

# RESEARCH CAREER DEVELOPMENT NEWSLETTER

WEBSITE: <http://medschool.umaryland.edu/career>

March 2019

The **Research Career Development Program (RCD)** offers workshops, classes and seminars in subjects that are crucial to an academic research career, including Grant Writing, Publishing Your Research and Identifying Funding Sources for Your Research. In addition, RCDP offers symposia on professional skills development, including Scientific Leadership & Professional Development. To view the events and services offered by RCD and upcoming grant deadlines etc., please visit: <http://medschool.umaryland.edu/career/>.

## UPCOMING EVENTS

### Identifying Funding Sources for Postdocs

Tuesday, March 26

9:00 – 10:00am

685 W. Baltimore Street, MSTF Building, Room 316

This interactive workshop, given by **Stacie Mendoza**, Program Director, will assist postdocs in identifying non-NIH sources of funding for their research. Topics will include:

- Comprehensive introduction to various funding resources, including searchable databases and useful websites
- Helpful tips for identifying sources of funding
- Interactive demonstration using funding databases

Registration required online at: <http://registrationrcdp.eventbrite.com>

### Identifying Funding Sources for Faculty

Wednesday, March 27

9:00 – 10:00am

685 W. Baltimore Street, MSTF Building, Room 316

This interactive workshop, given by **Stacie Mendoza**, Program Director, will assist faculty in identifying non-NIH sources of funding for their research. Topics will include:

- Comprehensive introduction to various funding resources, including searchable databases and useful websites
- Helpful tips for identifying sources of funding
- Interactive demonstration using funding databases

Registration required online at: <http://registrationrcdp.eventbrite.com>

### NIH High-Risk High-Reward Research Program: Funding Information Session

Wednesday, April 17

1:00 - 2:30pm

621 W. Lombard Street, SMC Campus Center, Room 351

The High-Risk, High-Reward Research program supports "**exceptionally creative scientists pursuing highly innovative research with the potential for broad impact in biomedical or behavioral science**".

**Dr. Ravi Basavappa**, Program Leader, High-Risk, High Reward Research Program, will discuss the following topics:

- Elements of a competitive proposal
- Determining whether these awards are an appropriate match
- Funding requirements
- Advice on how to apply
- Overview of the review process

Recent NIH High-Risk High-Reward awardees will also share their personal experiences with applying for and receiving these awards.

This program consists of the following four constituent NIH Director's awards:

- NIH Director's Pioneer Award
- NIH Director's New Innovator Award
- NIH Director's Transformative Research Award
- NIH Director's Early Independence Award

More information about this program can be found at: <https://commonfund.nih.gov/highrisk>

#### Speakers:

**Ravi Basavappa, PhD**, Program Leader, High-Risk High-Reward Research Program, Office of Strategic Coordination (The Common Fund Office), Division of Program Coordination, Planning, and Strategic Initiatives, Office of the Director, National Institutes of Health (NIH)

**Daniel Morgan, MD, MS**, Associate Professor, Department of Epidemiology & Public Health/Infectious Diseases, UMSOM

**Julie Dunning Hotopp, PhD**, Associate Professor, Department of Microbiology and Immunology, UMSOM

Registration required online at: <http://registrationrcdp.eventbrite.com>

## Funding Opportunities through the US Department of Veteran Affairs (VA)

Tuesday, April 30  
1:00 - 2:00pm

621 W. Lombard Street, SMC Campus Center, Room 351

The US Department of Veteran Affairs (VA) offers a number of funding opportunities available to faculty and postdocs.

**Dr. Carol Fowler**, Deputy Associate Chief of Staff for the VA Research and Development Program, will lead this session. This seminar will introduce participants to the various types of grant applications available through the VA, including eligibility requirements, tips for applying, and insights into the review process. Recent VA awardees will also share their personal experiences with applying and receiving a VA award.

