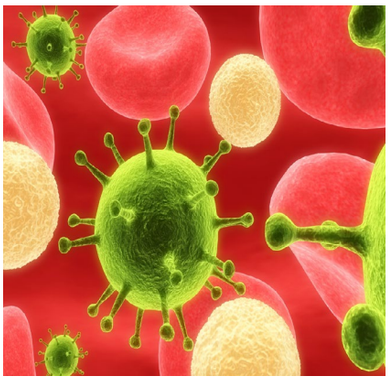
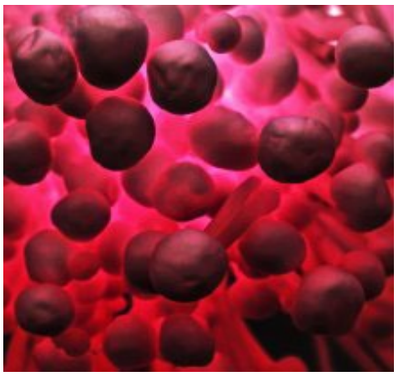
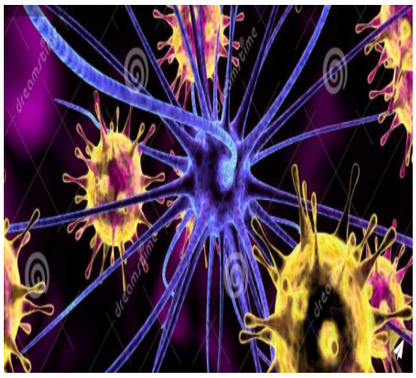
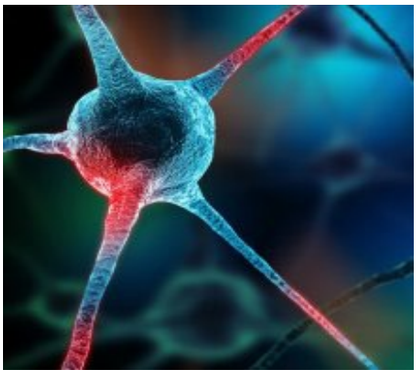
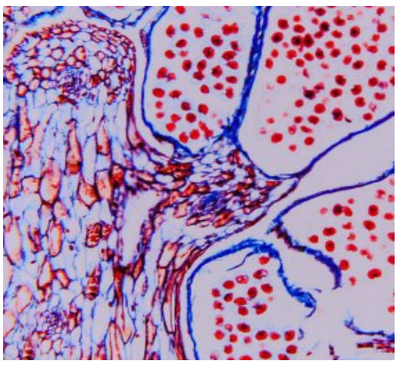
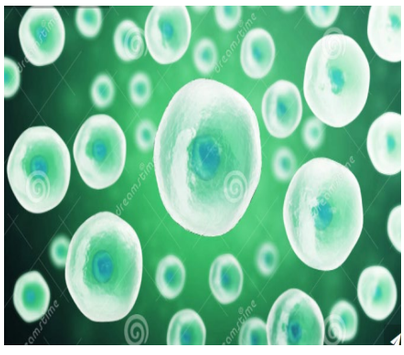



Commonwealth Health Research Board (CHRB)

2022/2023 Annual Report




Commonwealth Health Research CHRB [CHRB]
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Goals, Purposes and Accomplishments of the Commonwealth Health Research Board (CHRB)

