



# **Basic Cardiovascular Research Training Program**

**Handbook  
2017-2018**

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## Overview of the UVA CVTG

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### Mission

The goal of our NIH Basic Cardiovascular Research Training Grant (CVTG) Program to train individuals to become outstanding biomedical scientists who will pioneer major advances in our understanding of CV biology and disease and novel therapeutic interventions through research.

### Program Overview

Name of Director	Tenure as Director
Robert M. Berne, Ph.D.	1967-1986
Brian R. Duling, Ph.D.	1986-2012
Gary K. Owens, Ph.D.	2012-present

Cardiovascular disease (CVD) is responsible for >40% of all deaths in developed societies such as the USA and alterations in the function of vascular cells also plays a key role in the pathogenesis of nearly all major human diseases including cancer, diabetes, and neurodegenerative disease. While there has been significant progress in our understanding of CVD and related diseases in the last decade, there are still major deficiencies in our understanding of these diseases and our ability to prevent or treat them effectively.

Our CVTG Program provides a highly integrated program of biomedical research training. The central component of the program is the opportunity to do high impact original CV research with one or more of our 46 CVTG mentors. In addition, we provide numerous workshops, seminars, specialized courses, and other activities designed to optimize your ability to do truly outstanding research. Areas of research emphasis include studies of basic cardiovascular function (focus on smooth muscle, endothelium and leukocytes), as well as cardiovascular diseases (focus on atherosclerosis, hypertension, and stroke). Our faculty members and their trainees use state-of-the-art experimental approaches to address some of the most important problems in medical science. A major and continuing focus of our studies is to develop novel drugs, devices, diagnostic methods, and therapeutic approaches to advance treatment of cardiovascular diseases.

The training program supports 15 pre-doctoral and post-doctoral trainees. The first year of training for graduate students is done in one of 7 Biomedical Sciences (BIMS) Graduate Programs after which the trainee chooses a research mentor and a PhD Program for completing their training. These degree programs work in concert with our CVTG to optimize and customize your PhD training program with the degree program providing a general foundation of knowledge and skills, and the CVTG providing specialty training in CV biology and disease.

Post-doctoral fellow training is primarily under the direction of a research mentor. However, given the complexity of modern biomedical research, all trainees are urged to interact and collaborate with multiple labs, and the training in your individual labs is augmented by the various training activities of the CVTG. The training of both pre- and post-doctoral fellows includes the following: 1) a monthly cardiovascular research-in-progress presentation series (the RIP's) which includes presentations by fellow trainees, "hot seat" sessions, and elevator talks (3-5 minute summary presentations); 2) grant writing workshops and grant brewing sessions; 3) a CVRC/CVTG seminar series; 4) specialized advanced CV courses; 5) workshops and courses for professional advancement including time management, starting your own lab, interviewing for jobs, managing your own lab, working in industry or the biotechnology field, doing translational research, etc. ; 6) an annual

research retreat; and 7) attending and presenting your research at national/international meetings. Our training program is strongly backed by the University of Virginia, School of Medicine, which has established the Cardiovascular Research Center (CVRC) as a focus for coordinating cardiovascular research and training throughout the University. In the spring of 2002 the CVRC and many of its associated trainees moved into new space, thus fostering stronger relations between faculty and trainees, and fostering interdisciplinary and translational research programs.

***Only citizens and permanent residents of the United States are eligible for training grant support, according to regulations set forth by the National Institutes of Health, the funding agency for this program.***

## Administrative Structure

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### UVA CVTG Administration

G Owens, PhD	Molecular Control of Smooth Muscle Cell Differentiation	Program Director, Executive Committee; Professor of Molecular Physiology and Biological Physics
N Leitinger, PhD	Role of Lipid Oxidation Products in Inflammation and Vascular Immunology in Atherosclerosis and Diabetes	Co-Director, Executive Committee; Professor of Pharmacology
B Isakson, PhD	Intercellular Communication in Normal and Disease State Vasculature.	Associate Director for Curriculum, Executive Committee; Associate Professor of Molecular Physiology and Biological Physics
S Peirce-Cottler, PhD	Computational Systems Biology, Microvascular Remodeling, Stem Cells	Associate Director for Scientific Programs, Executive Committee; Professor of Biomedical Engineering
P Barrett, PhD	Regulation of Low-Voltage Activated T-Type Ca <sup>2+</sup> Channel Activity by Kinases and Heterotrimeric G-Proteins	Advisory Committee; Professor of Pharmacology
J Holmes, MD, PhD	Healing After Myocardial Infarction, Cardiac Growth and Remodeling and Image-Based Modeling and Diagnosis	Advisory Committee; Professor of Biomedical Engineering
C McNamara, MD	Atherosclerosis, Obesity, Diabetes	Advisory Committee; Professor of Medicine, Cardiovascular Medicine
S Rich, PhD	Genetic Basis of Common Human Disease, Including Type 1 Diabetes, Diabetic Complications, Ischemic Stroke, Atherosclerosis	Advisory Committee; Professor of Public Health Sciences
J Saucerman, PhD	Roles of Complex Signaling Networks Involved in the Regulation of Cardiovascular Function and Disease	Advisory Committee; Associate Professor of Biomedical Engineering
A Somlyo, PhD	Signaling Pathways that Regulate Contractility in Smooth Muscle Tissues	Advisory Committee; Professor of Molecular Physiology and Biological Physics
D Harrison, MD	Inflammation, hypertension, immune activation	External Advisory Committee; Professor of Medicine and Pharmacology, Vanderbilt University
J Miano, PhD	Transcriptional regulation of gene expression; pathobiology of SRF and myocardin; genome mining	External Advisory Committee; Associate Director, Aab Cardiovascular Research Institute, University of Rochester
M Parmacek, MD, PhD	Transcriptional programs that regulate cardiovascular development	External Advisory Committee; Chair, Department of Medicine Director, Cardiovascular Institute, University of Pennsylvania
M Sturek, PhD	Cellular and molecular mechanisms for in vivo cardiovascular phenomena.	External Advisory Committee; Chairperson, Professor of Cellular & Integrative Physiology, Professor of Medicine, Indiana University