### Speakers:

**Carol Fowler, PhD**, Deputy Associate Chief of Staff, Research and Development VA Maryland Health Care System

**France Carrier, PhD**, VA Research Health Scientist at the VAMHCS; Professor, Department of Radiation Oncology, UMSOM

**Samantha Hack, PhD, LGSW**, Research Health Scientist, Department of Veterans Affairs VISN 5 Mental Illness Research, Education, and Clinical Center

Registration required online at: <http://registrationrcdp.eventbrite.com>

## SCIENTIFIC WRITING: Monthly Seminar Series

The purpose of this seminar series is to help faculty, fellows and postdocs write clear, well-organized scientific papers. The series consists of ten (10), 1-hour stand-alone sessions, each of which focuses on an important aspect of scientific writing. Registration is available for the following two sessions. Dates and subjects for the monthly sessions are outlined below and will be described in detail in subsequent newsletters.

**Please note:** faculty, fellows and postdocs are welcome to attend every session in the series or single sessions of interest.

**Please register for each session in the series.**

### Responding to Reviewers

Thursday, March 14  
9:00 – 10:00am

621 W. Lombard Street, SMC Campus Center, Room 210

The ability to effectively respond to reviewers is an important aspect of resubmitting a research paper, and having it accepted for publication; however, this process can be a daunting task. During this session, participants will receive helpful advice on how to best respond to reviewers' comments when resubmitting a research paper.

**Speaker: Stefanie Vogel, PhD**, Professor, Department of Microbiology and Immunology, UMSOM

Registration required online at: <http://registrationrcdp.eventbrite.com>

## Tips for Scientific Writing with a Focus on Clarity/Editing

Thursday, April 11  
9:00 – 10:00am

660 W. Redwood Street, Howard Hall, Room 224

Scientific papers that are well-written have higher rates of acceptance, but often scientists are unsure of how to present their research succinctly and clearly. This seminar focuses on tips for writing scientific research papers with a primary emphasis on clarity and editing. The session makes use of examples to reflect common errors in scientific writing, and how to address these.

**Speaker: Isabell May, PhD**, Director, Writing Center, UMB

Registration required online at: <http://registrationrcdp.eventbrite.com>

### SAVE THE DATE!

## SCIENTIFIC WRITING: Monthly Seminar Series

Please mark your calendar for the following scheduled sessions on **Thursdays, 9-10am**. **Please note:** The room location has changed for the remaining sessions. Please see the sessions and locations below. Registration information will be announced in future newsletters.

**May 9: TBD**  
(SMC Campus Center, Room 210)

**Jun 13: TBD**  
(Howard Hall, Room 224)

## MANAGING YOUR RESEARCH PROGRAM: Monthly Seminar Series

The purpose of this new seminar series is to support faculty, fellows and senior postdocs who are either new to leading a research team or are interested in honing their leadership skills. This new monthly seminar series consists of ten (10), 1-hour stand-alone sessions, each of which focuses on a subject/skill set that is important to successfully developing and managing a research program/team. Registration is available for the following two sessions. Dates and subjects for the monthly sessions are outlined below and will be described in detail in subsequent newsletters.

**Please note:** faculty, fellows and postdocs are welcome to attend every session in the series or single sessions of interest.

**Please register for each session in the series.**

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### Financing Your Research

**Tuesday, March 19**  
**9:00 – 10:00am**

621 W. Lombard Street, SMC Campus Center, Room 351

A challenging and crucial aspect of leading a research lab or program is the need to fund your research/program. Given the current competitive funding rates, this responsibility can be even more challenging. During this session, participants will hear from two academic research scientists who have learned how to finance their programs by applying for funding from diverse sources, including the NIH, foundations and corporate funding. This session will begin by helping faculty understand how to develop a budget for their research lab or program, and will then address how to diversify your sources of funding. This session will address issues relevant to both preclinical and clinical research labs and programs, and will include tips for dealing successfully with some of the current challenges in funding.