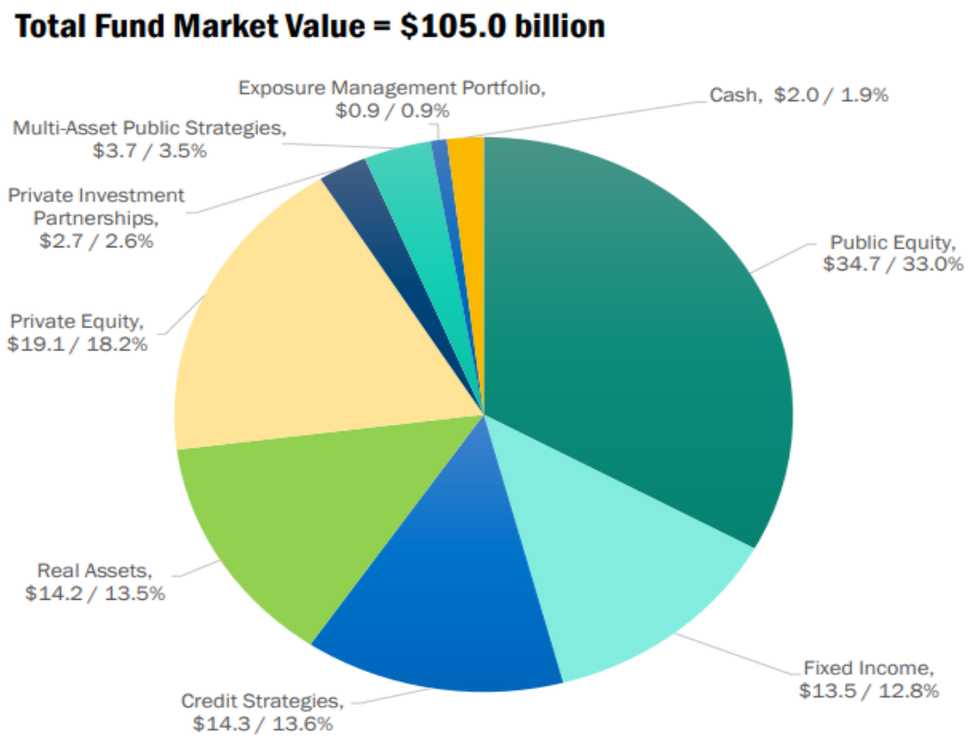
The Commonwealth Health Research Board (CHRB or Board) was created by ***Virginia Code* §32.1-162.23** to provide financial support—in the form of grants, donations, or other assistance— for research efforts having the potential of maximizing human health benefits for the citizens of the Commonwealth. Research efforts eligible for support by the Board may include traditional medical and biomedical research relating to the causes and cures of diseases, as well as research related to health services and the delivery of health care.

In accordance with ***Virginia Code* §32.1-162.24**, the Board encourages collaborative research efforts among two or more institutions or organizations, gives priority to those research efforts where Board support can be leveraged to foster contributions from federal agencies or other entities, and supports both new research efforts and the expansion or continuation of existing research efforts. CHRB grant recipients — for grant awards life-to-date — have leveraged over $38.2 million in additional private and federal grant funds to further their research studies. Additionally, numerous publications in peer-reviewed scientific journals and periodicals as well as presentations of the data at regional and national scientific meetings have resulted from CHRB grant funded research projects.

Commonwealth Health Research Fund [CHRF]

Virginia Code § 51.1-124.36 delegates the authority to invest and manage the assets of the Commonwealth Health Research Fund (CHRF) to the Virginia Retirement System (VRS). Assets of the CHRF are pooled with the $105.0 billion VRS investment fund (as of June 30, 2023); however, the provision requires the VRS to maintain a separate accounting for the CHRF assets. The estimated value of the CHRF as of June 30, 2023, was almost $47.8 million per the VRS Finance Division Commonwealth Health Research Fund Activity Report Through June 30, 2023.

VRS current Asset allocation as of June 30, 2023:



Source: https://www.varetire.org/pdf/publications/investments-quarterly-report-6-30-23.pdf

The Department of Accounts serves as the fiscal agent for the Commonwealth Health Research Board through a Memorandum of Understanding. Audits are conducted every two years by the Auditor of Public Accounts.

Commonwealth Health Research CHRB [CHRB]
FY 2022/2023 Annual Report

Executive Summary of FY 2022/2023 Grant Process:

Institution/ Organization Identification #	Institution/Organization	Concept Papers Received	Full Proposals Requested	Presentations to the Board	Grant Awards
207	University of Virginia	12	8	3	2
208	Virginia Polytechnic Institute and State University	9	5	3	2
221	Old Dominion University Research Foundation	4	3	2	2
236	Virginia Commonwealth University	11	4	1	1
247	George Mason University	1	1	0	0
274	Eastern Virginia Medical School	6	2	3	2
302	The Edward Via College of Osteopathic Medicine	1	0	0	0
371	Liberty University	2	1	0	0
811	McGuire Research Institute	3	0	0	0
	Total	**49**	**24**	**12**	**9**

Commonwealth Health Research CHRB [CHRB]
FY 2022/2023 Annual Report

CHRB Current and Historical Funding

Since its inception, the CHRB has made xxx grant awards totaling almost **$23.7 million** in grant funding to institutions of higher education and other not-for-profit or nonprofit organizations that conduct health, or health-related research in Virginia. When the required 33% matching funds are added to the CHRB funded amount, the cumulative funding totals approximately **$34.2 million** for health research in Virginia.