Dr. Owens is involved with all aspects of the program, and reports directly to the Dean of the School of Medicine, Dr. David Wilkes. However, to spread the considerable administrative responsibilities of the Program, and to ensure a high level of programmatic oversight of training, we have created an Executive Committee by establishing two Associate Director Positions with well-defined responsibilities. The Associate Director positions include: Curriculum and Workshops (Dr. Isakson) and Scientific Programs and Student Advising (Dr. Peirce-Cottler). Dr. Owens and the CVTG Associate Directors, plus three additional faculty members and the Program Administrator form the CVTG Steering Committee which jointly make most major decisions regarding program administration including decisions on admissions, mentor review and approval, and overall training program design, although the latter involves input from many others including the Dean, Associate Dean for Graduate and Medical Scientist Programs, CVTG faculty mentors, and an External Advisory Committee.

Day-to-day administrative duties are carried out by Dr. Owens and the CVTG Program Administrator, Katharine Sutphen. These duties include all trainee-related matters and program formation. The CVTG Program Administrator maintains database and fellows' records, coordinates recruiting, processes reimbursements, oversees fellows' stipends and funding, oversees the program's website, organizes fellows' meetings with the Director and Associate Directors, facilitates translational clinical experiences, and plans training program activities.

Two Associate Directors assist the program in three different capacities. The Associate Directors are appointed by Dr. Owens.

#### **Associate Director of Curriculum and Workshops**

The Associate Director for Curriculum and Workshops, Dr. Brant Isakson, oversees CVTG Courses offered, including course content and emphasis, as well as coordinating scheduling to avoid conflicts with other crucial courses and seminar series. These courses include Advanced Vascular Biology and Career Development.

#### **Associate Director of Scientific Programs and Student Advising**

The Associate Director for Scientific Programs and Student Advising, Dr. Shayn Peirce-Cottler, assists the Director in developing programmatic activities to promote interaction and scientific exchange between the CVTG fellows and to foster their development as scientists. These activities include participation in monthly Research in Progress meetings, grant brewing sessions, special workshops, annual progress report meetings, etc.

#### **Advisory Committee**

The Executive Committee is composed of the Director, Associate Director, two additional faculty members (Gary Owens, Norbert Leitinger, Brant Isakson, Shayn Peirce-Cottler), and the Program Administrator. The CVTG Advisory Committee is responsible for reviewing and evaluating applications. Committee members may also be asked to interview prospective trainees. The CVTG Steering Committee is also responsible for reviewing and evaluating each fellow's progress through the annual progress report and meeting. The purpose of these meetings is to review the written progress report, discuss the fellow's research progress, outline a timeline for completion of training, identify long term career plans, and identify any problems that may need further attention, including issues with mentoring or funding. CVTG Steering Committee members do not sit in the meeting for their own trainees.

## Financial Support for CVTG Pre-doctoral Fellows

CVTG Pre-doctoral Fellows' Benefits:	<i>Amounts reflect the 2017-2018</i>
Stipend	Base \$30,000 (\$23,376 from the CVTG) \$1,000 annual increase after passing Grad program qualifying exam
Tuition & Fees	3 Semesters of Graduate School (Fall, Spring, Summer)
Health/Dental	\$2,845 Health Insurance Subsidy (amount increases annually) *estimate* \$280 Dental (from GPO) *estimate*
Travel	\$1000 (up to) *See Attendance section*
Books, software, & computer	\$750 (up to) *See Attendance section*
1 journal subscription and 1 organization membership at trainee level	

### Stipend

The current base stipend is \$30,000 for fiscal year 2017-2018, with an allowed \$23,376 from the NIH CVTG. Student stipends may be higher than \$30,000 based on numerous factors. After a student has passed the qualifying exam in graduate school, he/she will receive a stipend increase of \$1,000. If a student receives an individual extramural fellowship such as an American Heart Association (AHA), Department of Defense (DOD), National Science Foundation (NSF), or National Research Service Award (NRSA) among others, students can request a merit increase to their stipend. If a fellow is awarded an extramural fellowship he/she may be eligible for a merit bonus stipend in the amount of \$1,000-3,000. The process of requesting the merit increase is to write to the BIMS Administrator, BIMS director, CVTG Director, and the mentor together to request the merit raise. If these individuals agree a merit supplement is warranted, it must be approved by the Associate Dean for Graduate and Medical Scientist Programs (Dr. Bouton). Once a decision is made, the BIMS Administrator sends information to the funding coordinator in the Graduate Programs Office to set it up. The bonus remains in effect only during the term of funding of the extramural fellowship. The CVTG follows a traditional fiscal year calendar from July 1 to June 30 of the following year. Funding is allocated by the FY. All fellows on the CVTG are paid a monthly stipend.

There are times during graduate years that a student can move from stipend (paid monthly) to wages (paid out bi-weekly). It will depend on the program and funding source which one a student will receive. All students should stay in close contact with their BIMS Administrator to make sure they understand their funding situation.

Tax statements are not provided to any student other than the monthly email sent stating that a deposit is pending. These should be retained for tax recording purposes. Students can expect to hear from various administrative people in May and June to ensure that funding is in place; if there are any concerns about upcoming funding shifts, please do not hesitate to contact the BIMS Administrator or the CVTG Program Administrator.

## Tuition and Fees

The CVTG funds pre-doctoral fellow tuition and fees, while the fellow is on the CVTG. Tuition and fees will be paid for three semesters (Fall, Spring, and Summer; semester order based on appointment start date) per appointment year.