**Speakers:**

**Norann Zaghoul, PhD**, Associate Professor, Department of Medicine, Division of Endocrinology, Diabetes and Nutrition, Program in Personalized and Genomic Medicine, UMSOM

**Daniel Morgan, MD, MS**, Associate Professor, Department of Epidemiology and Public Health/Infectious Diseases, UMSOM

**Registration required online at:** <http://registrationrcdp.eventbrite.com>

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## Maintaining Morale and Guiding Your Research Team in Difficult Times

**Tuesday, April 16**

**9:00 – 10:00am**

621 W. Lombard Street, SMC Campus Center, Room 351

The role of leading a research lab or program is challenging, requiring investigators to balance numerous competing needs, including the need to provide direction to their program, mentor their trainees, publish, fund their research program, have enough time to carry out research, teach and more. These challenges increase when the funding rate is low or unpredictable. The need to balance the multiple facets of an academic research career while also having time for a personal life can be daunting. This session focuses on identifying strategies to manage competing professional demands, while also leaving time for family life and personal interests.

This session will consist of a 45 minute talk, followed by a Q & A session based on participants' interests and concerns. Participants are welcome to submit questions they wish to have addressed anonymously, and a questionnaire link will be set up for this purpose and emailed to all participants.

**Speaker: Wendy Sanders, MA**, Associate Dean, Office for Research Career Development, UMSOM

**Registration required online at:** <http://registrationrcdp.eventbrite.com>

### SAVE THE DATE!

#### MANAGING YOUR RESEARCH PROGRAM: Monthly Seminar Series

Please mark your calendar for the following scheduled sessions on **Tuesdays, 9-10am** at the **SMC Campus Center, Room 351**. Subjects are identified below and registration information will be announced in future newsletters.

**May 21:** Setting Up Collaborations, Networking, Getting the Most from Meetings & Conferences

**Jun 18:** Planning for Promotion

## HS/HS LIBRARY

### The Health Sciences and Human Services Library's subscription to RefWorks will end on June 30, 2019.

There are many options for transitioning to other citation management systems. To read more about the tools that are available, visit our website explaining three alternate citation managers, EndNote, Zotero, and Mendeley. Please note that while EndNote is a paid software, some departments provide licenses for their faculty. Please contact your department's IT representative for more information on installing any new software.

To learn more about the citation managers available, please consider attending these upcoming workshops:

- **Which Citation Manager is Right for Me?**  
Thursday, March 21 11-11:30am Howard Hall 450
- **Managing Citations Using EndNote**  
Thursday, March 7 2-3pm online  
Tuesday, March 19 1-2pm Pharmacy Hall N106
- **Managing Citations Using Mendeley**  
Tuesday, March 26 12-1pm HS/HSL room LL04
- **Managing Citations Using Zotero**  
Tuesday March 12 12-1pm HS/HSL room LL03

Register online at:

<http://www2.hshsl.umaryland.edu/hshsl/workshops/register.cfm>

Registration is encouraged but not required.

Questions? Please contact **Andrea Shipper** at

[ashipper@hshsl.umaryland.edu](mailto:ashipper@hshsl.umaryland.edu)

## Individual Consultations (RCD)

### GRANT APPLICATION/SUMMARY STATEMENT CONSULTATIONS

**Wendy Sanders, MA**, *Associate Dean* for Research Career Development, is available to meet with junior faculty regarding how to plan and develop NIH grant applications. In addition, Ms. Sanders is available to discuss eligibility for various NIH applications. Finally, Ms. Sanders is also available to discuss strategies for addressing summary statements/revising a research grant application. **Email:** [wsanders@som.umaryland.edu](mailto:wsanders@som.umaryland.edu)

### RESEARCH QUESTION/HYPOTHESIS DEVELOPMENT CONSULTATIONS

**Marey Shriver, PhD**, *Director* for Research Career Development, meets with junior faculty regarding early project conception, including developing a clear research question and testable hypothesis. **Email:** [mshriver@som.umaryland.edu](mailto:mshriver@som.umaryland.edu)