Grant Year	Total Grant Awards	# New Grant Awards	# Ongoing Grant Awards	CHRB Grant Awards	Grantee Matching Funds	Total Project Funds
1999	9	9	0	$597,377	$272,041	$869,418
2000	11	11	0	$717,442	$305,309	$1,022,751
2001	13	13	0	$825,590	$344,954	$1,170,544
2002	12	12	0	$718,382	$344,603	$1,062,985
2003	8	8	0	$509,806	$199,999	$709,805
2004	14	10	4	$868,514	$367,202	$1,235,716
2005	10	6	4	$755,436	$305,909	$1,061,345
2006	12	8	4	$954,058	$451,983	$1,406,041
2007	12	7	5	$1,105,585	$512,493	$1,618,078
2008	12	8	4	$1,102,030	$446,400	$1,548,430
2009	8	2	6	$727,615	$310,338	$1,037,953
2010	9	7	2	$775,105	$312,808	$1,087,913
2011	11	5	6	$1,061,644	$397,212	$1,458,856
2012	8	6	2	$799,746	$327,186	$1,126,932
2013	8	5	3	$746,688	$372,766	$1,119,454
2014	11	6	5	$1,017,500	$558,485	$1,575,985
2015	13	7	6	$1,213,983	$645,285	$1,859,268
2016	11	6	5	$1,077,444	$526,569	$1,604,013
2017	11	6	5	$1,019,696	$445,311	$1,465,007
2018	13	8	5	$1,251,185	$577,194	$1,828,379
2019	14	8	6	$1,399,997	$583,883	$1,983,880
2020	16	8	8	$1,517,067	$700,610	$2,217,677
2021	14	8	6	$1,400,000	$653,582	$2,053,582
2022	15	9	6	$1,500,000	$615,728	$2,115,728
Cumulative Total	**275**	**183**	**92**	**$23,661,890**	**$10,577,850**	**$34,239,740**

Commonwealth Health Research CHRB [CHRB]
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Comparison of Grant Award Success Rates (based upon a five-year average)

Step 1: Concept Paper to Step 2: Submission of a Full Proposal	**Step 2:** Submission of a Full Proposal to Step 3: Presentation of the Full Proposal to the Board	**Step 3:** Presentation of Full Proposal to the Board to receiving a CHRB Grant Award
33%	58%	64%

Success rate from the submission of a Concept Paper to CHRB Grant Award = 12%

Grants Cycle	Step 1: Concept Papers submitted	Step 2: Full Proposals submitted	% Success Full Proposals	Step 3: Full Proposals Presented	% Success Present	New Grant Awards	% Success Grant Award	From Step 1 to Awards
FY 2022/2023	49	24	49%	12	50%	9	75%	18%
FY 2021/2022	69	22	32%	14	64%	8	57%	12%
FY 2020/2021	74	22	30%	11	50%	8	73%	11%
FY 2019/2020	76	23	30%	13	57%	8	62%	11%
FY 2018/2019	73	20	27%	14	70%	8	57%	11%
Cumulative Total	341	111	33%	64	58%	41	64%	12%
Cumulative Average	68	22	33%	13	58%	8	64%	12%

Please note:

[1] This chart excludes two-year grant awards that are approved for Year 2 funding.

[2] *Beginning with the FY2016/2017 CHRB Grant Process, the number of Concept Papers allowed for submission by any one institution or organization decreased from 15 to 10 submissions. Beginning with the FY 2018/2019 CHRB Grant Process, the number of Concept Papers allowed for submission increaseed from 10 to 12 per institution or organization.

Commonwealth Health Research CHRB [CHRB]
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CHRB Grant Awards and Funded Types or Categories of Research

The chart below provides statistics concerning the number of CHRB Grant Awards funded by type or category of research, from 1999 to 2022.

Key Codes	Disease/Research Area	1999 to 2022 Grant Awards	1999 to 2022 Grant Awards in CHRB Dollars
AG	Aging and Diseases of the Aging	6	$710,675
BD	Behavioral Disorders	7	$734,039
BV	Bacterial and Viral Diseases and Treatments	25	$3,922,381
CA	Cancer and Cancer Treatment	42	$5,456,520
CB	Cartilage and Bone	6	$776,078
CV	Cardiovascular Disease	15	$1,926,209
DI	Diabetes	12	$1,480,685
DM	Drug Metabolism	2	$125,900
DA	Drug Addiction and Alcoholism	1	$83,350
EE	Eye and Ear Diseases	5	$678,925
GI	Gastrointestinal Diseases	3	$248,274
GE	Genetics	0	$0
HS	Health Services Research	3	$181,126
HE	Hematology	5	$320,983
KD	Kidney Disease	3	$340,927
LD	Lung Disease	10	$1,384,083
ME	Metabolism	9	$816,082
ND	Neurological Disorders	15	$2,770,238
WH	Women's Health	8	$851,560
PD	Psychiatric Diseases	2	$278,382
WO	Wound Healing	1	$76,373
ZZ	Other	3	$499,100
	Total	**183**	**$23,661,890**

A one-year or two-year grant award is still considered one grant award for purposes of categorizing disease/research areas.