During the rest of the pre-doctoral fellows' Graduate School training, Ph.D. Mentors are responsible for full financial support of students. Sources of funding during this period include mentors' research grants, support from departmental or center funds, and/or individual extramural fellowships obtained by students.

## Health and Dental Insurance

The current Graduate Programs policy is to provide coverage for the pre-doctoral fellow's health and dental insurance. The fellow can pay an additional amount for family coverage.

Students can enroll in the UVA Health Insurance Program through Chickering and the UVA Dental Insurance Program through United Concordia, both divisions of Aetna. Students must register annually for health and dental and are not automatically registered. When completing the online application, the system should not prompt students to pay. If this occurs, the student should notify their BIMS Administrator and try processing the application a couple of days later. Should students elect to purchase other insurance, they should notify their BIMS Administrator and the CVTG Program Administrator, and then they must submit the proper documentation quarterly for reimbursement within in the same fiscal year. Dental insurance is optional and students must complete an application annually and pay with a personal check by the October deadline. A copy of the cancelled check is necessary in order to receive reimbursement. ***It is the responsibility of the student to submit and complete paperwork regarding health and dental insurance reimbursement.***

Short term coverage is available and a number of options are listed on the student health insurance website. Do not hesitate to contact the Assistant Director should you have an emergency situation. [www.gradmed.com](http://www.gradmed.com)

Please refer to <http://www.virginia.edu/studenthealth/insurance.html> for more information.

## Travel and Book Funds

Fellows who have at least 80% attendance to program activities will be awarded up to \$1000 in travel funds and \$200 book funds per appointment year. Please see the Attendance Policy in the section CVTG Events for further details and requirements. Flights and conference registration can be purchased prior to travel with the Program Administrator. Lodging, meals, car rental, taxi rides, etc must be reimbursed. Boarding passes, itemized receipts, and other travel information should be submitted to the Program Administrator within 5 business days of returning from the trip. More travel information and details can be found at [www.procurement.virginia.edu/pagetravel](http://www.procurement.virginia.edu/pagetravel) or by contacting the Program Administrator.

Fellows may purchase books through the Program Administrator by emailing book titles, ISBNs, and whether a specific edition is needed or the fellow may purchase a book and submit a receipt for reimbursement.

## Journal Subscription and Organization Membership

Fellows who have at least 80% attendance to program activities and are in good standing are eligible for one journal subscription and organization membership per appointment year. See the Program Administrator to purchase a subscription or membership.

***Items not covered by CVTG Funds:***

**Vaccinations, thesis binding, testing fees, and instruments**

## Financial Support for CVTG Post-doctoral Fellows

CVTG Post-doctoral Fellows' Benefits:	Amounts reflect the FY17 budget	
Stipend  * If advisors want to pay at a higher level than what is allotted by the NIH CVTG, they may supplement with non-NIH funds <b><u>only</u></b> .	Years of Relevant Experience	Stipend Amount
	0	\$47,484
	1	\$47,844
	2	\$48,216
	3	\$50,316
	4	\$52,140
	5	\$54,228
	6	\$56,400
	7	\$58,560
Tuition & Fees	As needed for courses	
Health/Dental	Low or High Premium; Fellow covered, spouse/ children coverage to be paid by Fellow; See chart below for charges	
Travel	\$1000 (up to) *See attendance section*	
Books, software, & computer	\$750 (up to) *See attendance section*	
1 journal subscription, 1 organization membership at trainee level, 1 UVa gym membership		

### Stipend

The current base stipend is set by the NIH at the above listed levels of experience based on appointment date. Advisors may choose to supplement the fellow with non-NIH funds. If a fellow is awarded an extramural fellowship, he/she may receive a different stipend level. Post-doctoral fellows are paid by stipend around the 6<sup>th</sup> of each month for that month. A Fellow may switch to a Research Associate with the awarding of an extramural fellowship, which will result in a pay schedule change. Please be aware of and in contact with the Program Administrator to anticipate these changes.

The CVTG follows a traditional fiscal year calendar from July 1 to June 30 of the following year. Funding is allocated by the FY. A form for direct deposit will be submitted along with appointment paperwork.

Tax statements are not provided to any fellow other than the appointment letter and pay data form used when setting up the appointment. These should be retained for tax recording purposes. Please see <http://www.nationalpostdoc.org/postdocs/187-overview-of-tax-issues-for-postdocs> for information about postdoctoral tax issues.

Post-doctoral fellows have to agree to “pay back” the first 12 months of their post-doctoral stipend. This payback can be in the form of one month of work in the field of science (including teaching and industry) for every month up to 12 months that they received an NRSA postdoctoral fellow stipend. Note that the second year of a post-doctoral fellowship qualifies as a payback.



### Tuition and Fees

The CVTG will fund pertinent tuition and fees for post-doctoral fellow courses, while the fellow is on the CVTG. Please submit in writing to the Director and the Program Administrator a request for tuition, course description, and details of relevance and need.

### Health and Dental Insurance

Postdoctoral Fellows have two health plan options:

- Value Health, a low-premium program similar to the Postdoctoral Fellow Low Plan
- Choice Health, a high-premium program similar to the Postdoctoral Fellow High Plan

**In addition to choosing a health plan program, you must complete a spousal affidavit in order for your spouse to be on your plan.**

### UVa Health Plan Postdoctoral Fellows Monthly Premiums 2017

Notes:

- If you choose to do the annual biometric screening and online health assessment, you will save \$40/month on your health premium.
- If you qualify for the non-tobacco discount, you will save an additional \$10/month on your health premium.