### FUNDING SOURCE CONSULTATIONS

**Stacie Mendoza**, *Program Director* for Research Career Development, assists junior faculty and postdocs with identifying sources of funding for their research including how to navigate the NIH funding database. To schedule a funding consultation, complete a **Funding Search Request Form** online at <http://www.medschool.umaryland.edu/career/Grant-Funding-Consultation-Service/> **Email:** [smendoza@som.umaryland.edu](mailto:smendoza@som.umaryland.edu)

## Funding Opportunities ~ Upcoming Deadlines

### **ALLIANCE FOR CANCER GENE THERAPY (ACGT)**

2019 Investigator's Award in Cell and Gene Therapy for Cancer

ACGT funds research aimed at furthering the development of cell and gene therapy approaches to the treatment of cancer.

**LOI DUE:** March 12, 2019 at 11:00am

**WEBSITE:** <https://acqtfoundation.org/news/2019-rfa-available/>

### **KENNETH RAININ FOUNDATION**

Innovative IBD Research Grant

Through its Innovator Awards program, the foundation provides grants for basic, translational, and clinical research projects that test novel, untested ideas in the area of Inflammatory Bowel Disease (IBD).

**LOI DUE:** March 15, 2019

**WEBSITE:** <http://krfoundation.org/health/grants/innovator-awards/>

### **CRAIG H. NEILSEN FOUNDATION**

**Spinal Cord Injury Psychosocial Research**

The foundation is accepting applications through its Psychosocial Research portfolio. Dedicated to addressing the interlaced and complex biological, psychological, and social needs of those living with spinal cord injuries, the program encourages researchers to address the critical gaps of knowledge within the field in order to improve therapeutic interventions and disseminate best industry practices.

**LOI DUE:** March 25, 2019

**WEBSITE:** [http://chnfoundation.org/wp-content/uploads/2019/02/PSR-2020-Application-Guide\\_Revised-FINAL.pdf](http://chnfoundation.org/wp-content/uploads/2019/02/PSR-2020-Application-Guide_Revised-FINAL.pdf)

### **THE FOUNDATION FOR THE NIH (FNIH)**

Trailblazer Prize for Clinician-Scientists

This annual prize and \$10,000 honorarium presented by the FNIH recognizes the outstanding contributions of early career clinician-scientists in the United States whose work has the potential to or has led to innovations in patient care. The FNIH will honor the three finalists of the Trailblazer Prize and announce the winner at the FNIH Annual Fall Board Dinner in Washington, D.C. on October 23, 2019. The FNIH recognizes the unique and critical role that clinician-scientists play in the evolution of medical practice. As noted in the 2014 NIH Physician-Scientist Workforce Report, these individuals play a vital role in ensuring that biomedical advances ultimately benefit patients and improve public health.

**NOMINATION DEADLINE:** March 29 at 1:00pm

**WEBSITE:** <https://fnih.org/what-we-do/programs/trailblazer-prize>

## Funding Opportunities ~ Upcoming Deadlines

### UMB INSTITUTE FOR CLINICAL AND TRANSLATIONAL RESEARCH/CTSA

#### KL2 Mentored Career Development Award

The purpose of the KL2 is to provide support for clinical and translational research training and career development of persons in relevant disciplines and professions from the six professional schools on the UMB campus (Dentistry, Law, Medicine, Nursing, Pharmacy, and Social Work).

**APPLICATION DUE:** April 5, 2019 @ 5:00pm

**WEBSITE:** <https://www.umaryland.edu/ictr/training-and-career-development/ictr-training-and-career-development-core/KL2-mentored-career-development-award/>

### THE BILL & MELINDA GATES FOUNDATION

Grand Challenges Explorations:

- Emerging Technologies for New Solutions in Global Health Priority Areas
- Environmental niches of Salmonella Typhi
- Increasing Demand for Vaccination Services

**APPLICATIONS DUE:** April 10, 2019

**WEBSITE:** <https://gcgh.grandchallenges.org/grant-opportunities>

### WHITEHALL FOUNDATION

#### Research Grants in Neuroscience

The Foundation is currently interested in basic research in neurobiology, defined as follows: invertebrate and vertebrate (excluding clinical) neurobiology, specifically investigations of neural mechanisms involved in sensory, motor, and other complex functions of the whole organism as these related to behavior. The overall goal of the Research Grant program is to better understand behavioral output or brain mechanisms of behavior.