Commonwealth Health Research CHRB [CHRB]
FY 2022/2023 Annual Report

Commonwealth Health Research Board (CHRB) FY 2022/2023 Grant Awards

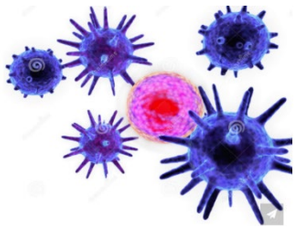
Principal Investigator	Submitting Institution/ Organization	Grant Award $	Recipient Matching $	Total Project $	Grant Title
Michael Brown, Ph.D.	University of Virginia	$ 100,000	$ 33,000	$ 133,000	Risky Variants in Human Cardiovascular Disease
Josh Cohen, M.D.	Virginia Commonwealth University	$ 100,000	$ 33,000	$ 133,000	Electrotransfer Mediated Gene Therapy Approach to Type 1 Diabetes
Todd Fox, Ph.D.	University of Virginia	$ 100,000	$ 33,000	$ 133,000	Nervonic acid and obesity
Babette Fuss, Ph.D.	Virginia Commonwealth University	$ 100,000	$ 33,000	$ 133,000	The role of LPA6 receptor signaling in myelin repair
Rebecca Heise, Ph.D.	Virginia Commonwealth University	$ 100,000	$ 33,000	$ 133,000	Inhibition of cell-cell fusion as a potential mechanism for treatment of covid19
Bryan Hsu, Ph.D.	Virginia Polytechnic Institute & State University	$ 100,000	$ 33,000	$ 133,000	Self-assembling biomaterials for improved menstrual health and hygiene
Timothy Jarome, Ph.D.	Virginia Polytechnic Institute & State University	$ 100,000	$ 33,000	$ 133,000	The role of DNA 5-hydroxymethylation in the development of obesity
Daeha Joung, Ph.D.	Virginia Commonwealth University	$ 100,000	$ 33,000	$ 133,000	3D Printing Living Platform for Spinal Cord Regeneration
Jeffrey Moran, Ph.D.	George Mason University	$ 100,000	$ 58,900	$ 158,900	Patient-Derived Hydrogel-Based In Vitro Models of Idiopathic Pulmonary Fibrosis for Assessment of Targeted Nanoparticle Therapies
Masahiro Sakagami, Ph.D.	Virginia Commonwealth University	$ 100,000	$ 33,000	$ 133,000	Local dual-action treatment of lung fibrosis: inhibiting fibroblast activation and modulating collagenolytic activity
Julia Sharp, Ph.D.	Eastern Virginia Medical School	$ 100,000	$ 50,000	$ 150,000	Pathogenic Determinant Analysis of Community Associated *Staphylococcus aureus* in South Eastern Virginia
Lisa Shollenberger, Ph.D.	Old Dominion University Research Foundation	$ 100,000	$ 33,000	$ 133,000	Proof-of-concept study for the development of next-generation vaccines for tick-borne intracellular diseases
Lee Solomon, Ph.D.	George Mason University	$ 100,000	$ 58,900	$ 158,900	An environmentally responsive peptide material capable of oxygen delivery
Amy Tang, Ph.D.	Eastern Virginia Medical School	$ 100,000	$ 84,928	$ 184,928	Developing a prognostic companion molecular test to quantify and guide immuno-oncology (IO) therapy for triple-negative breast cancer
Zequan Yang, M.D., Ph.D.	University of Virginia	$ 100,000	$ 33,000	$ 133,000	Topical Neck Cooling Attenuates Acute Myocardial Infarction
		$1,500,000	**$ 615,728**	**$ 2,115,728**	

Second-year funding for Two-Year Grant Awards

Commonwealth Health Research CHRB [CHRB]
FY 2022/2023 Annual Report

FY 2022/2023 Grant Award Project Summaries

The Commonwealth Health Research Board [CHRB] has awarded **$1.5 million** in grants to 15 medical and health researchers in Virginia.