New Plan Name	Single	Employee + Child(ren)	Employee + Spouse	Family
Value Health	\$0	\$186.25	\$405.25	\$754.00
Choice Health	\$0	\$222.75	\$464.50	\$860.75

### Travel and Book Funds

Fellows who have at least 80% attendance to program activities will be awarded up to \$1000 in travel funds and \$200 book funds per appointment year. Please see the Attendance Policy in the section CVTG Events for further details and requirements. Flights and conference registration can be purchased prior to travel with the Program Administrator. Lodging, meals, car rental, taxi rides, etc must be reimbursed. Boarding passes, itemized receipts, and other travel information should be submitted to the Program Administrator within 5 business days of returning from the trip. More travel information and details can be found at [www.procurement.virginia.edu/pagetravel](http://www.procurement.virginia.edu/pagetravel) or by contacting the Program Administrator.

Fellows may purchase books through the Program Administrator by emailing book titles, ISBNs, and whether a specific edition is needed or the fellow may purchase a book and submit a receipt for reimbursement.

### Journal Subscription and Organization Membership

Fellows who have at least 80% attendance to program activities and are in good standing are eligible for one journal subscription and organization membership per appointment year. See the Program Administrator to purchase a subscription or membership.

### **Intramural Sports and Athletic Facilities Membership**

A request for a letter of authorization identifying the post-doctoral fellow who would like to use these facilities should be sent to the Program Administrator. The authorization letter should be taken to The Director, Intramural Sports and Recreation, Aquatic and Fitness Center, Whitehouse Road from 8:00 am – 5:00 pm Monday through Friday. The annual charge for using these facilities is approximately \$340. The CVTG can reimburse you for this charge; please give or email a receipt to the Program Administrator. Details about all the facilities available and their hours of operation are available by visiting <http://www.virginia.edu/ims> or calling 924-3791.

### **Office for Post-doctoral Programs**

The Office for Post-doctoral Programs works on behalf of Post-doctoral Fellows at the University of Virginia, sends out relevant notices, and runs a career development seminar series. The website <http://www.virginia.edu/vpr/postdoc/index.html> has information regarding insurance, events, and links to helpful resources. For questions regarding postdoctoral issues, please contact 243.2018 or [postdoc@virginia.edu](mailto:postdoc@virginia.edu).

***Items not covered by CVTG Funds:***

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**Vaccinations, thesis binding, testing fees, and instruments**

## UVA CVTG Courses and Events

Attendance Required Courses and Events	Details
Vascular Biology Course (BIMS 8052, 8053)	Annually, in the Fall
Advanced Physiology Course (BIMS 8040, 8041)	Annually, in the Spring.
Ethics Course (BIMS 7100)	A short course offered every Spring.
Cardiovascular Research Center Seminar Series	Most Thursdays during academic year at 11:00 AM-12:00 pm in MR5 1005, unless otherwise noted. Special seminars may occur on other days, at other times, or during the summer.
Annual Robert M. Berne Distinguished Lecture	Annually, in the Fall. Date/Location TBD.
Research in Progress Sessions	3 <sup>rd</sup> Thursday of every month, 4:00-5:30 pm MR6 2501.
Grant Brewing Workshop	Present one grant in preparation in the Fall. Date/Location TBD.
Translational Clinical/Observation Experience	2 half-day experiences per year, individually scheduled.
Recommended Courses and Events	Details
Grant Brewing Workshops	Select dates and times during the year.
Career Development Course	Wednesdays at 11 AM, Location/Dates TBD.
International Collaborations	Opportunities individually arranged.

There are several CVTG activities to supplement the training provided by degree granting graduate programs and bench work. CVTG activities are extremely important in promoting the unique development of scientists and to allow them to identify with a cohort group with similar goals and expectations. Attendance is required unless otherwise noted.

### Vascular Biology (BIMS 8052, 8053)

Vascular Biology is a broad interdisciplinary course considering the basis for vascular function from a physiological and pathophysiological perspective. Topics include basic microcirculatory function, smooth muscle and endothelial cell function and development, capillary exchange, inflammatory processes, leukocyte endothelial cell interactions, and the pathophysiology of atherogenesis. Topics such as vascular control, angiogenesis, and inflammatory responses of the cardiovascular system will be highlighted. Prerequisite: One course in mammalian physiology and one in cell biology. The course is split into two modules.

### Advanced Physiology Course (BIMS 8040, 8041)

The course will integrate background cellular and molecular knowledge into organ systems and whole animal, function. It is intended to provide the ability to integrate knowledge at the molecular level into function, the foundation of translational-based research. The physiology to be covered will include the nervous system, metabolism and endocrine systems. The course is split into two modules.

### Ethics Course (BIMS 7100)

Beginning in 1989, the National Institutes of Health introduced a requirement that institutions provide a program of instruction in the responsible conduct of research (NIH Guide for Grants and Contracts, Volume 18, Number 45, 1989). This was later expanded to require that all fellows on NIH training grants should receive instruction in the responsible conduct of research. The course covers: conflict of interest, responsible authorship, policies for handling misconduct, policies regarding the use of human and animal subjects, and

data management. This course is designed to help trainees consider each of these areas and therein formulate an understanding of responsible conduct in research. Trainees must take an Ethics Course at each career stage (graduate student, post-doctoral fellow, etc) or at least once every four years.

### **Cardiovascular Research Center Seminar Series**

The Robert M. Berne Cardiovascular Research Center Seminar Series is a long-running and well-established seminar series hosting many renowned scientists and clinicians each year. Speakers are selected to span the broad range of cardiovascular research, and to educate the trainees in matters beyond their immediate bench research needs. Fellows and former fellows have the opportunity to meet with invited guests one-on-one or for breakfast or lunch. Trainees also invite and host up to four seminar speakers per year.

