Presentation to the House Appropriations Committee
February 11, 2019

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Executive Director, Fralin Biomedical Research Institute at VTC
Senior Dean for Research, VTC School of Medicine
THANK YOU FOR YOUR SUPPORT!
The Fralin Biomedical Research Institute at VTC

28 faculty have:
- over 700 publications
- 54,000 citations
- 35 patents
- 5 companies launched
- $156M in cumulative grants awarded

Healthy Hearts & Minds through Science & Technology

www.research.vtc.vt.edu
2 Riverside Circle, Roanoke, VA 24016
Institutions from where FBRI primary faculty research team leaders relocated to Roanoke

- Baylor College of Medicine in the Texas Medical Center in Houston, TX
- Brandeis University in Boston, MA
- Cedars Sinai Medical Center in Los Angeles, CA
- Emory University Medical Center in Atlanta, GA
- Georgetown University in Washington DC
- George Washington University, Washington, DC
- Harvard University Medical School in Boston, MD
- Johns Hopkins University in Baltimore, MD
- Medical University of South Carolina in Charleston, SC
- National Institutes of Health, Bethesda, MD
- National Institute of Environmental Health Sciences, Research Triangle Park, NC
- University of Alabama at Birmingham, AL
- University of Arkansas for Health Sciences, Little Rock, AR
- University College London
- University of North Carolina at Chapel Hill, NC
- University of Utah Medical Center, Salt Lake City, UT
- University of Washington Medical Center, Seattle, WA
• 498 people worked at FBRI (including students) during FY18
• Current steady state base workforce = 333
FY18 RI Fralin BRI faculty, postdoctoral fellows, research associates, administrative and technical staff annual salaries

- Total: $13,581,859
- Mean: $94,318
- Median: $58,785
Fralin Biomedical Research Institute at VTC
Grant Portfolio

Current active FY19 annual grant award amount = $26.2M
Current active FY19 all years grant award amount = $118.5M
Current pending FY19 annual grant value = $13.4M
Current pending FY19 all years grant value = $55.5M
FBRI Faculty grant success rate

36% FBRI hit rate so far in FY19!

= FBRI hit rate

= national hit rate
The human heart as a digital device

Atrial fibrillation

Sudden cardiac death

Rob Gourdie
Steve Poelzing
Jamie Smyth
Fralin BRI researchers make resistant brain cancer cells sensitive to treatment with temozolomide. Successful clinical trials in dogs staged for human trials.

Dr. Rob Gourdie
FBRI

Dr. Zhi Sheng
FBRI

Dr. John Rossmeisl, VT CVM
The Fralin Biomedical Research Institute at Virginia Tech Carilion, home to the Human Neuroimaging Laboratory, is in downtown Roanoke. The HNL is host to a fast-growing field, computational psychiatry, that applies the tools of computer science to psychiatry. The hope is that machine learning will lead to a more data-driven understanding of mental illness.
Valuing the Future

Petry, Bickel & Arnett, 1998
FBRI’s Warren Bickel and Roswell Park Comprehensive Cancer Center colleagues discover parallels in how cancer survivors and people with addiction value the future: points to therapeutic targets for challenging behaviors – Cancer, 2018
Fralin BRI Neuromotor Research Clinic:
Innovative treatment for children with cerebral palsy
NIH (NICHD) StrokeNet $14M Award- January, 2019
Fralin BRI to lead national multi-site pediatric stroke clinical trial

Sharon Ramey
Stephanie DeLuca
Health technology innovation at Fralin BRI

Fralin BRI OPM facility first in U.S.

Read Montague
Director
Fralin BRI
Center for Human Neuroscience

Mark Witcher
Carilion Neurosurgery
Stockholm, Sweden, July 14, 2018
The VTCRI’s Warren Bickel delivers a Keynote address at the 27th International Joint Conference on Artificial Intelligence and the 23rd European Conference on Artificial Intelligence

Previous Dorcas Cummings Memorial lecturers include:
Francis Crick: Nobel laureate - structure of DNA
Francis Collins: Director, National Institutes of Health
Rene Dubos: Pulitzer winning microbiologist
NIH Clinical and Translational Science Award (CTSA)
Integrative Translational Health Research Institute of Virginia
($22.6M; $5.5M VTC)
“VOICE” (Virginia Opioid Integrated Crisis Enterprise)