Michael Brown, Ph.D., University of Virginia
Risky Variants in Human Cardiovascular Disease

Project Summary: Cardiovascular disease (CVD) is the leading cause of death globally.1 A primary contributor to CVD is atherosclerosis with coronary artery disease (CAD) being the main cause of heart attack and death. Known CVD risk factors poorly predict acute events in asymptomatic individuals.2 Clinical studies of anti-inflammatory agents establish that atherosclerosis is a chronic inflammatory disease.3,4 Arterial wall lipid deposition and immune infiltration contribute to large, unstable lesions.3 Immune checkpoint proteins (ICP) regulate immune interactions. The murine glucocorticoid-induced TNFR-related (GITR) ICP drives atherosclerosis, and human GITR+ cells have been identified in unstable atherosclerotic plaques.5 Herein, we found CD56bright NK cells associated with CAD severity, and GITR variation may regulate NK responses. Our multidisciplinary team with expertise in NK cells, CVD and bioinformatics will test the novel hypothesis that variant GITR expression corresponds with human CAD and alters GITR cytoplasmic tail signaling domain expression and function in NK cells (see Figure 3).

Josh Cohen, M.D., Virginia Commonwealth University
Electrotransfer Mediated Gene Therapy Approach to Type 1 Diabetes

Project Summary: Type 1 Diabetes (T1D) effects nearly one-hundred thousand Virginians, and 2 million Americans, at a lifetime cost to the healthcare system estimated over $800B. This pilot study explores a highly innovative approach to deliver insulin and glucokinase encoding nanoplasmid DNA to skeletal muscle as a non-viral, non-integrating gene therapy and potential cure to T1D. Our laboratory has established effective and highly published protocols for gene delivery to various tissues of the body, including skin, heart, and skeletal muscle. In our CHRB work will direct these gene delivery protocols towards insulin and glucokinase in skeletal muscle to modulate blood glucose in vivo. The goal of this study is to optimize gene delivery and expression, and whether blood glucose levels can be controlled with exogenously expressed insulin and glucokinase. The results from this initial study will lead to follow-on federal funding and significant clinical advancements in T1D therapeutics.

Todd Fox, Ph.D., University of Virginia
Nervonic acid and obesity

Project Summary: Obesity in Virginian adults is currently 32% of the population. As higher fat mass is associated with dramatically increased morbidity and mortality, such as in response to COVID-19, there is an urgent need for new strategies to help people control body weight. The premise of this proposal is based on our recently published work demonstrating; 1) the fatty acid, nervonic acid, is dramatically reduced in models of obesity, and 2) dietary nervonic acid diminished weight gain with improved glucose and insulin parameters. The central hypothesis is that reduced nervonic acid plays a critical role in the development of obesity and related complications. This proposal will elucidate the underlying mechanism for reduced nervonic acid in obesity and assess nervonic acid specificity and the need to be acylated into sphingolipids for a therapeutic effect. These results will facilitate the design of new strategies to address the current need for improved weight control.

Babette Fuss, Ph.D., Virginia Commonwealth University
The role of LPA6 receptor signaling in myelin repair

Project Summary: There are currently no neuroprotective therapies for debilitating diseases, such as Multiple Sclerosis (MS), where damage to the myelin sheath, which enwraps and protects central nervous system (CNS) nerve fibers, causes chronic nerve fiber degeneration and neurological disability. An emerging concept toward the development of novel treatment options is seen in the characterization of signals that are present in the demyelinating CNS and impede the repair capabilities of CNS myelinating cells, namely oligodendrocytes (OLGs). In this context, our novel findings suggest that the lipid signaling receptor LPA6 significantly contributes to such impediments in myelin repair. Notably, while lipid signaling has been described to be dysregulated under demyelinating conditions, its precise role in the regulation of CNS remyelination is not fully understood. Thus, in the long-term, our studies are anticipated to lead to the identification of novel therapeutic targets for stimulating myelin repair under pathologic conditions such as MS.

Rebecca Heise, Ph.D., Virginia Commonwealth University
Inhibition of cell-cell fusion as potential mechanism for treatment of covid19

Project Summary: Limited therapies are available for COVID-19, in part due to a lack of understanding of how SARSCoV-2 (SARS2) virus interacts with and affects host cells. This proposal is focused around developing a comprehensive understanding of the process by which SARS2 fuses host cells together, to form large, multi-nucleated cells, known as syncytia. SARS2 has increased syncytia formation, as compared to the original SARS virus, suggesting syncytia formation is a critical aspect of SARS2 pathogenicity. The PI (Conway) and co-I (Narayanan) have expertise in biophysics and live cell imaging and virology, respectively. The Narayanan group has found Maraviroc, an FDA-approved anti-viral, inhibits SARS2 viral replication. The Conway group has identified a potential mechanism of action, showing that Maraviroc inhibits the formation of syncytia. Data from this proposal will be critical for design of new targeted approaches to inhibit syncytia formation, which may have therapeutic value for treatment of COVID19 infection.