### **Annual Robert M. Berne Distinguished Lecture**

The Annual Robert M. Berne Distinguished Lecture is a highlight of Cardiovascular Research Center, which is given in the fall, by a scientist of outstanding caliber. The list of past Lecturers includes three Nobel Prize winners. The Berne Lecture thus becomes the culmination of the scientific presentations of the year. The trainees will attend the Lecture, Reception, and also meet with the speaker in a roundtable lunch session.

### **Research in Progress (RIP) Meetings**

The goal of the RIP series is to promote scientific interactions between the fellows and to provide a forum for issues particular to biomedical scientists in cardiovascular research. The venue includes a mixture of formal presentations, roundtable discussions, Elevator Pitches, and brief informal research presentations by fellows followed by a lively discussion of the project and of its significance, alternative approaches (Hot Seat). A comprehensive set of documents related to how to present at different RIP's is located in Appendix D: CVTG Research in Progress Sessions Formats, Guidelines, and Suggestions.

The RIP meetings run from 4:00 to 5:30 pm every third Thursday of the month. Attendance is required unless there is an unavoidable prior professional/academic commitment (see elsewhere) and excused in advance by the CVTG Director.

All CVTG Mentors are invited to RIP in addition to the Director and Associate Directors. Mentors who attend are introduced and give a 3-4 minute summary of their research programs at the beginning of the session. This serves to familiarize fellows with some of the mentors in the Program and often leads to fellows seeking out those individuals to explore readings courses, rotations, collaborations, assistance with a technique, etc.

### **Grant Brewing Workshop**

These are intense sessions in which a trainee OR a faculty member prepares a short written summary of a grant proposal, focusing on brief background, specific aims and anticipated outcome. This information is then presented to a mixed audience of trainees and faculty for comment and criticism. These sessions serve to identify weaknesses in experimental approach, lack of clarity, or flawed techniques early enough for the presenter to remedy the application.

We require trainees to begin preparation of an application for submission of external funding as soon as they are assigned to the CVTG. To facilitate this, Dr. Gary Owens offers a lecture and discussion in grant writing in the fall, and with that preparation, and the mentor's input, trainees complete either an extramural grant (AHA, NRSA, NSF, APS, etc) their first year of appointment. In addition, we have recently expanded our CVRC Grant Brewing Sessions which previously focused on PIs presenting early stage grant proposals in a spirited critique session in front of CVRC/CVTG faculty and trainees, to include presentations by CVTG trainees. These activities have been tremendously beneficial in improving the quality of the science and proposals as

exemplified by the outstanding success of our trainees in securing individual competitive extramural fellowships. Fellows are encouraged to attend other Grant Brewing Workshops as time allows.

### **Translational Clinical/Observation Experience**

With the increasing recognition of the importance of translational research and of the need for integrative studies for our trainees in cardiovascular biology, we have initiated a Translational Research Enhancement Program for our Cardiovascular Research Trainees. Many of our fellows are highly focused on cellular and molecular research programs in their laboratory work, and they are more and more likely to be separated from the ultimate product of NIH sponsored research, that is, the illness and the patient. To address this we have developed a program for exposure of basic scientists in training to clinical activities.

We have brought together a group of clinician-scientist faculty members involved in both cardiovascular medicine and basic cardiovascular research. Each trainee is asked to select an individual from this group and to have 2 cardiovascular-related clinical environment experiences. Clinical activities include cardiology and pediatric cardiology clinics, cardiac catheterization laboratory, cardiac and vascular anesthesia, cardiac and vascular surgery, cardiovascular pathology, etc. Ideally, the clinical scientist chosen will have a parallel research interest with the fellow, but that is not required. See a list of clinicians in Appendix C.

### **Career Development Course**

The seminar series/course is designed to provide the information in development as an independent researcher/faculty member that is not heard elsewhere. Over the series we will review a variety of topics designed to aid in a successful transition from being a trainee to an independent scientist. This course is held on select Wednesdays in MR5 1005 from 11 AM-12 PM.

### **International Collaborations**

We have developed international collaborations that complement the research programs wherever possible. We have two currently underway.

***The AstraZeneca-UVA CVRC research alliance*** - As described elsewhere, has provided invaluable and unique opportunities for research and training for our trainees including internships at AstraZeneca's Mondale Sweden facility, as well as interaction with AstraZeneca Scientists who spend time at UVA. Thus far, three UVA graduate students have done internships at AstraZeneca.

***International Research Training Group*** - A unique collaboration has been established between Dusseldorf University and UVA. Eleven laboratories from the two schools have paired up in complementary research proposals. Each of these trans-Atlantic projects is working on a common set of experimental goals, and German students will come to the US for 3-6 months in exchange for US students going to Dusseldorf as part of their dissertation work.

### **Other SOM Activities**

CVTG fellows also participate in many other School of Medicine activities that foster their development as scientists. This includes the Cardiology Grand Rounds, other Seminar Series, Annual Graduate Biosciences Student Symposium, Postdoc Research Poster Day, and the Presidential Poster Competition Session. Participation in these activities is optional.

## CVTG Attendance Policy

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We take attendance at all activities. Excused absences for all required CVTG activities will be granted for professional/academic or unavoidable medical reasons only and **not for personal conflicts**. If you are not able to attend a required activity for any reason, you must notify the Director and Program Administrator **prior to the activity**.

Trainees who have perfect attendance qualify for up to \$750 allowance for training related expenses such as books, computer, or software. This allowance is reduced by 50% with two or more unexcused absences; >3 absences results in loss of this allowance plus disciplinary measures starting with a meeting of the trainees with 2 or more members of the CVTP Executive Committee to identify/rectify the problem and/or determine if the trainee should be allowed to continue in the program. Trainees with excellent attendance also qualify for a \$1000 travel allowance to attend scientific meetings approved by their mentors.

Please remember to sign the attendance form. If you do not, expect a follow up email asking why you were not there. You must respond to this email within a week or you will be counted as having an unexcused absence.