Treatment, education and research ($101.7M (VTC - $6.5M) proposal submitted 12/10/18)

Mike Friedlander, PhD VT VP HS&T
Bob Trestman, MD/PhD, VTCSOM Chair of Psychiatry

Warren Bickel, PhD Professor and Director, FBRI Addiction Recovery Research Center
Read Montague, PhD, Professor and Director, FBRI Computational Psychiatry Unit

Gerald Moeller, MD, VCU Addiction Center Director

James L. Olds Ph.D. – University Professor of Neuroscience and Public Policy, George Mason University
William A. Hazel, Jr. M.D. – Senior Advisor for Strategic Initiatives and Policy for Office of the Provost, George Mason U.
David L. Driscoll, Ph.D. – Director of Research Development, University of Virginia
Robert H. Lipsky, Ph.D. – Director, Translational Research, Inova Neuroscience Institute
Jerry Nadler, M.D. – Vice Dean for Research and Chair of Internal Medicine, Eastern Virginia Medical School
Mike Grisham - Virginia Bioscience Health Research Corporation (The Catalyst)
Doug Culling, DO, MS, CPE – Corporate VP, Sentara Healthcare / President, Sentara Medical Group

Federal and state judiciary
Commercialization Programs/Activities

- RAMP
- Incubator facility
- Startup competition
- Internship programs
- NIH BEST Program
- Startup companies; Industry partnerships
- NIH U01 Research Evaluation and Commercialization Hub (REACH) @$4M
- VRIF Translational Research to Commercialization Center @$1.5M
- NIH C06 research construction program (@$8M)
Fralin BRI cancer stem cell spinoff company recognized for innovation

Fralin BRI’s Samy Lamouille, CEO of Acomhal Research Inc. (awarded STTR grant)

Company formed to fight brain cancer recognized by the Association of Public and Land-Grant Universities (APLU) and the Association of American Universities

Fralin BRI addiction screen app spinoff company develops 2 minute patient screen

Fralin BRIs Warren Bickel and Sara Snider, CEO of BEAM Diagnostics

BEAM Diagnostics App for alcohol and opioid misuse (awarded 2 STTR grants)
FirstString Research co-founded by the Fralin BRI’s Rob Gourdie received Tibbett’s award from the U.S. small business administration in a ceremony at the White House, recognizing FirstString’s achievements in developing innovative therapeutics for indications with high unmet therapeutic needs.

Int J Mol Sci. 2018 Jun 15;19(6)

Connexin 43-Based Therapeutics for Dermal Wound Healing

Montgomery J, Ghatnekar GS, Grek CL, Moyer KE, Gourdie RG
2018 Fralin Biomedical Research Institute RAMP Commercialization Fellows
Fralin BRI industry partnerships

- Brainbox Solutions
- BioMech
- Quspin
- Insightec
- Siemens
- Indivior
- Vibrent

A new era of health
Virginia Research Investment Fund (VRIF) Application for Cardiac Translation to Commercialization Center

- Fralin Center for Heart and Restorative Medicine Research
- Virginia Tech Drug Discovery Center
- Carilion Cardiology
- VCU Cardiology
- ODU Center for Bioelectricity
- Sentara Health Heart Hospital
# of student workers

Graduate Students
Undergraduate Students
Medical Students
High School Students
The VTC Biomedical Research Addition
Health Sciences and Technology campus
Opening April, 2020
25-30 new research teams; 300-400 researchers, staff and students
Focus areas going forward

- Biomaterials/body-device interfaces
- Brain health and disorders
- Cardiovascular science
- Immunity/infectious disease
- Metabolism/obesity

Comparative Oncology Research Center
Strategic growth and costs of the biomedical research technology enterprise on the health science campus in Roanoke major core instrumentation ($54M); $150M in startup/ops
Economist says Tech, Carilion Roanoke campus will contribute at least $465 million to economy within 8 years

The Roanoke Innovation Corridor

- VTCRI research teams are changing the science of medicine/health while receiving global recognition
- ROI on initial investments is strong with strong impact on VT extramural portfolio
- Keys to success: entrepreneurial researchers and students, translational science, industry partnerships, spinoffs
- HS&T campus entering major growth with enhanced connectivity to Bburg campus, economic impact on valleys