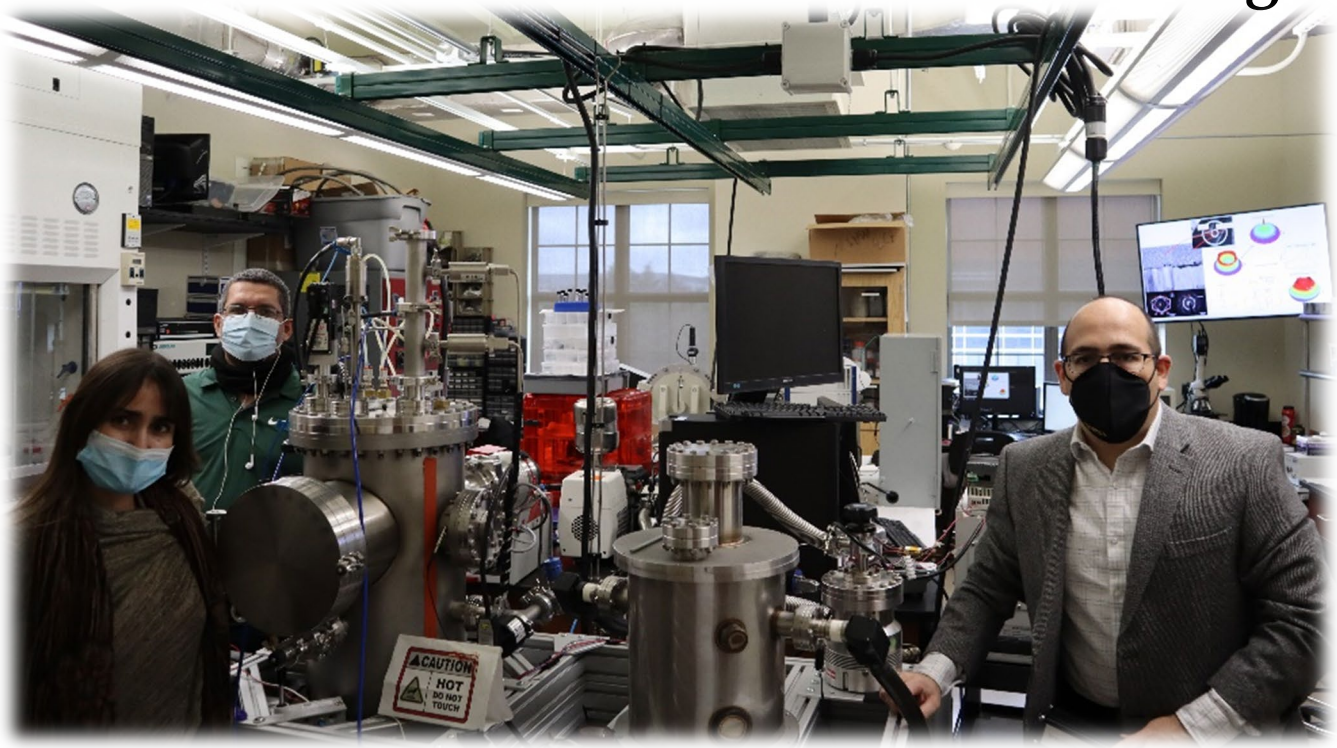
Faculty Panel

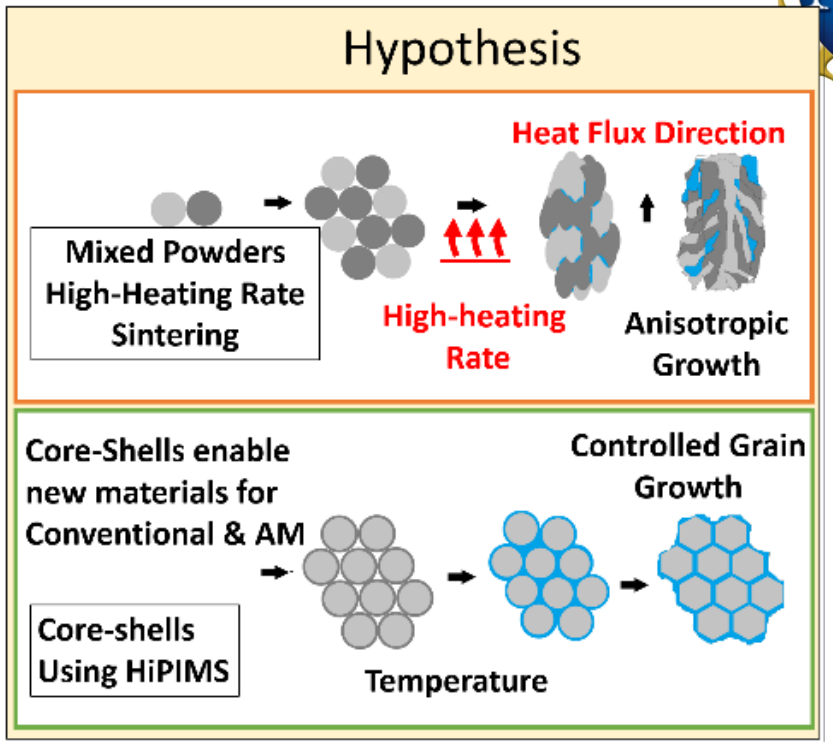
Carlos Castano Londono, Ph.D., assistant professor
Department of Mechanical and Nuclear Engineering
College of Engineering

SurfACE Lab

Our research group focuses on tailoring the surface properties of materials by physical and chemical methods for multiple engineering applications.

CAREER: Advanced Surface Coating of Metallic Powders by Vibration-Enhanced High-Power Impulse Magnetron Sputtering for Sintering-Based Manufacturing





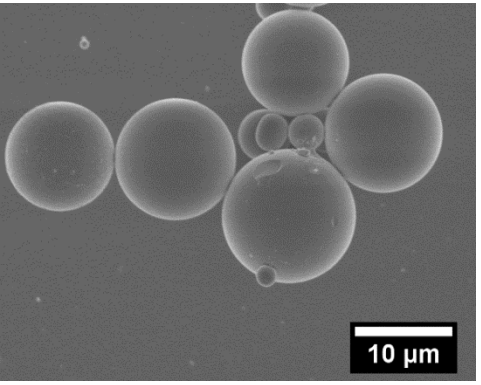
Carlos E. Castano, Ph.D.

Assistant Professor
Mechanical and Nuclear Engineering

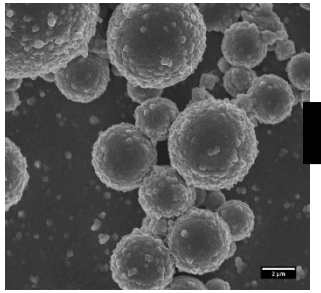
VCU College of Engineering

May 11th , 2023

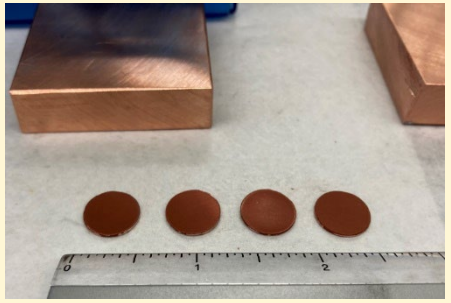
Cores: Metals



Inside our System
Deposit Shells @ Cores



Core/Shells – Pressed Pellets

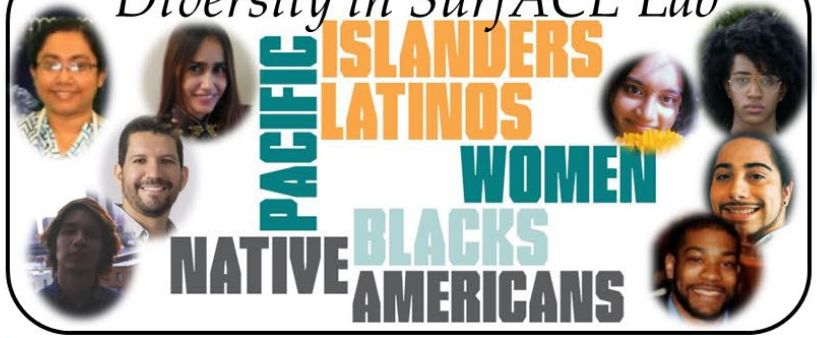


Metal Powder Market ~ Currently $5 Billion
Forecast 2028 ~ $ 10 Billion

Metal Additive Manufacturing
~ US Market $135 Million
Forecast by 2030 close to $ 1 Billion

