MCW NIH Training Awards 2020

Project Title	MEDICAL SCIENTIST TRAINING PROGRAM
Activity	T32
Project Number	2T32GM080202-06
Principal Investigator	BARBIERI, JOSEPH T.
Trainees	Dual MD-PhD Degree Students
# Trainees	Currently 42 trainees; 4-6 annually
Project Abstract	The Medical Science Training Program (MSTP) at the Medical College of Wisconsin (MCW) provides integrated medical and basic science training as the educational foundation for future academic physician scientists. MCW is the third largest private medical school in the country and ranks 42nd in total NIH funding and 5th in NIH funding per faculty among US medical schools, as one of the fastest growing medical schools in the US. Since 1982, MCW has supported an MD-PhD Program and in 2010, MCW received an MSTP T-32 to expand the incoming class from four to six trainees. There are currently 42 trainees in the program. All trainees receive a full stipend and tuition wavier during graduate and medical school studies. Trainees pursue the combined MD-PhD degrees within a new medical school curriculum that includes early clinical exposure during M1-M2 years of training and participation in an MSTP-specific professional development pathway, which integrates with the Clinical Translational Science Institute. Trainees also participate in a monthly Research in Progress, a Luncheon series with invited Physician Scientists, an annual Retreat, a Visiting Professor Lecture, a Longitudinal Clinical Experience while in Graduate School, and an Alumni Seminar Series. The Graduate School awards PhD degrees in biochemistry, biophysics, biostatistics, cell and developmental biology, neuroscience, microbiology and immunology, pharmacology, and physiology. In Graduate School, trainees take courses in their scientific specialty and complete the research requirement for the PhD degree. In addition, trainees participate in workshops on the NIH and Fellowship writing, Dissertation/Manuscript writing, Professional development, and Residency selection. The MSTP is committed to furthering diversity among trainees. Research Centers at MCW have grown as sites for focused research efforts, which expand the mechanistic research topics our trainees can pursue during their PhD training in a collaborative and translational environment with basic scientists and clinical faculty. Each trainee's program isindividualized to fit his/her career interests. MCW seeks expanded support from NIGMS to align our MSTP with the growth of MCW's research efforts.

For more information about these opportunities, please contact the listed Principal Investigator.

MCW NIH Training Awards 2020

Project Title	TRAINING IN SIGNATURE TRANSDISCIPLINARY CARDIOVASCULAR SCIENCES
Activity	T32
Project Number	5T32HL134643-02
Principal Investigator	BENJAMIN, IVOR J
Trainees	Postdoctoral Fellows
# Trainees	2 annually (fall/spring)
Project Abstract	This is a new request of an institutional postdoctoral NRSA award to support a 3-year training program; which leverages institutional strengths and scientific excellence in atherosclerosis and thrombosis; vascular biology; precision cardiovascular medicine; and hypertension research. Our commitment for excellence in research training has foundations in the core values of diversity; mentorship; and improved health outcomes by training the next generation of cardiovascular scientists; including underrepresented minorities; through broad-based; personalized; supportive; and rigorous training opportunities. At a time when the burden of cardiovascular disease continues to rise and the pipeline of investigators; especially clinicians dwindles; this new NRSA application is designed to invigorate the recruitment and development of those who will make the next series of advances in research to improve cardiovascular health.

For more information about these opportunities, please contact the listed Principal Investigator.

Project Title	RESEARCH TRAINING PROGRAM IN VISION SCIENCE
Activity	T32
Project Number	5T32EY014537-13
Principal Investigator	SEMINA, ELENA V
Trainees	Pre-Doctoral Trainees
# Trainees	5 annually
Project Abstract	A mentor group of 12 senior and mid-level investigators and including with 2 new investigators, each with experience in research training and with active and competitive research programs, propose to continue a research Training Program in Vision Science at the Medical College of Wisconsin (MCW) for another 5 years. The request is for 5 pre-doctoral trainees annually. The goal remains to prepare trainees for research careers in ocular and vision research. This requires that students have a broad, multidisciplinary appreciation of the major features of the visual system, a contemporary understanding of the diseases that impact vision, and modern research skills and technologies for experimental work in the visual system. It also requires that trainees acquire the analytical and communication skills necessary to function in a multidisciplinary research environment. The mentor group provides experience in multiple facets of the visual system, including fundamental photoreceptor biology, retinal circuitry and its development, the genetics and diseases of the anterior segment, and important technology including electron paramagnetic resonance spectroscopy (EPR), ocular coherence tomography (OCT) and adaptive optics. New features of the program in this renewal include an emphasis on translational research via a new MCW graduate Program in Basic and Translational Research and an enhanced focus on modern imaging technology made possible by recent recruitments that expand MCW's capabilities in OCT and adaptive optics. Pre-doctoral trainees will complete a core curriculum of Molecular Genetics, Biochemistry, Cell Biology, and Neurobiology as well as required courses in 'Ethics and Integrity in Science' and 'The Biology of Vision' as a prelude to conducting dissertation research under the mentorship of a member of the program faculty. All students will have the opportunity at the time they enter a mentor laboratory to participate in Program in Basic and Translational Research, which includes additional training in translational research as well as a requirement for at least one Specific Aim of the dissertation to be translational in nature. All trainees in mentor labs will also participate in a monthly Research Forum/Journal Club in Vision Science, a monthly Distinguished Lecture Series in Vision Science, and an annual Vision Science Colloquium.