## CVTG Reimbursement Procedures

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There are multiple times during the program that fellows will need to be reimbursed for travel, books, health insurance, or meals with CVRC Seminar Speakers. It is imperative that all UVA Procurement policies are followed. These include, but are not limited to, per person meal limits, hotel limits, and proper documentation of purchase. Procurement Services website (<http://www.procurement.virginia.edu/pagetravelbasics>) should be consulted regularly because policies change without notice.

The travel allowance can be combined with additional funds the fellow receives from other sources (e.g. travel awards from the scientific meeting, Mentor funds, etc.). Flights and conference registration can be purchased prior to travel with the Program Administrator. Lodging, meals, car rental, taxi rides, etc must be reimbursed. Boarding passes, itemized receipts, and other travel information should be submitted to the Program Administrator within 5 business days of returning from the trip.

The table below is for reference and reflects the procedures followed when completing reimbursement requests:

### Reimbursement Required Documentation

Travel	Meals	Insurance
Original Boarding Passes, taxi receipts, other original receipts and invoices	Original ITEMIZED Receipt	Cost information (pay stub showing the amount paid)
Itinerary with airfare cost	Original CREDIT CARD Receipt	Copy of the CANCELED CHECK
Hotel Folio/Receipt, with your name	Names of the Individuals in Attendance	*DUE Quarterly

## Annual Progress Report Meetings

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In order to monitor fellows' progress and experiences in the program, annual meetings with two members of the CVTG Steering Committee (which consists of the Director, 2 Associate Directors, and 3 additional faculty members) are required. As part of this process, fellows are required to fill out the Annual Progress Report form (see Appendix B: CVTG Program Annual Progress Report) sent after the winter semester break due in early February. The reports are then reviewed by the Directors prior to your meeting. The Program Administrator will set up the Annual Progress Report meeting slots during March and April with two of the Executive Committee Members.

Fellows failing to submit their completed CVTG Annual Progress report by the deadline, and to attend the annual progress report meeting, will be reviewed by the CVTG Executive Committee to determine if they should be allowed to continue in the program. CVTG Executive Committee members do not sit in the meeting for their own trainees.

Annual Progress Report: Purposes
1. Advise on all aspects of training
2. Discuss the fellow's research progress
3. Serve as a trainee advocate
4. Strategize with the fellow about potential courses, research interests and collaborations, project timeline
5. To discuss long term career goals
6. Identify any issues that may need further attention, including mentoring or funding

## *Appendices*

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## Appendix A: List of CVTG Mentors, by Focus Area

### **Cardiovascular Imaging:**

Fred Epstein, PhD  
Brent French, PhD  
Jeffrey Holmes, MD, PhD  
John Hossack, PhD  
Song Hu, PhD  
Kimberly Kelly, PhD  
Christopher Kramer, MD  
Bijoy Kundu, PhD  
Craig Meyer, PhD

### **Cardiovascular Regulation:**

Eugene Barrett, MD, PhD  
Robert Carey, MD  
Patrice Guyenet, PhD  
Brant Isakson, PhD  
Jeff Saucerman, PhD  
Helmy Siragy, MD  
Swapnil Sonkusare, PhD  
Gib Hupchurch, MD  
Zhen Yan, PhD

### **Cell Signaling:**

Paula Barrett, PhD  
Thurl Harris, PhD  
Mark Okusa, MD  
Avril Somlyo, PhD  
Thomas Barker, PhD

### **CV Genetics, Epigenetics, Genomics, and Systems Biology:**

Gorav Ailawadi, MD  
Thomas Braciale, MD, PhD  
Mete Civelek, PhD  
Anindya Dutta, PhD  
Kevin Janes, PhD  
Adli Mazhar, PhD  
Mike McConnell, PhD  
Coleen McNamara, MD  
Eyleen O'Rourke, PhD  
Gary Owens, PhD  
Jason Papin, PhD  
Shayn Peirce-Cottler, PhD  
Kodi Ravichandran, PhD  
Steve Rich, PhD  
Eli Zunder, PhD

Weibin Shi, PhD

Matthew Wolf, MD, PhD

### **Smooth Muscle-Endothelial Cell Biology:**

Brian Annex, MD  
George Christ, PhD  
Victor Engelhard, PhD  
Victor Laubach, PhD  
Richard Price, PhD  
Paul Yates, MD, PhD  
Mark Yeager, MD, PhD

## Appendix B: CVTG Program Annual Progress Report

Name:

Year of Entry (UVa, and CVTG):

**Section A: Students Only. Post-docs, proceed to Section B.**

1. Courses: (attach an unofficial transcript of completed curriculum/courses and list any courses currently being taken below. You can access a record of your grades online through SIS).
2. Lab Rotations Completed (list faculty mentor, project title, and date):
3. Ph.D. Department Candidacy Exam (degree program, date of completion or date scheduled):
4. Dissertation Proposal Exam (date of completion or anticipated):
5. Title or Working Title of Dissertation:
6. Dates of Dissertation Committee Meetings:
7. Dissertation Committee Members (indicate Mentor):
8. Anticipated thesis defense date (or year):

**Section B: All Trainees**

1. Time with Mentor—Amount and frequency of one-on-one time with your mentor per month:
2. Publications (citation list with the following categories: published, submitted manuscripts, manuscripts in preparation, and abstracts. Indicate if authored or co-authored. If none, please indicate.):
3. Grants Applied for and Grants Awarded (List grant type/agency and date applied.) All trainees must have applied for a grant by the end of their second year on the CVRC Training Grant; Postdoctoral fellows are highly encouraged to apply for a grant before the end of their first year of support:
4. Presentations at Scientific Meetings or Seminars Given (List the meeting, where it was held, the date and type of presentation, and the title of talk or poster.):
5. Research Summary—Provide a 1 paragraph summary of the research conducted during the current grant year, as well as a list of specific techniques you have mastered. Provide a summary of the work to be conducted during the upcoming year.
6. Special Topics in Cardiovascular Research (Career Development Talks)--Frequency of participation.
7. Translational Research Program:

If you participated in the translational research program during the current grant year, please provide the name and department of the clinician you worked with, dates, and a brief summary of the experience.