Bryan Hsu, Ph.D., Virginia Polytechnic Institute and State University
Self-assembling biomaterials for improved menstrual health and hygiene

Project Summary: We propose to use nondescript self-assembling biomaterials to coagulate menstrual fluid into a semi-solid, mitigating many challenges associated with traditional liquid absorption or collection strategies. We will test the efficacy of these hydrogels using in vitro models that simulate various menstrual conditions including light to heavy bleeding, frequent to infrequent hydrogel replacement, and mechanical deformation due to physical activities. In addition to coagulating menstrual fluid, these biocompatible and biodegradable hydrogels will be loaded with compounds that reduce pain, and inhibit bacterial growth, each with unique release kinetics that maximize their efficacy.

Timothy Jarome, Ph.D., Virginia Polytechnic Institute and State University
The role of DNA 5-hydroxymethylation in the development of obesity

Project Summary: Obesity affects 40% of the U.S. population and is responsible for an estimate 300,000 deaths per year. In Virginia alone, the obesity rate in adults is around 30%, with an annual cost of over $4 billion. However, therapeutic interventions which can reverse the progression of obesity remain equivocal. The goal of this project is to identify the role of a robust, highly persistent genetic-molecular mechanism in the brain to the development of obesity. Specifically, we will test if blocking the weight gain-induced reductions in DNA 5-hydroxymethylation (5-hmC) in the hypothalamus in a cell-type specific manner prevents the development of obesity over time. Additionally, we will determine if increasing DNA 5-hmC at the major satiety gene, Pomc, in the hypothalamus can prevent obesity development. Results from this study could provide critical information needed for the development of therapeutic strategies to treat the underlying pathophysiology of obesity.

Daeha Joung, Ph.D., Virginia Commonwealth University
3D Printing Living Platform for Spinal Cord Regeneration

Project Summary: Cord Injury currently has no effective therapies that enable the restoration of disrupted signals in the impaired sites to re-establish function due to architectural and functional complexity. This project aims to develop an advanced biomanufacturing process for constructing living scaffolds using 3D printing and origami-inspired assembly that permit the use of multi-materials. The objectives of this research include: (1) develop origami-inspired folding processes to transform 3D printed plane structures into a three-dimensional scaffold, overcoming the limitations of the compatibility with a broad spectrum of biomaterials; and (2) embedded electrodes within the scaffold to deliver targeted electrical stimulation for cell growth. The integrated technology will bridge the gap between advanced biomanufacturing science and neural regeneration, ultimately promoting interdisciplinary efforts to develop life-altering clinical treatments for patients who sustain Spinal Cord Injuries in Virginia and beyond.

Jeffrey Moran, Ph.D., George Mason University
Patient-Derived Hydrogel-Based In Vitro Models of Idiopathic Pulmonary Fibrosis for Assessment of Targeted Nanoparticle Therapies

Project Summary: Idiopathic pulmonary fibrosis (IPF) is a lung disorder that kills more Americans per year than breast cancer. Its cause is poorly understood and the typical survival time is less than 5 years. IPF progression is known to depend on interactions between cells and their surrounding environment. Here, we will synthesize biomaterials that match the protein composition of real fibrotic lung tissue and use them as platforms to test new nanoparticle-based strategies to halt and possibly reverse IPF progression. Our aims are (1) synthesize decellularized hydrogels and quantify effects of changes in stiffness and pore size on disease progression in vitro; (2) test efficacy of nanoparticles, propelled by magnetic fields or ultrasound, to penetrate tissue and deliver medication to targeted locations. This work will yield insight into the effects of tissue mechanics on IPF progression and could enable lower required doses for IPF medication, reduced side effects and improved patient outcomes.

Masahiro Sakagami, Ph.D., Virginia Commonwealth University
Local dual-action treatment of lung fibrosis: inhibiting fibroblast activation and modulating collagenolytic activity

Project Summary: Lung fibrosis causes thickened, scarred fibrotic airspaces due to aberrant extracellular matrix (ECM; collagen) accumulation. It is progressive and idiopathic, but irreversible and incurable with any drugs, resulting in respiratory failure and death in 2-5 years. AM24 is our proprietary curcumin-like derivative of melatonin. As excessive ECM accumulation in fibrotic lungs can be recognized as a net result of induced synthesis and insufficient removal of collagen, we hypothesize that AM24 uniquely possesses dual-actions of inhibiting collagen-generating fibroblast activation; and modulating collagenase and anti-collagenase imbalance, via multi-hybrid mechanisms originating from its structure origins. Hence, this 2-year project will examine AM24 for potent, mechanistically-hybrid, dual-action anti-fibrotic activities using in vitro cell-based systems (Aim 1) and an in vivo rat model of lung fibrosis (Aim 2). Successful completion will prove this dual-action strategy against "collagen dysregulation" in fibrotic lungs and offer AM24 as a novel inhaled drug for lung fibrosis treatment.