Broader Impacts

Diversity in SurfACE Lab



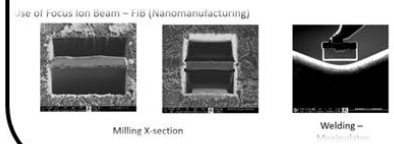
Synergistic Collaborations

PI and JMU Faculty Dr. Costel Constantine have a strong collaboration and this Career proposes undergraduate impact through summer programs.

Innovation days and Early Engineers are two programs at VCU where the PI is proposing advanced manufacturing activities to engage students at K-12 and

Virtual Tutorials

Nanomanipulations, properties, manufacturing



Faculty Panel

Fantasy Lozada, Ph.D., associate professor
Department of Psychology
College of Humanities and Sciences

VCU Office of the Provost

Topic: Understanding Emotion Regulation among African American middle schoolers in Richmond

FANTASY T. LOZADA, PH.D.

We have 400 emotion experiences a day!

- attention, decisions, and social relationships

Our emotion skills in kindergarten are related to:

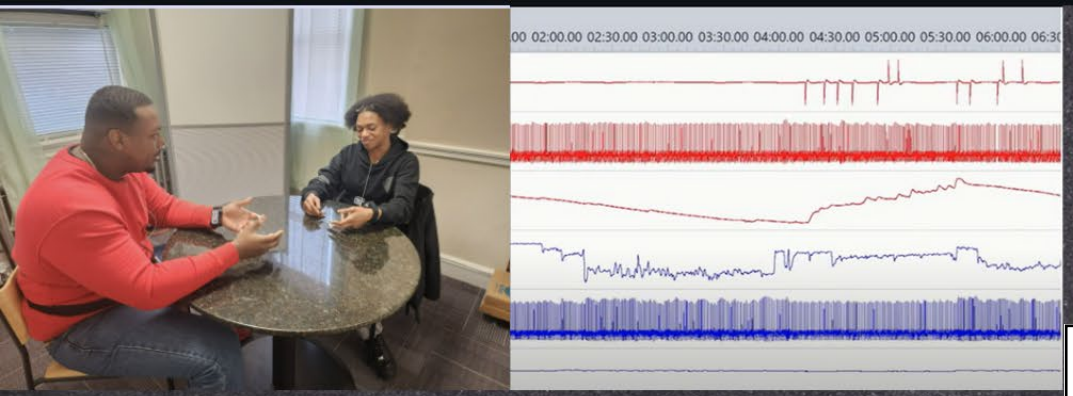
- education, employment, criminal activity, substance abuse, & mental health

Emotion science informs mental health therapies and interventions:

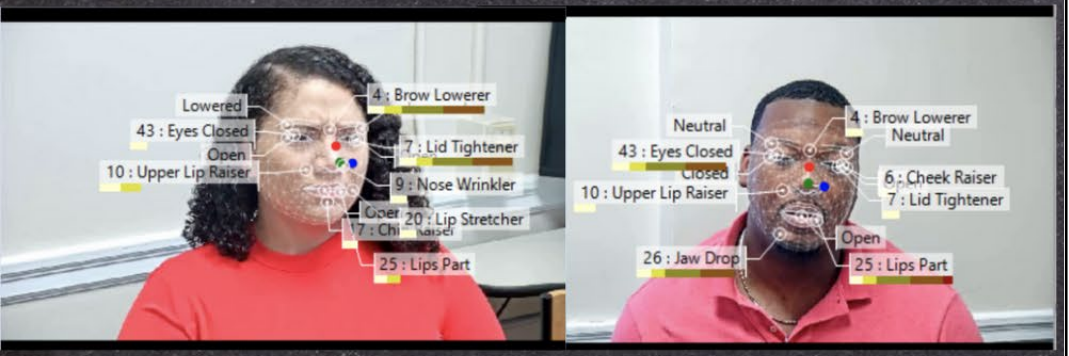
- but the science lacks the experiences of youth and families of color

"Our emotions aren't for everyone. Everyone's not ready for it."

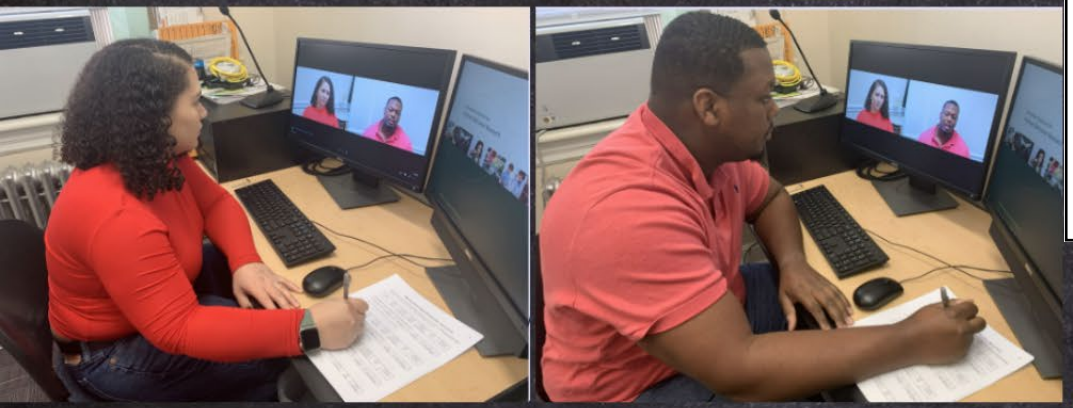
- Educators are less accurate recognizing emotions expressed by African American children's faces; they see anger when it's sad, fear, or happy.
- African American parents worry their children aren't safe to express their emotions; ruined life chances or an early death.
- Emotion suppression associated with stressed cardiac activity, heart disease, cancer, and early death.



Physiological Measurement



Facial Action Unit Analysis



Emotion Report & Recognition

- Families in Richmond
- Student in the 6th grade & 1 parent
- 1-year and 2-year follow up

More effective emotion/mental health programs and interventions

"Our emotions are for a healthier us."