8. CV Training Grant RIP:  
How many of the monthly RIP meetings did you attend during the current year? Did you present?
9. Other Significant Activity (awards and honors, course sections taught, leadership positions, students mentored, sessions chaired). If none, please indicate.
10. Which other seminars do you attend on a regular basis? Please specify department or series.
11. Suggestions for Training Program Improvement. Where should we improve? Is there anything about the experience that you would like us to know?

**Appendix C: Translational Clinical/Observation Experience Clinicians**

The fellow will meet with the faculty member for a preclinical orientation and didactic session which will inform the fellow of what to expect and what they might learn from this experience. During the clinical exposure, and in a didactic session following the clinical experience, the faculty member and fellow will discuss the relevance of the clinical observations to cardiovascular research issues. At one of the RIPs, trainees will share their translational clinical experiences with the group.

This list of clinicians has agreed to allow trainees to join them in the clinic. Clinical/observation experiences may be arranged with other faculty members.

<b>Name. Telephone, Email ID</b>	<b>Department and Title of Translational Research Experience</b>	<b>Research Interest</b>	<b>Clinical Interest</b>
Ailawadi, Gorav (MD), 4-5052; GA3F	<b>Surgery</b>	Aortic aneurysms, basic science, valve disease, cardiopulmonary bypass induced injury, Abdominal aortic aneurysm formation	Valvular disease, Aortic aneurysms and dissections, Reoperative Surgery, Off pump CABG, Minimally invasive cardiac surgery, Cardiopulmonary bypass
Baum, Victor (MD) 2-3889; VCB2N	<b>Anesthesiology:</b> hemodynamic effects of general and regional anesthesia	Effects of anesthetic agents on sarcolemmal ionic currents in immature myocardium, developmental cardiac electrophysiology.	Cardiac, thoracic and vascular anesthesia
Bourque, Jamie (MD) 2- 4270; JMB8T	<b>Medicine and Radiology (focus in Cardiovascular disease):</b> Prevalence and Correlation of Abnormal Flow Reserve by Stress CMR and Non-Obstructive CAD by Cardiac CT in Symptomatic Diabetics: What is the Optimal Risk Stratification Method?	microvascular disease, comparative effectiveness, and patient-centered outcomes in coronary artery disease	coronary artery disease, noninvasive imaging and risk stratification, and dive medicine
Dent, John (MD) 2-1414; JMD5K	<b>Cardiology:</b> Echocardiography, valvular heart disease, thromboembolism	Valvular heart disease, technology assessment, contrast echocardiography	Echocardiography, valvular heart disease, thromboembolism, general cardiology, patient safety, and quality improvement
Dokun, Ayotunde (MD) 2-6544; DOA3Q	<b>Medicine, Endocrinology and Metabolism</b>		Adrenal Gland Disorders, Diabetes, Diabetes and Cardiovascular Diseases, General Endocrinology, High Blood Pressure, osteoporosis, Pituitary Disorders, Thyroid Disorders
Gimple, Larry (MD) 4-9591; LWG9Q	<b>Cardiology</b>	Mechanisms of restenosis following vascular interventions. New educational teaching tools	Interventional cardiology

		using multimedia and digital techniques.	
Kramer, Christopher (MD) 2-4270; CMK2N	<b>Cardiology:</b> Translational Cardiovascular Imaging	Cardiac MRI in ischemic heart disease in animal models and in man. Myocardial viability in acute and chronic ischemic heart disease. LV remodeling after myocardial infarction. Imaging of atherosclerosis and coronary artery disease	general cardiology, ischemic heart disease, cardiac imaging, cardiac MRI and CT, echocardiography
Matherne, Paul (PhD) 4-5365; GPM2Y	<b>Pediatric Cardiology</b>	Cardiac protection and heart failure; Ischemia reperfusion; Murine physiology	Pediatric Cardiology and Cardiac Catheterization
Matsumoto, Allan (MD) 4-9279; AHM4D	<b>Radiology &amp; Medical Imaging</b>	Atherosclerotic (humans and mice) and non-atherosclerotic vascular disease (human); device testing and development; clinical outcomes; clinical trials for FDA trials	Peripheral arterial, mesenteric arterial, renovascular and aortic disease; hypertension & ischemic nephropathy; fibromuscular dysplasia
McDaniel, Nancy L (MD) 4-9148; NLM9M	<b>Pediatric Cardiology</b>	Growth and development in children with congenital heart disease	Cardiac transplantation
McGahren, Eugene D. (MD) 4-5643; EDM6K	<b>Surgery:</b> Observation of clinical practice of Pediatric Surgery	Pulmonary microcirculation	General pediatric surgery, including neck, chest, abdominal conditions
McNamara, Coleen (MD) 2-3366; CAM8C	<b>Cardiology:</b> Understanding the role of helix-loop-helix transcription regulators in vascular lesion formation. Diabetes and Cardiovascular Disease	Understanding the role of helix-loop-helix transcription regulators in vascular lesion formation. Diabetes and Cardiovascular Disease	Adult Cardiology Prevention Diabetes and Cardiovascular Diseases
Moorman, J. Randall (MD) 2-3367; RM3H	<b>Cardiology</b>	Molecular biology of ion channels; Modulation of cardiac excitability by signal transduction processes; Heart rate variability.	Cardiology and Cardiac Catheterization; Ischemic Heart Disease
Taylor, Angela (MD) 3-9396; AMT6B	<b>Interventional Cardiology</b>	<b>Microvascular disease, women's heart disease, novel mechanisms of atherosclerosis and atheroprotection in humans, phenotyping human coronary disease</b>	<b>Women's heart disease, diabetes, interventional cardiology</b>