**LOI DEADLINE:** April 15, 2019

**APPLICATION DEADLINE:** September 1, 2019

**WEBSITE:** <http://www.whitehall.org/applying/>

### THE PEW CHARITABLE TRUSTS

#### Pew Scholars Program in the Biomedical Sciences

provides funding to young investigators of outstanding promise in science relevant to the advancement of human health. The program makes grants to selected academic institutions to support the independent research of outstanding individuals who are in their first few years of their appointment at the assistant professor level. Strong proposals will incorporate particularly creative and pioneering approaches and candidates whose work is based on biomedical principles, but who bring in concepts and theories from more diverse fields are encouraged to apply. Ideas with the potential to produce an unusually high impact are encouraged.

**NOMINATIONS:** Applicants must be nominated by their institution, and only one applicant is allowed per institution. Nominations are due to the Pew Biomedical Scholars by June 14, 2019, and final applications will be due on October 17, 2019.

**WEBSITE:** <https://www.pewtrusts.org/en/projects/pew-biomedical-scholars>

Any interested individuals must submit a one page pre-proposal and NIH style biosketch to **Dr. Joni Prasad** ([jprasad@som.umaryland.edu](mailto:jprasad@som.umaryland.edu)) by April 30, 2019 at 5pm.

### AMERICAN CANCER SOCIETY INSTITUTIONAL RESEARCH GRANTS (ACS-IRG)

#### Pilot Projects

PI: Dr. Stuart Martin, Ph.D.

2 Funding Mechanisms / 3 pilot awards will be funded

- Cancer Related
- Cancer Health Disparities

\$30,000 direct for 1 year

**APPLICATION DEADLINE:** May 1, 2019 at 4:00pm

Any applicants who are interested in award opportunity can contact Dr. Stuart Martin ([SSMartin@umaryland.edu](mailto:SSMartin@umaryland.edu)), Sarah Laye ([SLaye@som.umaryland.edu](mailto:SLaye@som.umaryland.edu)), or Leanne Simington ([LSimington@som.umaryland.edu](mailto:LSimington@som.umaryland.edu)).

**WEBSITE:** <https://www.umms.org/umgcc/cancer-services/cancer-care/research-clinical-trials/research/american-cancer-society-research-grants>

### NATIONAL MULTIPLE SCLEROSIS SOCIETY

#### Pilot Research Grant

Pilot Research Grants are available to test innovative, cutting-edge ideas or untested methods, and to gather sufficient preliminary data to apply for longer-term funding. Application are encouraged for studies related to multiple sclerosis that may serve to stop MS progression, restore function and improve quality of life, and prevent MS.

**PRE-APPLICATION DEADLINE:** May 6, 2019

**APPLICATION DEADLINE:** May 8, 2019

**WEBSITE:** <https://www.nationalmssociety.org/For-Professionals/Researchers/Society-Funding/Pilot-Research-Grants>

### FOR ADDITIONAL FUNDING ANNOUNCEMENTS, VISIT:

#### UMB Internal Grant Announcements

<http://www.umaryland.edu/ictr/funding/umb-internal-funding-highlights/>

#### UMGCC Funding Database (Cancer related research)

<https://umgccfundingopps.org/>

To receive weekly UMGCCC funding announcements, contact:

Sarah Laye at [SLaye@som.umaryland.edu](mailto:SLaye@som.umaryland.edu)

**PLEASE NOTE:** We strongly encourage faculty to discuss their research application plans with their supervisor/Chairman. For some applications, such as career development awards or foundation applications, approval of the Chairperson is required to apply.