Faculty Panel

Jennifer Puetzer, Ph.D., assistant professor
Department of Biomedical Engineering
College of Engineering

VCU Office of the Provost

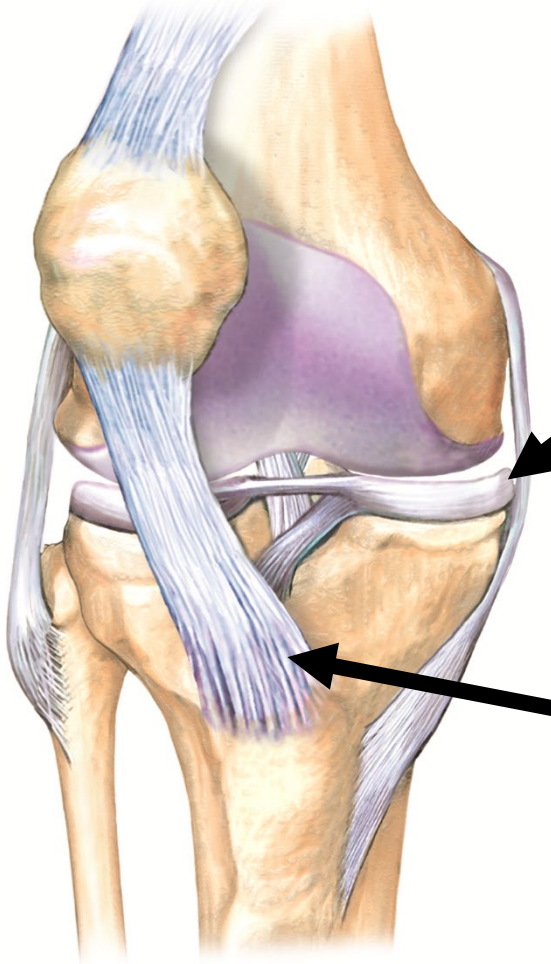
VCU
Biomedical Engineering
College of Engineering

Engineering Functional Musculoskeletal Repairs & Replacements

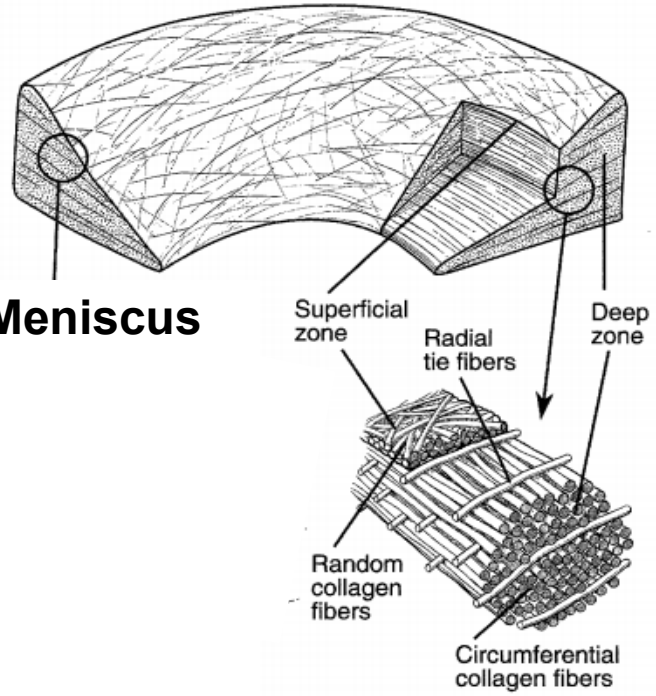
Jennifer Puetzer
Assistant Professor
Departments of Biomedical Engineering and Orthopaedic Surgery
Virginia Commonwealth University, Richmond, VA

@PuetzerLab

Orthopaedic Tissues are Strong due to Collagen

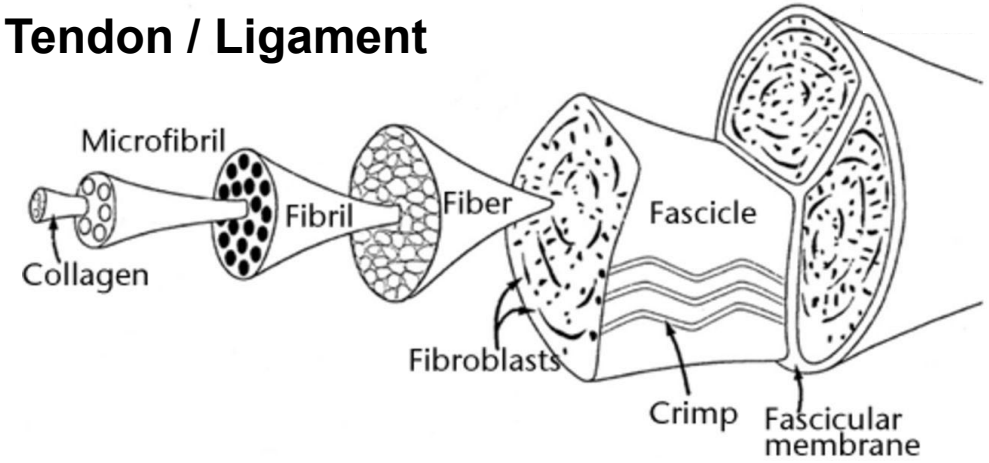


Meniscus



[Kawamura 2003]

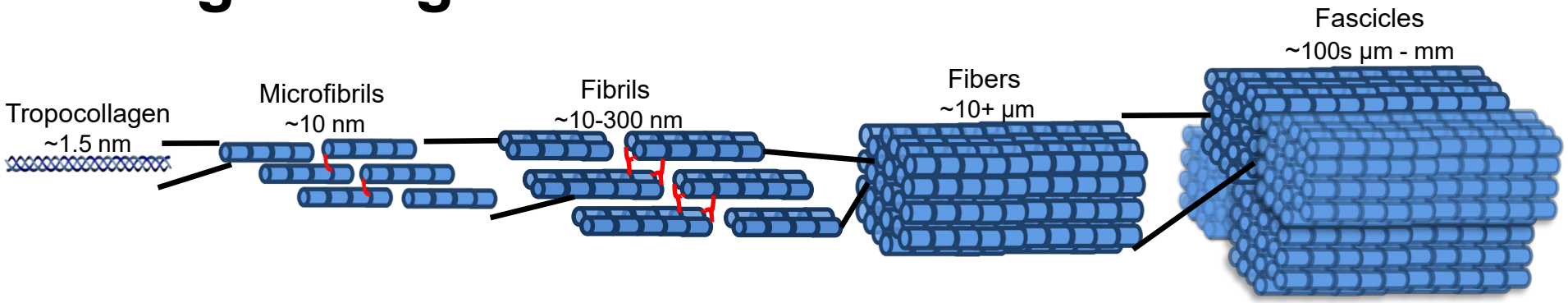
Tendon / Ligament



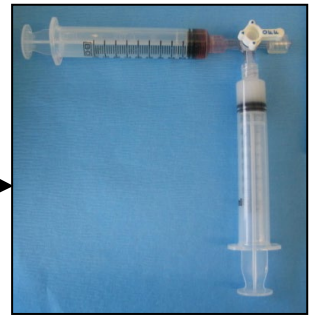
[Hast 2014]

Engineered and repair tissues fail to create organized collagen essential to clinical success