## Appendix D: CVTG Research in Progress Sessions Formats, Guidelines, and Suggestions

### RIP Session Formats and Frequency

- 1 Strategic Planning Meeting (June)
- 1 Elevator Pitch with Introductions of trainees (July)
- 2 RIP Hot Seats (Draw names from bag)
- 6 RIP sessions with 2 presentations each
- Additional sessions for grant writing and grant brewing will be scheduled October-December

### Suggestions for all session formats

You are presenting a limited amount of information that you know well, even though it doesn't seem like it. Realize that the presentation is important for your development as a scientist, but you can relax in this low-pressure learning environment. Here are some suggestions for you to think about in preparing what you are going to say.

- **Identify your audience** and gear your presentation to the individuals in the group who know the least about your topic area but connect to a larger context. This is a critical skill for all effective communication, including grant writing. Those more familiar will appreciate the refresher. Take everything you have done during your rotations or projects, boil it down, and present it in a way that everyone knows what you are talking about.
- **Identify who you are**, what lab the work was done in, and perhaps a few words about your overall long term professional interests.
- **Always open with a sentence that convinces your audience that what you are about to say is important and worth their attention.**
- **Orient the audience:** State in 1-2 sentences your project and clearly identify the problem, question, or hypothesis you hope to address. Make it simple and easy to understand, yet comprehensive and interesting.
- Tell them how you intend to **address the problem/question/hypothesis** and the rationale for choosing the experimental approach you selected.
- **State your major findings. Give a conclusion** summarizing your findings and what is next. You don't have to have the best data in the world. People just want to see you're learning something. That is the whole point of this presentation when you get right down to it. If the best data you have is a gel that is slightly burned in the corner but illustrates a good point, show the slide. Remember the quality does not have to be publishable. Of course, it's great if you can get it there, but if not, don't fret.
- **Practice.** This seems obvious but cannot be said enough. Memorize the first few sentences of what you plan to say, which may help if you have presentation anxiety. Ask to give the talk at a lab meeting or ask a few lab members to sit-in while you practice. Encourage them to give pointers and feedback.

### **Elevator Pitches**

Trainees should prepare a 3-4 minute introduction about themselves and their project—no slides! Also, remember that the audience will be quiet diverse from 2<sup>nd</sup> year graduate students just getting into labs to faculty and also from very different areas. These short “elevator pitches” are intended to help you connect with other scientists at conferences and meetings who may not work in your area and be as easily understood by laypeople.

### **Hot Seat Sessions**

The premise of these sessions is to have fellows selected by pulling names from a hat to give a 5-6 minute summary of their research project without slides indicating why their project is important, what has been done so far, what needs to be done, the project hypothesis, and experimental approach, where the project is going long term, and problems or limitations in their project. Other fellows then ask questions to clarify their understanding of the project. A faculty panel then quizzes the fellow audience, not the fellow presenter, on their understanding of the project. The intent is to get all fellows participating and asking those questions you had but did not have the courage to ask. The Discussion tends to be far-ranging and the format encourages an in-depth consideration of experimental methodologies, pros and cons thereof, and potential alternative experimental approaches.

The goal is to gain experience in explaining your research quickly and succinctly to a diverse audience, and for everyone to become familiarized with the research interests of their fellow CVTG trainees. In addition, the format gives you immediate feedback on the effectiveness of your presentation, based on assessing the questions of your fellow trainees. For example, I forgot to state my major hypothesis, or I failed to explain the experimental design, rationale, etc. The goal is to help you recognize how you might have done a better job at explaining what you are doing and why. We will strongly encourage your fellow trainees to ask questions to help clarify your presentation since those not asking questions will likely be the target of subsequent questions asked by the faculty panel.

### **RIP Research Presentation Guidelines**

1. Presentations are 25 minutes plus 5 minutes for questions at the end. You will likely be interrupted with some questions during the presentation, so your talk should be completed in approximately 20 minutes. You will be timed and if you are not done by 30 minutes total you will be asked to end the talk whether finished or not. As such, please practice your talk to ensure you cover everything you want in no more than 20 minutes.
2. Two research presentations are usually scheduled for one RIP session.
3. In most cases, it is best to start your talk by outlining why the topic area is important, including relating your area of research to human disease.
4. During or following your talk, pose 3-5 questions to stimulate participation.
5. Dr. Owens will ask all faculty not to ask questions at the end of your presentation until there have been at least 2 trainee questions. Faculty of course can ask points of clarification during talks.
6. Please include material in your RIP presentation that is incomplete or controversial. Don't feel like you should have a complete story before presenting data - take advantage of the great input your colleagues can provide early in a project.
7. Include a slide near the end that summarizes ongoing studies and future directions.

8. Consider presenting a last slide to address the questions, "How does this research project relate to my long term plans of being a successful scientist?"
9. The RIP is intended to be CVTG's primary forum for exchange of research ideas so please let the Program Administrator or Dr. Owens know if you have additional suggestions.

### **Grant Brewing Workshop**

These are intense sessions in which a trainee prepares a short written summary of a grant proposal, focusing on brief background, specific aims, and anticipated outcome. This information is then presented to a mixed audience of trainees and faculty for comment and criticism. These sessions serve to identify weaknesses in experimental approach, lack of clarity, or flawed techniques early enough for the presenter to remedy the application. In addition to getting critical evaluation of a grant application, these sessions foster interactions among different laboratories and educate faculty, graduate students and post-docs in grantsmanship.

Prepare a no more than 5 slides to present your project to the group in 5-10 minutes. The remainder of the 30-60 minute session is filled with questions and ideas.