Julia Sharp, Ph.D., Eastern Virginia Medical School
Pathogenic Determinant Analysis of Community Associated Staphylococcus aureus in South Eastern Virginia

Project Summary: Staphylococcus aureus is a major cause of community and healthcare-associated infections resulting in significant illness and death worldwide. With increasing antibiotic resistance and no effective vaccine, novel anti-staphylococcal therapies are critically needed. To address this need, we propose an innovative, multifaceted approach to determine S. aureus pathogenic (disease-causing) characteristics using community associated S. aureus isolates from patients who reside in South Eastern Virginia. We will assess the potential of isolates to cause harm (virulence-factor potential) by examining bacterial DNA (genetic content) and activity (expression) of several clinically relevant virulence factors. Additionally, to further examine the host-pathogen relationship, the capacity of S. aureus isolates to bind human serum proteins (both quantity and complexity) will be evaluated. These data will permit the generation of pathogenicity profiles, cross referenced with infection type (skin/soft-tissue or blood infection) and patient locale, to benefit direct therapy interventions and highlight potential therapeutic targets.

Lisa Shollenberger, Ph.D., Old Dominion University Research Foundation
Proof-of-concept study for the development of next-generation vaccines for tick-borne intracellular diseases

Project Summary: Tick-borne diseases (TBD) are a worldwide threat to human and animal health. In the USA, Lyme disease is the most common, not the only, TBD. Other tick-borne pathogens (TBP) include Rickettsia, Ehrlichia, Anaplasma, and Francisella; Babesia, and viruses. Virginia had 8,895 reportable TBD cases from 2015-2019, one of the highest statewide incidences in the country, and tick-borne viral infection are not reportable. Development of effective vaccines for TBP is crucial, as there are currently no licensed human vaccines with most, if not all, being a humoral (antibody-based) response. Since many TBP are intracellular pathogens, a cell-mediated immunity (CMI) seems more appropriate. We hypothesize intracellular proteins, which may be conserved between multiple organisms, are appropriate candidate vaccine antigens for intracellular pathogens. Using rickettsial antigens as proof-of-concept, we will test this hypothesis through successful completion of the following aims: (1) development of the necessary immunological tools and (2) evaluation of CMI.

Lee Solomon, Ph.D., George Mason University
An environmentally responsive peptide material capable of oxygen delivery

Project Summary: Despite an urgent need and years of study, there are no suitable blood substitutes that can be routinely used. Relying on donations is also troublesome as the blood can be contaminated with undiagnosed illnesses and is difficult to store. We propose to develop a blood substitute made from a novel peptide material, which binds heme B, the same cofactor found in human hemoglobin. For this stage of the work, we will optimize the material by changing the peptide sequence to promote stronger oxygen binding and tuning the environmental responses to be more aligned with physiological conditions. These peptides are highly modifiable and can be designed so they do not stimulate the immune system and be more stable than standard blood for long term storage. This work will serve as pilot studies for developing a next generation blood substitute that will help all Virginians suffering from hemorrhage inducing injuries.

Amy Tang, Ph.D., Eastern Virginia Medical School

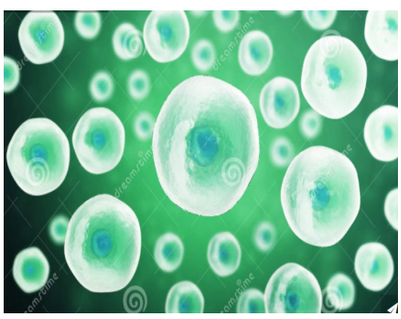
Developing a prognostic companion molecular test to quantify and guide immuno-oncology (IO) therapy for triple-negative breast cancer