#### Foundation Funding Assistance

To learn more about foundation funding opportunities, individual funding searches, and assistance with foundation grant development and submission, please contact:

**Ms. Sarah Bradley**

Director, Foundation Relations

Office of Development

[sbradley@som.umaryland.edu](mailto:sbradley@som.umaryland.edu)

410-706-0107

# CENTER FOR INNOVATIVE BIOMEDICAL RESOURCES (CIBR)

WEBSITE: <http://medschool.umaryland.edu/cibr>

The **Center for Innovative Biomedical Resources (CIBR)** is the administrative umbrella for the wide portfolio of core facilities UMSOM investigators have available to support their research. In addition to the cutting-edge services, instrumentation and expertise CIBR cores provide, CIBR also hosts seminars, workshops, symposia and an annual retreat.

## CIBR News Update

### 2019 CIBR Travel Awards

The Center for Innovative Biomedical Resources (CIBR) is pleased to announce the recipients of its 2019 Travel Awards.

**Ying Zou, MD, PhD**, Director of the Cytogenetics Laboratory and Director of the Translational Genomics Laboratory and **Brandon Carter-Cooper**, Research Lead Specialist of the Translational Laboratory Shared Service were selected by committee from a pool of applicants and will each receive a \$2,000.00 travel award to offset the cost of attending the Association of Biomolecular Resource Facilities (ABRF) annual meeting. This annual international meeting is the premier conference for Core Facility directors, staff and administrators.

This year's Association of Biomolecular Resource Facilities (ABRF) meeting will be in San Antonio March 23-26, 2019. Learn more about the meeting here: <https://conf.abrf.org>

CIBR and the School of Medicine understand that the services, instrumentation and expertise that a strong portfolio of cores provides are essential to the success of the School's research mission. We are excited to have this opportunity to support the professional development of our outstanding core facility directors and staff.

### Lunch and Learn Series

Plan to attend the March Lunch and Learn, hosted by **Core for Translational Research in Imaging (C-TRIM)** featuring "**New Methods for Sensitive Molecular Imaging & SNR Gains can Extend the Traditional Boundaries of MRI**" by **Dr. Eric Frederick**, MRI Applications Scientist, Bruker Preclinical Imaging

It will be held on **Thursday, March 14** from **12:00 PM – 1:00 PM** in the **MSTF Atrium, 685 West Baltimore Street**.

**Lunch will be provided!**

**This seminar is free but you must register:** <http://tiny.cc/CIBRMarch>

**CIBR Lunch & Learns are organized by the Center for Innovative Biomedical Resources (CIBR)**

## Spotlight on CIBR Resources

### CORE FOR TRANSLATIONAL RESEARCH IN IMAGING @ MARYLAND (C-TRIM)

**The Core for Translational Research in Imaging @ Maryland (C-TRIM)** is an academic based fee-for-service facility whose goal is facilitate the research of our clients by providing high-quality cross-sectional state-of-the-art imaging services for both *in vivo* and *ex vivo* applications. Another goal for C-TRIM is to ensure that the core remains at the state-of-the-art by adopting new developments in the area of imaging and make them available to the clients. Both human and small animal imaging services are available using state of the art equipment.

Human imaging is facilitated by a 3.0 Tesla Siemens PRISMA MRI which is equipped with high-speed XR 80/200 gradients and 64 channels of parallel receive channels for various brain and body applications. Human imaging is also facilitated by a Siemens mMR Biograph system which is a combined 3.0 Tesla MR/PET system that is also capable of performing multi-nuclear imaging including imaging of <sup>3</sup>He, <sup>13</sup>C, <sup>7</sup>Li, <sup>31</sup>P, <sup>17</sup>O, <sup>19</sup>F, <sup>23</sup>Na and <sup>129</sup>Xe nuclei. PET imaging is currently facilitated through the use of long half-life radionuclides such as F-18, Ga-68 etc. Taken together these systems facilitate various imaging applications such as, high-resolution anatomic imaging (~70 µm resolution) for CNS and body applications, tumor kinetics, metabolomic studies, high-resolution diffusion tensor/kurtosis Imaging for detecting microstructural and cellular changes, vascular studies, imaging of dynamic processes, cerebral blood flow studies using endogenous contrast, cardiac functional analysis, functional MRI, resting state brain networks, interventional imaging and several others.