For more information about these opportunities, please contact the listed Principal Investigator.

MCW NIH Training Awards 2020

Project Title	CLINICAL AND TRANSLATIONAL SCIENCE AWARD
Activity	TL1
Project Number	1TL1TR001437-01
Principal Investigator	BROUSSEAU, DAVID C
Trainees	Pre- and post-doctoral
# Trainees	7 pre-doctoral; 3 post-doctoral
Project Abstract	Academic Medical Centers have the responsibility to train the next generation of biomedical scientists and physician scientists for careers in clinical and translational research. The Physician-Scientist Workforce Group(PS-WG) identified limited diversity in the physician-scientist workforce as a concern to the NIH. In response to these charges, this Scientific Teams Advancing Research Translations (START) TL1 Program will orient medical students and graduate students into translational science and provide advanced training for MD fellows who align with CTSA goals of advancing therapeutics, clinical interventions and behavioral modifications to improve health. The START Program will leverage existing MCW Pipeline Programs to mentor highly qualified high school and undergraduates of diverse backgrounds towards careers in clinical translation research; support one-year of research training for medical, graduate, and MD-PhD students and MD-fellows in clinical and translational research towards MS or PhD degrees, and mentor START Program graduates throughout their research careers at MCW. To complete these aims, the START Program will leverage the pipeline of established high school and undergraduate Programs at MCW to mentor highly qualified young students of diversity for careers as clinical and translational scientists. The START Program will leverage the Physical Scientist Pathway (PSP), a flagship professional development program at MCW that allows medical students to work with peers and faculty to build on the foundation of medical school experiences, to pursue an area of common research interest in greater depth. The START Program will provide one year of stipend for medical students, graduate students and MD-fellows to conduct research and develop fundamental, quantitative skills involved in clinical and translational research as components of PhD and MS degree. During the year of research, students will participate in workshops that teach grant writing, manuscript writing, and professional development skills, including best practice strategies to optimize communication skills. Trainees will participate in bi-annual conferences to present their current studies in a team-based environment and use an Individual Development Plan (IDP) to optimize training experiences. Graduates of the START Program are the next generation of scientist and physician-scientist who will improve the health of our nation and community.

For more information about these opportunities, please contact the listed Principal Investigator.

Project Title	ANESTHESIOLOGY RESEARCH TRAINING PROGRAM
Activity	T32
Project Number	5T32GM089586-09
Principal Investigator	EBERT, THOMAS JAY
Trainees	Medical Students
# Trainees	2
Project Abstract	The goal of the proposed Anesthesiology Research Training Program is to develop competent investigative anesthesiologists and basic scientists suitable for entry-level, full-time, academic faculty positions and to prepare these individuals fo productive academic careers including the ability to acquire extramural funding. This subset of investigators will meet the research needs of the specialty of anesthesiology and perioperative medicine in the future including the training of other academic anesthesiologists. The Program is designed to provide laboratory research training: for postdoctoral fellows who have completed their clinical anesthesiology residency or are performing clinical fellowships (Research Track 1: traditional); those residents who are participating in the integrated research and clinical track (Research Track 2: integrated); or outstanding PhD scientists (Research Track 3: basic scientist) with a clear commitment to basic research in anesthesiology. Three to five fellows will spend at least two years cumulative time in research in one of a variety of laboratories in the Department of Anesthesiology or in allied basic science departments. Program faculty consist of 27 potential mentors with diverse research programs (e.g. molecular genetics, angiogenesis, ion channels, cell physiology, adhesion molecules, eicosanoids, exercise and respiratory physiology, hypertension, autonomic nervous system, nitric oxide synthase, nociception, chronic pain, neuroscience, cardio protection, cerebral circulation, sickle cell disease). The trainees will have access to the facilities of the individual mentors who have been selected because of a keen interest in research training of physician and basic scientists, productivity and extramural support. The two year commitment will include a didactic core curriculum offered through the Division of Graduate Studies of the Medical College of Wisconsin and within the department of Anesthesiology, including the Clinical and Translational Science Institute course 'Methods in Grant Preparation'. The training will occur in an environment that fosters the conduct of translational investigations through collaborations between basic and physician scientists. Recruitment of candidates with diversity enrollment as a priority will focus on those individuals dedicated to a career in academic medicine and demonstrating a superior past performance in medical and postgraduate education and experience in research. These individuals will provide the leadership envisioned for anesthesiology and perioperative medicine in the future and extend the foundation of knowledge serving as a scientific base for the medical subspecialty of anesthesiology.