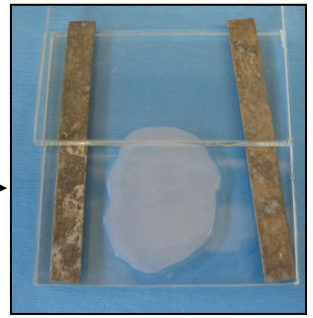
Driving Collagen Hierarchical Structure



Collagen mixed with NaOH and PBS

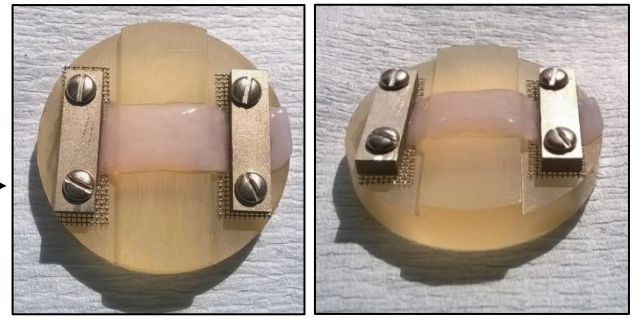


Collagen-Cell Mix



Sheet Gel

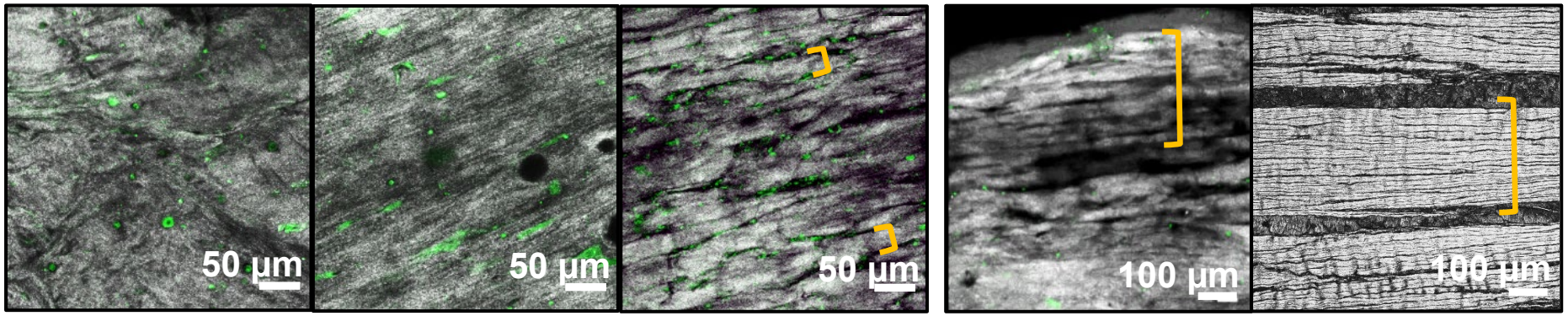
Incubated at 37˚C for 60 mins.



Clamping Device

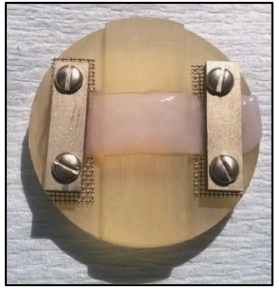
Engineered Tissue

0 week | **2 week** | **4 week** | **6 week** | **Native Meniscus**

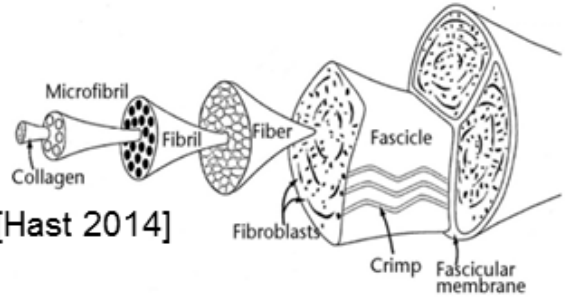


Collagen, Cells | Fibril | Fiber | Fascicle | Fascicle

Puetzer Lab Interests

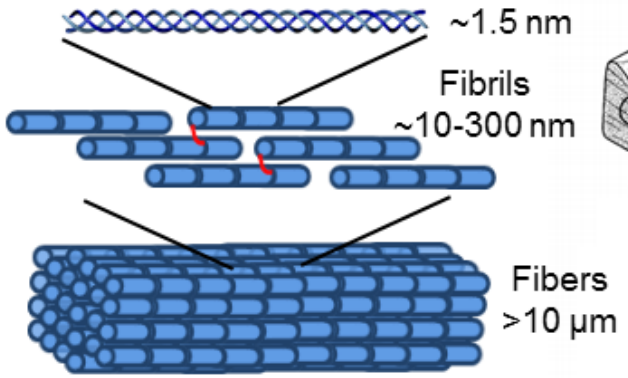


Tendon/Ligament

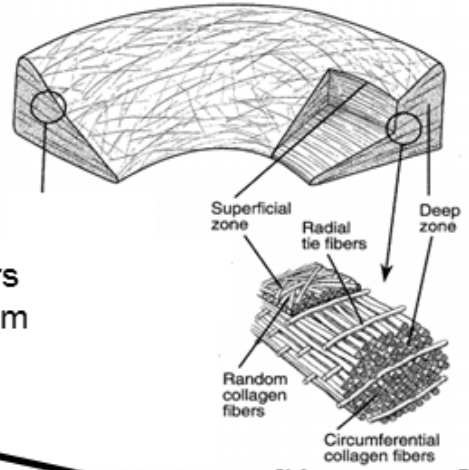


[Hast 2014]

Hierarchical Collagen

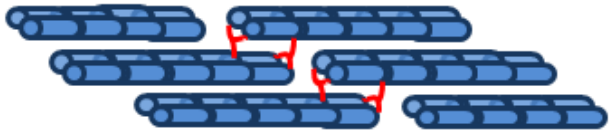


Meniscus

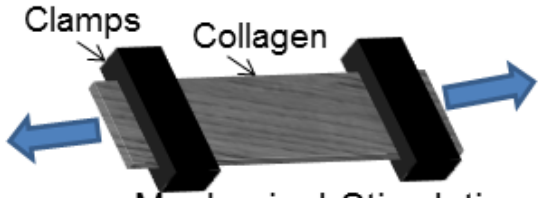


[Kawamura 2003]

Fiber Development

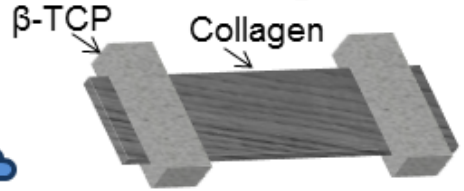


Enzymatic Crosslinking

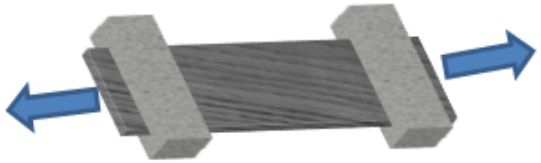


Mechanical Stimulation

Interface Engineering

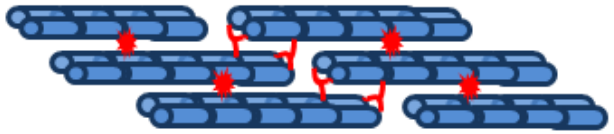


Hard to Soft Tissue Transition



Mechanical Stimulation

Effect of Aging and Injury



Non-Enzymatic Crosslinking

Injury Response

Acknowledgements

Virginia Commonwealth University

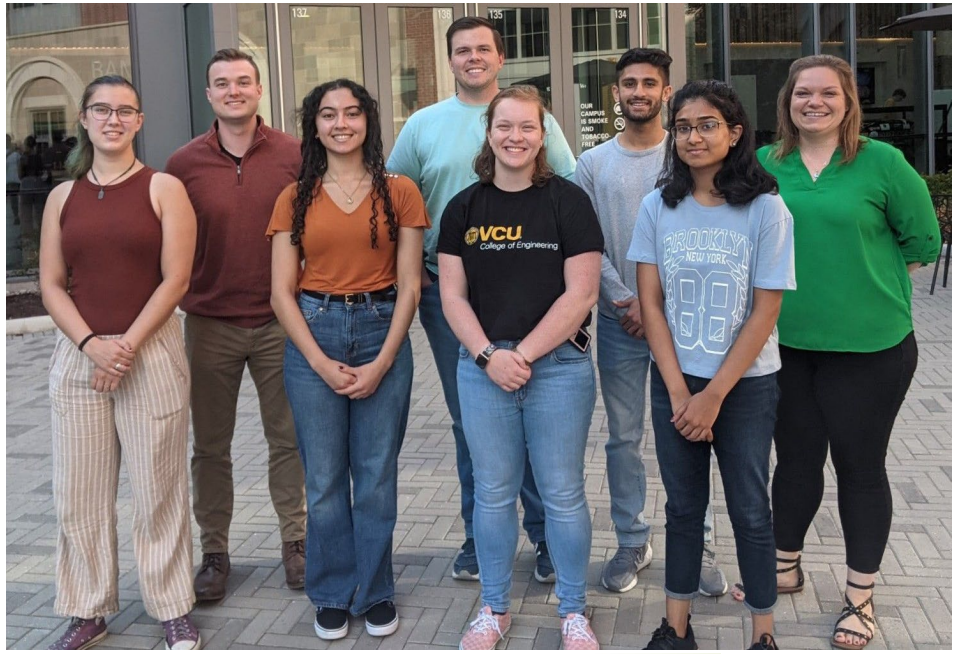
Graduate Students

Ethan Brown
Austin Gouldin
Leia Troop
Kelly Otts
Tristan Strayer

Undergraduate Students

Madison Bates
Panth Doshi
Raza Haider
Reem Hammad
Saagar Sheth
Alex Samson
Rudav Katiravan
Kyle Warner
Anisha Ponugupati