Project Summary: Triple-negative breast cancer (TNBC) is an aggressive subtype with high relapse rate. Recently, the FDA approved immune checkpoint blockade (ICB) therapy for high-risk early-stage; and PD-L1- positive locally recurrent, unresectable, or metastatic TNBC. The challenge is how to predict the treatment benefit of immuno-oncology (IO) therapy. To address this unmet need, we propose to evaluate SIAH as a predictive biomarker to augment PD-L1 status and pathologic response to optimize the use of IO-therapy for TNBC. • SIAHHigh/ON in TNBC tumors reflects that the EGFR/K-RAS/SIAH pathway is ON and may indicate immuno-suppression, ICB-resistance, and/or the need for additional therapies to control TNBC malignancy. • SIAHLow/OFF in TNBC tumors reflects that the EGFR/K-RAS/SIAH pathway is OFF and may indicate immuno-responsiveness, ICB-sensitivity, and good prognosis after surgery. We aim to demonstrate the clinical utility of SIAHON/OFF expression as a new prognostic biomarker to stratify patients, predict the need for and/or efficacy of neoadjuvant and/or adjuvant immunotherapy.

Zequan Yang, Ph.D., University of Virginia

Topical Neck Cooling Attenuates Acute Myocardial Infarction

Project Summary: Myocardial infarction (MI, heart attack) accounts for the vast majority of death associated with ischemic heart disease. The key to salvage the dying heart muscle is to shorten the transportation time to the hospital. However, the prehospital management to protect the heart is sadly lacking. Mild systemic hypothermia is found to be protective against MI. However, the protection is observed only when hypothermia is achieved early during the heart attack. Induction of systemic hypothermia is resource intensive and difficult to start outside hospital. The delay in initiating the hypothermia is unlikely to be solved. A therapy, that is portable and easy to apply at the onset of heart attack, may provide better heart protection. We found that topical neck cooling could attenuate MI similar as systemic hypothermia. This application will further define the mechanisms underlying the topical neck cooling and modify the device for use in big animal model.



Commonwealth Health Research Funds available for FY 2022/2023 Grant Awards

Pursuant to *Virginia Code* §32.1-162.28(E), (CHRF) Grant funding is calculated by an amount not to exceed six percent of the moving average of the market value of the CHRF calculated over the previous five years on a one-year delayed basis, net of any administrative fee assessed pursuant to subsection E of § 51.1-124.36.

Supporting documentation for CHRB Annual Report and CAFR Reporting

Funds available for 2022 Grant Awards

Calendar Year		Market Value as of 12/31/xx	
January 1 - December 31, 2016	Year 1	$35,296,332.08	Source: VRS Finance Division Activity Report through December 31, 2016
January 1 - December 31, 2017	Year 2	$38,776,234.09	Source: VRS Finance Division Activity Report through December 31, 2017
January 1 - December 31, 2018	Year 3	$36,998,370.93	Source: VRS Finance Division Activity Report through December 31, 2018
January 1 -December 31, 2019	Year 4	$40,977,689.88	Source: VRS Finance Division Activity Report through December 31, 2019
January 1 - December 31, 2020	Year 5	$43,250,731.05	Source: VRS Finance Division Activity Report through December 31, 2020
	Total	$195,299,358.03	
	Average Market Value	$39,059,871.61	
Funds available for 2022 grants based on 5% of the average market value (AMV)	5.00%	$1,952,994	

Commonwealth Health Research CHRB [CHRB]
FY 2022/2023 Annual Report

Commonwealth Health Research Board (CHRB)
Summary of FINAL FY 2022/2023 Administrative and Grant Expenses:

FY 2022/2023 Revenue and Cash Balance

CHRB Revenue and Cash Balance as of June 30, 2023	**$ 657,251.45**

FY 2022/2023 Final Expenses

FY 2022/2023 Approved Budget	Approved	Final Expenses as of June 30, 2023	% Of Total	Difference	Notations
Administrative	$326,132.17	$285,947.90	88%	$40,184.27	June 2022 expenses paid in new FY 2023/2024 Attorney and Scientific Consultant Services IT Design Services & Travel related expenses less than budget
Grants	$1,500,000.00	$1,573,838.45	105%	-$73,838.45	Several 2018 and 2019 grant awards closed out later than projected (no-cost extensions had been approved due to COVID pandemic)
Total	$1,826,132.17	$1,859,786.35	102%	-$33,654.18	

Commonwealth Health Research CHRB [CHRB]
FY 2022/2023 Annual Report

Commonwealth Health Research Board (CHRB) Members

Robert W. Downs, Jr., M.D., Chair
Eric Lowe, M.D., Vice Chair
Thomas W. Eppes, Jr., M.D.
Francis X. Farrell, Ph.D.
Ethlyn McQueen-Gibson, DNP
Julia Spicer

Commonwealth Health Research Board (CHRB) Administrator

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