Animal MRI imaging is facilitated by a 7.0 Tesla and a 9.4 Tesla system both from Bruker Biospec, a Siemens Inveon microPET/CT system, a Perkin Elmer IVIS Spectrum (Xenogen) system, a Sonosite Ultrasound system and a system from Image Guided Therapeutics to facilitate MR image guided Focused Ultrasound (MRgFUS) procedures. Both the 7.0 and 9.4 Tesla MR scanners have a 31 cm bore and are able to image animals up to 4 kg and with a girth of about 18cm. Both scanners have two sets of gradient systems to facilitate imaging of different rodent sizes, with the higher performing gradients (12 cm bore) tailored to be used on smaller rodents. The 9.4 Tesla Bruker scanner is also equipped with a cryocoil to facilitate high-resolution imaging of mice and ex-vivo specimens. Similar imaging applications are available as in the case of human MRI systems except that data is obtained at a much higher resolutions appropriate for small animal imaging.

The Siemens Inveon microPET/CT imager consists of PET and CT subsystems that can be docked together for combined functional and anatomic imaging with implicit registration between the modalities, or the systems can be separated for independent operation. Post-acquisition image analysis can be performed with the Inveon Research Workplace (IRW) software for viewing, image fusion and quantitative analysis. Typical reconstructed image resolution from the CT aspects of the imager is 50 microns, with best achievable resolution of 15 microns. The PET scanner has a detector ring diameter of 16.1 cm, a bore size of 12 cm diameter and an active transaxial field of view of 10 cm diameter. Axial field of view is 12.7 cm, extendable to 30 cm with animal bed motion. Resolution at center of the field of view (CFOV) is  $\leq 1.4$  mm.

The IVIS Spectrum (Xenogen) system provides rapid whole-body imaging of bioluminescent and fluorescent reporters from the blue to infrared wavelength region. It can provide optical images of mice, rats or rabbits. Up to five mice can be imaged simultaneously while anesthetized on an integrated isoflurane gas manifold for high throughput imaging. 3D diffuse fluorescence tomography can be performed to determine source localization. Applications include *in vivo* measurements of proteasome activity, protein-drug interaction, monitoring tumor growth, metastasis, drug efficacy, caspase activation, bioluminescence resonance energy transfer and two-hybrid protein-protein binding analysis in living mice

Ultrasound imaging services are provided through the use of a SonoSite M-Turbo all digital system with a 10.4 inch display operating with two transducers; one is a P10X/8-4MHz phased array transducer and the other a L38xi/105MHz linear transducer to cover a wide range of applications. Capabilities exist for tissue harmonic imaging, color flow imaging, pulse wave and continuous wave Doppler, and various other image processing functions.

The core has a state of the art small animal MR guided focused ultrasound system (MRgFUS) from Image Guided Therapy (Pessac, France). Two eight element 2.5cm diameter broadband piezocomposite transducers (1.5 & 2.5 MHz) driven by a 4W/channel broadband phased array RF generator. The system is capable of electronic steering of the transducer to focus at a desired depth and is aided by a peizomotor based X-Y positional stage system. Real-time communication with the 7 Tesla small animal MRI for triggered data acquisition is possible to obtain real-time temperature maps. The system is ideal for many applications including, blood-brain barrier opening, nanoparticle delivery, tumor ablation, neuromodulation etc.

The center will provide consultation on advanced imaging techniques and will also provide all necessary image-processing support to investigators. We welcome communication with investigators regarding study design prior to submitting grants and budgeting for the imaging services. We also strongly encourage communications with the core staff and faculty regarding image processing, interpretation, and manuscript preparation.

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