@PuetzerLab



Collaborators

René Olivares-Navarrete (VCU)
Kelly Lambert, Ph.D (U of R)
Molly Kent, Ph.D (U of R)
Nirav Patel (VCU Health)
Gregory Golladay (VCU Health)
Matthew Halquist (VCU Pharmacy)

Imperial College London

Molly Stevens
Ignacio Sallent
Tianchi Ma
Amy Gelmi

Orthoregeneration Network

IREK12

NIH
R01-AR082365

NSF
NSF CAREER #2045995

AR3T Alliance for Regenerative Rehabilitation Research and Training

Whitaker International Program

BBSRC bioscience for the future

MRC Medical Research Council

EPSRC Engineering and Physical Sciences Research Council

UK Regenerative Medicine Platform

Faculty Panel

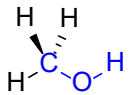
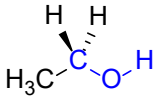
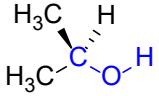
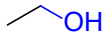
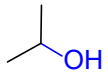
Joshua Sieber, Ph.D., assistant professor
Department of Chemistry
College of Humanities and Sciences

VCU Office of the Provost

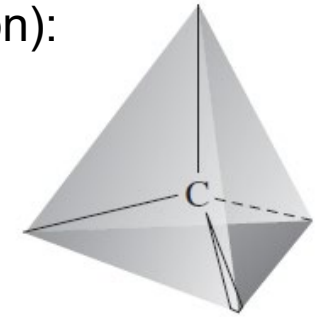
Sieber Research Group: Organic Chemistry Overview

Chemical structure dictates function!

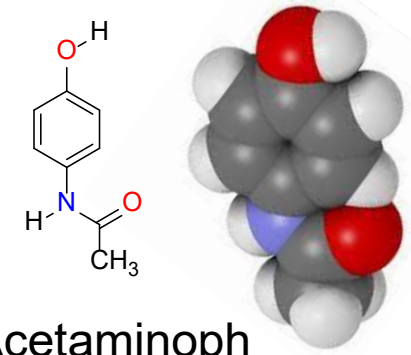
Chemical depictions (alcohols):

molecular formula:	CH_4O	C_2H_6O	C_3H_8O
full structure:			
line-bond form:			
	Methanol Indy-car fuel (toxic)	**Ethanol** active ingredient in alcoholic beverages (toxic in excess)	**Isopropanol** rubbing alcohol (toxic)

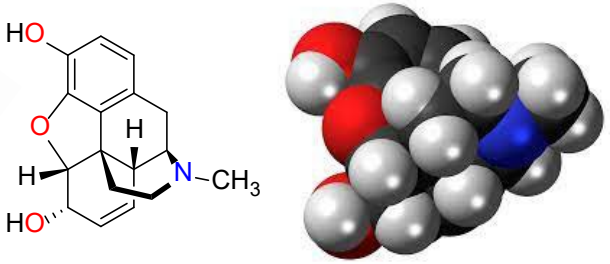
carbon 3-D structure (tetrahedron):



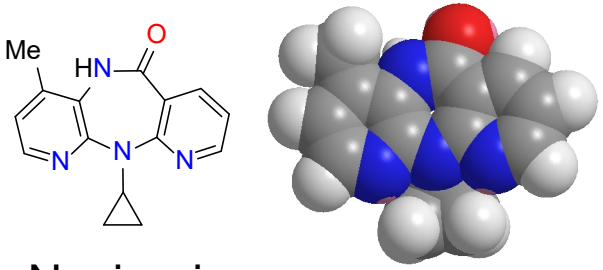
Pharmaceuticals:



Acetaminophen
(Tylenol)



Morphine
(pain reliever)



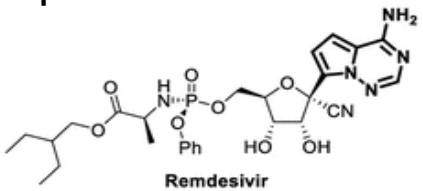
Nevirapine
(HIV)

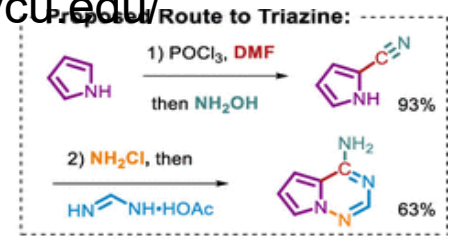
Sieber Research Group Overview

medicines for all institute

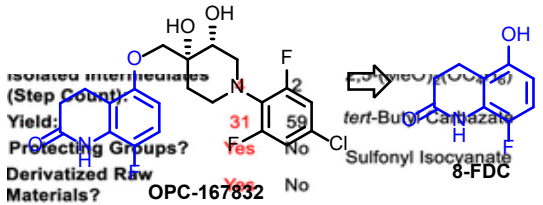
Mission: improve access to high-quality medications across the globe by driving down production costs.

https://medicines4all.vcu.edu/





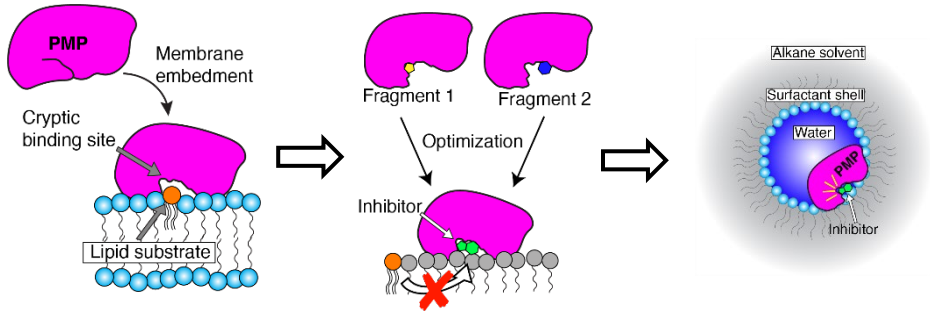
Org. Lett. **2020**, *22*, 7656.



ACS Omega **2022**, *7*, 7223

novel anti-tuberculosis compound
Otsuka Pharmaceutical Inc.

New inhibitors of peripheral membrane proteins (PMP)



with Brian Fuglestad (Chemistry)

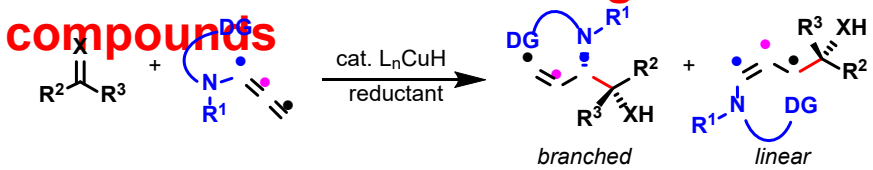
Synthetic Methods

Catalyst Development

Green Syntheses of APIs and Materials

New Methods & Processes

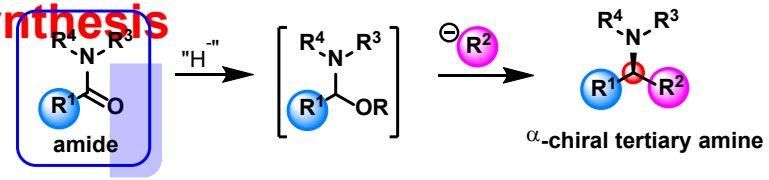
1. Asymmetric umpolung techniques to access heteroatom-rich organic compounds



- ✓ ***Catalytic***
- ✓ ***Asymmetric***
- ✓ ***Regiodivergent***

aminoalcohols & diamines

2. Asymmetric amine synthesis



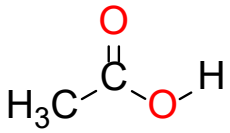
Asymmetric amide reductive functionalization

https://sieberresearchgrp.com

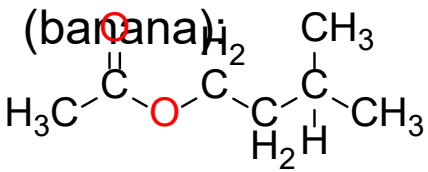
Sieber Group Richmond Public Schools Outreach

Chemical structure for function related to our sense of smell

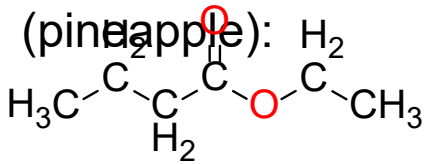
Acetic acid (vinegar)

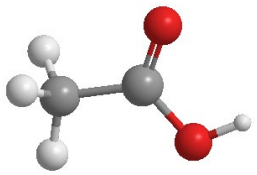


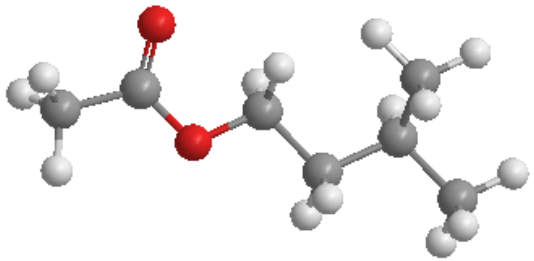
Isoamyl acetate (banana):

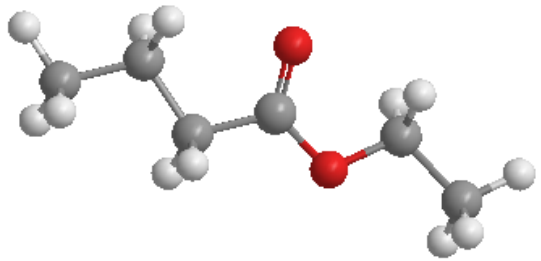


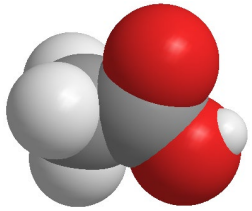
Ethyl butyrate (pineapple):

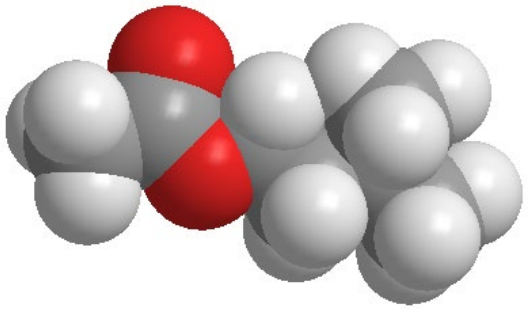


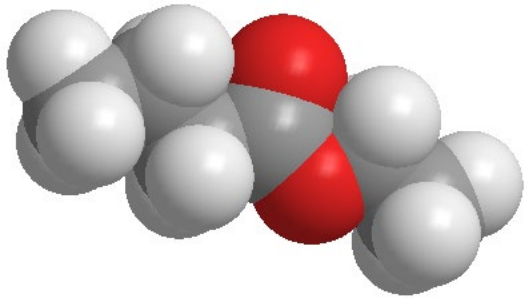












ATTACHMENT C

VCU Health

Health Affairs Update

VCU Board of Visitors
Academic and Health Affairs Committee (AHAC)
May 11, 2023

College of Health Professions

- Enrollment up 28% over 2022; leads the University in enrollment growth
- New BS program: 160 majors
- Research funding up 96% over FY2018
- Dept of Gerontology received American Society in Aging award for anti-agesim work
- Nursing - Anesthesia #1 graduate program from U.S. News rankings
- 100% employment in the field for December 2022 Doctor of Nurse Anesthesia Practice
- Created digital badges for CRNAs - digital verification of skills/training

VCU Health™

School of Dentistry

- Advance inclusive excellence in the School - Increasing faculty diversity enrollment and training
- DDS student recruitment strong- cannot accommodate demand in current building
- Residency enrollment up in Orthodontics, Periodontics, Endodontics, and Oral Maxillofacial Surgery - successful match
- Outstanding performance on the integrated National Dental Board Examination
- Continue addressing access to care especially for underserved populations/regions
- Recruited Chairperson of Pediatric Dentistry: Dr Jeffrey Johnson DDS, MS, MPH
- Expanding innovative research, some in partnership with Massey

VCU Health

School of Medicine

- New Dean: Dr. Art Saavedra
- Dr. Vanessa Sheppard honored as American Cancer Society's researcher of the year
- Medical Scientist Training Program grant from the NIH awarded to M.D.-Ph.D. program - Triple crown of institutional NIH awards
- Blue Ridge Rankings - Total NIH funding up more than 10%, topping $71M, thanks to a net increase of 10 awards
- Preparing for accreditation site visit February 2024
- Teaching & Research Faculty activity points project: Annual Activity Score and new compensation structure will assist with department realignment

VCU Health™

School of Nursing

- To address workforce shortages - Increased students admitted to prelicensure programs
  - 15% increase in admissions to the traditional prelicensure program- 30 in January 2023
  - VCU Health, the Richmond VA Medical Center, others have committed to ensuring clinical placements additional students
- FY23 is a record year in external funding
  - Raised $15.1M in FY23, representing 745% over the goal, thanks in large part to a $13M student scholarship gift from Mr. and Mrs. Conway
- Continued growth in sponsored research with $6.28M projected for FY23; $7.0M actual in FY22 - represents 235% increase over the previous 5-years

School of Pharmacy

- School of Pharmacy continued accreditation through 2031 - maximal period
- Resubmitted Bachelor of Science in Pharmaceutical Sciences to SCHEV
- Re-initiation of international practice-based experiences for P4 students
- Next Generation Pharmacist: Curricular redesign to meet student expectations and evolving healthcare landscape

ATTACHMENT D

onevcu | RESEARCH

Update on Technology Commercialization and Economic Impact

May 11, 2023

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

10 years of impact through innovation at VCU

1,500+
patents filed

103
startup jobs added

60+
startup companies

194
patents issued

49
new products to market

$80M+
in startup financing

189
licenses / options

8
new products from VCU start-ups

>$30M
in licensing revenue

VCU startups over the past 10 years

~60+ startups | ~$80M in funding | 8 products

ST. TERESA MEDICAL INC.
VIRTUS RESPECTUS

PERFUSION MEDICAL

WINGSPAN
Strengthening Children's Skills For Life

PEG LLC

Teclison

Weave

CTS

Light Switch Bio

data blueprint

InterLeukin
COMBINATORIAL THERAPIES, INC

QUENCH MEDICAL

GLOBALLYME DIAGNOSTICS

CLINICAL MEDIA LLC

Sanyal
BIOTECHNOLOGY

VCU

VCU TechTransfer and Ventures

FY2022 Impact At-a-glance

122
invention disclosures

18
patents issued

10
startups

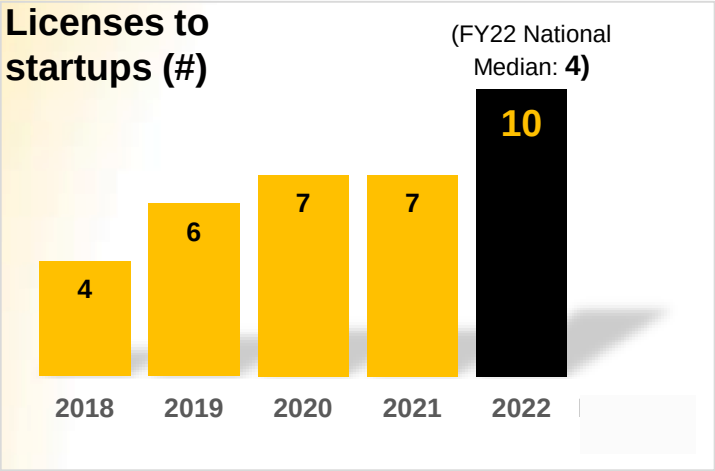
144
patents filed

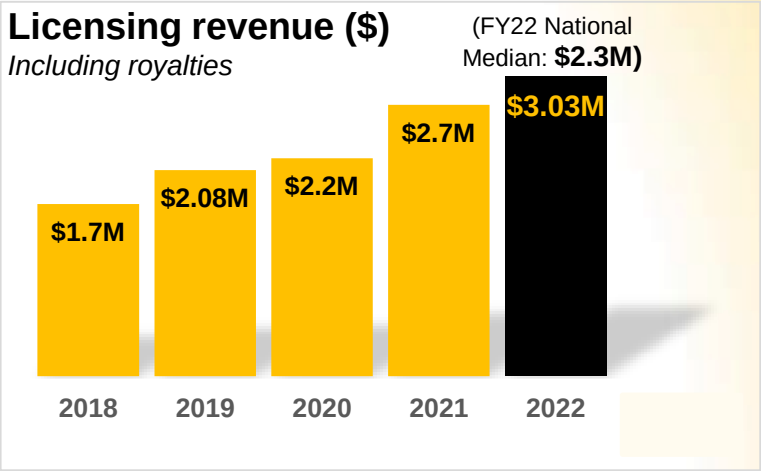
$3.1M
licensing revenue

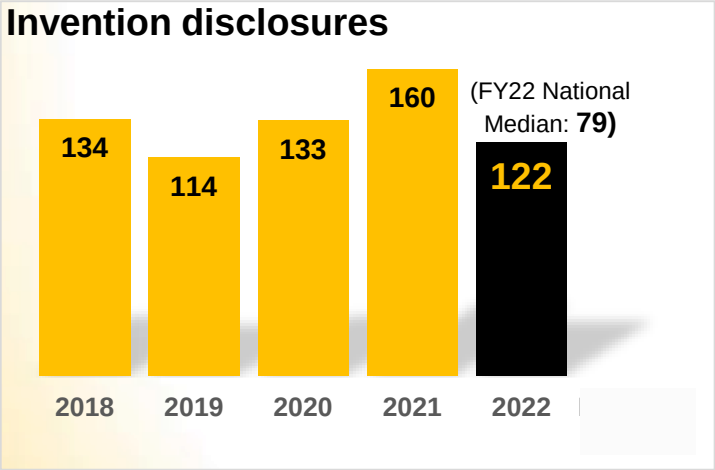
~30
potential startup opportunities*

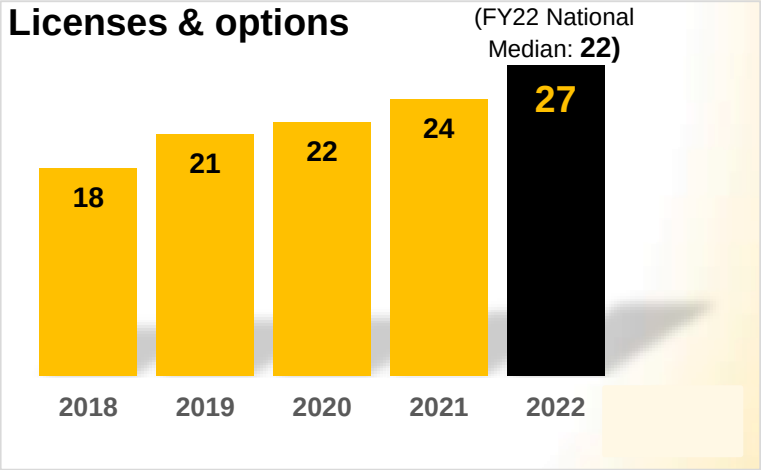
*FY2023 in different phases of development

Growth in TechTransfer and Ventures









FY2021 Technology Commercialization National Peer Ranking

FY2021 Peer Institutions *Based on research expenditures*
University of Rochester
University of South Florida
Iowa State University
Princeton University
Oklahoma State University
University of Miami
Virginia Commonwealth University
Louisiana State University System
Carnegie Mellon University
University of New Mexico/Sci. & Tech. Corp.
Florida State University
Case Western Reserve University
Medical College of Wisconsin Research Foundation
University of Connecticut

VCU Ranking
Relative to national peers

- **#4** in startups
- **#5** in invention disclosures
- **#6** in licensing income
- **#6** in patent applications

*Analysis based on FY2021 AUTM data

VCU faculty are at the forefront of innovation and entrepreneurship

Blood clotting agent
Robert Diegelmann, Ph.D.,
School of Medicine

‘coursFACTS’
Jean Giddens, Ph.D.,
School of Nursing

Fighting cancer reoccurrence
Worth Longest, Ph.D.
College of Engineering

Olfactory implant
Richard Costanzo, Ph.D. (front left),
Daniel Coelho, M.D., (front right)
School of Medicine

Anti-cancer stem cell agents
Umesh Desai, Ph.D.,
School of Pharmacy

‘Nerve Tape’
Jonathan Isaacs, M.D.
School of Medicine

VCU faculty are at the forefront of innovation and entrepreneurship

VR training to improve "blind" surgery
Lauren Siff, M.D.
School of Medicine

VR training tomorrow's surgeons
Milos Manic, Ph.D., (right) in his lab with students Victor Cobilean (left) and Harindra Sandun Mavikumbure.
School of Engineering

How VR could help at-risk youth
Nicholas D. Thomson, Ph.D.
School of Medicine

Impact of VCU Proof of Concept Funding

Year 7

71
Projects funded

$2.5M
Awarded by Fund

~$38M
In follow-on funding

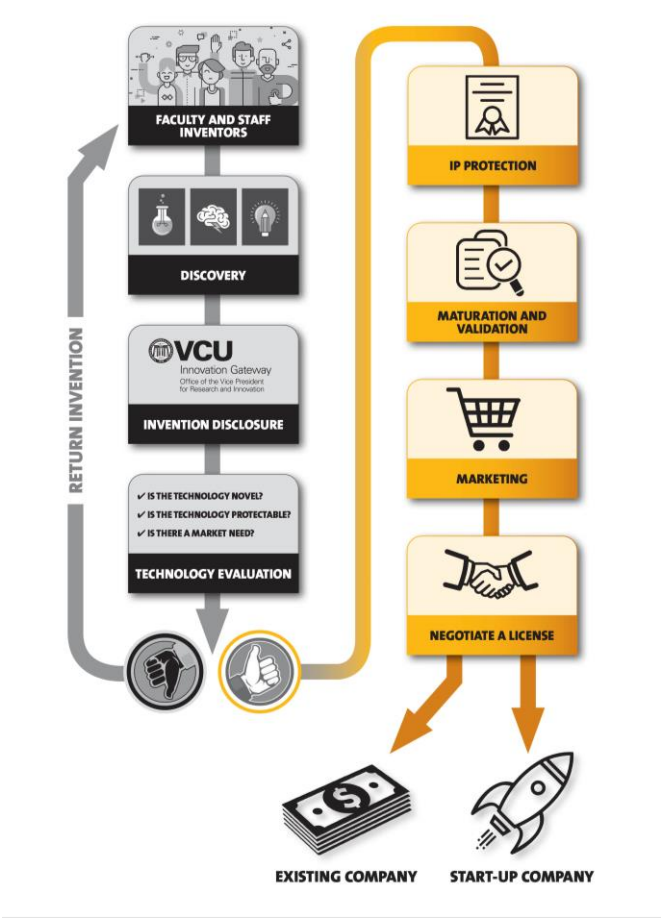
17
Licenses

12
Start-ups

VCU

VCU Services for Inventors

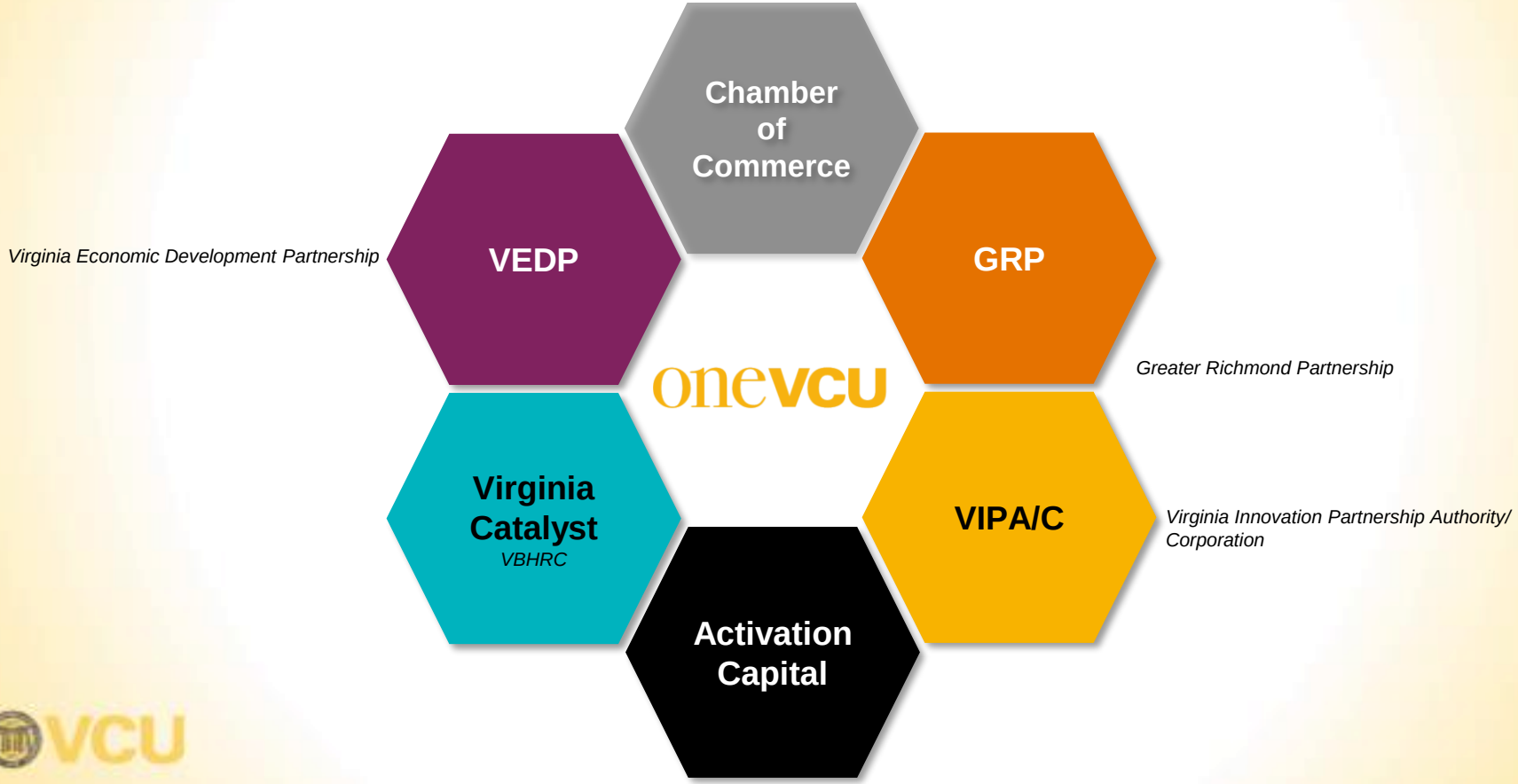
- IP protection
- IP assessment and validation
- Technology maturation / de-risking
- Marketing and licensing
- Industry engagement
- Startup facilitation
- Education



OVPRI’s TechTransfer and Ventures Team

Tech Commercialization & Economic Impact

Achieved in collaboration with various state entities



VCU Commercialization Advisory Board

Comprised of industry experts, early-stage investors and entrepreneurs, the board provides guidance for critical commercialization and investment decisions.

David R Beauregard
Managing Director and Founder
Monument Square Advisors, LLC

Geoffrey D. Beecher
Mid-Atlantic sales manager
Focal Therapeutics

Reinhold Brand
President (ret)
Evonic USA

Chris Little
Founder
SingleStone

Kevin Corby
Research and development director (ret)
DuPont

Chandra Briggman
President / CEO
Activation Capital

William Daughtry
Group managing partner (ret)
PWC

Alex Euler
Investment director
CIT Gap Fund

Vida Williams
Advanced analytics solution lead
SingleStone

Gerard Eldering
President
InnovateTech Ventures

Bruce Ferris
Managing partner
SPARK Product Development LLC

Anthony Fung
CEO
GovInsight

Tracey Greene
Founding executive director
Charlottesville Angel Network

Mark Lambert
Founder
VArtisans

Sean Mallon
VP, Commercialization
Virginia Innovation Partnership Corporation

William McPheat
Principle scientist (ret)
AstraZeneca

Hina Mehta
Director, University Programs
Virginia Innovation Partnership Corporation

William Weber
VP and general manager (ret)
DuPont

John Newby
CEO
Virginia Bio

Kaitlyn L. O'Connor, Esq.
Partner
Nixon Gwilt Law

Dan O'Korn
Partner
Hutchison PLLC

Erin Powell
Executive director
Lighthouse Labs

Richard Pellegrino
Sr. Director global innovation
Stryker

Brandon J. Price
Advisor to Entrepreneurial Ventures
Prof. of Entrepreneurship, Panamerican University Colleges of Business & Engineering

Kirsten Rieth
Director, Strategy and Innovation
RTI Innovation Advisors

Dennis Schafer
Director
Life Science Management

Matthew Miessau
Associate
Epidarex Capital

Our 5-year vision for growth

2023: Present State

$3.1M licensing revenues / year

Inconsistent growth issued patents

10-20% yearly growth cash revenues

6-7 startups / year slow growing, faculty-run

2028: Future State

$8-10M licensing revenues / year

40+ issued patents / year

1-2 VC rounds or exits / year

10-15 startups / year

Fast growing startups quickly funded, CEO-run

Thank you for your time.

Questions, comments?