For more information about these opportunities, please contact the listed Principal Investigator.

Project Title	INTEGRATED PHYSIOLOGY TRAINING: MOLECULE TO ORGANISM
Activity	T32
Project Number	2T32HL007852-21A1
Principal Investigator	FORSTER, HUBERT V
Trainees	Graduate Students
# Trainees	6 annually
Project Abstract	Over the last twenty years, training in Physiology departments throughout the country has undergone a transformation that precludes students from a thorough understanding that spans the breadth of the discipline from the whole animal to the cellular and molecular level. An exception is the Physiology Department of the Medical College of Wisconsin (MCW), that offers research training emphasizing integration of knowledge at all of these levels with development of an appreciation for the relationship of this knowledge to disease processes. With the current proposal, we will continue providing this exceptional training in cellular, molecular, and whole animal Physiology for six NIH-supported trainees each year. A unique aspect of the proposed training is the mentoring program, which includes basic scientists from a variety of traditional areas as well as clinician scientists. Graduate students will be recruited nationally and will be selected on the basis of undergraduate academic credentials, previous research experience, and commitment to a career in research. Students must complete the first year of graduate school before they will be considered for NIH training support. Selection of trainees will be based primarily on performance in course work and in the research laboratory during the first year of graduate school. Trainees are full-time Ph.D. candidates in the MCW Graduate School of Biomedical Sciences. Trainees will complete required and elective courses and a research project that includes use of the techniques of molecular biology, isolated tissues, and whole animal or clinical investigation. The major objective is to provide trainees with a broad foundation in interdisciplinary basic science and translational research. The trainee will develop the critical thinking, integrative reasoning, and technical skills required to create and participate in evolving research careers related to prevention and control of hypertension, stroke, and respiratory diseases. An innovative feature of the training is the emphasis on addressing the national need to train for the integrated-systems future of biomedical research in the post-genome era. Research training is under the direct supervision of Physiology faculty along with co-mentors from other basic science and clinical departments. Trainees and their mentors will undergo continuous evaluation of progress through a series of formal and informal meetings with the program director and the graduate committee. (End of Abstract)

For more information about these opportunities, please contact the listed Principal Investigator.

MCW NIH Training Awards 2020

Project Title	MEDICAL STUDENT SUMMER RESEARCH PROGRAM
Activity	T35
Project Number	5T35HL072483-36
Principal Investigator	HARDER, DAVID RAE
Trainees	Medical Students
# Trainees	15
Project Abstract	Medical Student Summer Research Project Summary The Medical Student Summer Research Program leverages the research and training expertise of MCW's faculty and its substantial research infrastructure to provide robust research training opportunities for early year medical students, which expose them to research and academic careers early in their career-decision making process. The students are engaged full-time for 12 weeks in basic science, clinical or translational laboratory studies that address diseases and conditions affecting the cardiovascular, pulmonary or hematological health of our citizens and globally. The training is complemented by a series of didactic seminars and other activities that deepen the integration of the trainees into the scientific community. These experiences facilitate opportunities for trainees to observe how new discoveries translate into the development of new drugs, devices and treatment modalities in the clinical arena, while also encouraging them and providing them with outlets to remain connected to research throughout their medical education program. There is a high demand for training and a qualified applicant pool, with good outcomes evident over the 6-10 year time span that separates the summer training period from the beginning of an independent career.

For more information about these opportunities, please contact the listed Principal Investigator.

Project Title	MEDICAL STUDENT TRAINING IN AGING AND INJURY RESEARCH
Activity	T35
Project Number	5T35AG029793-12
Principal Investigator	MEURER, LINDA N., MD, MPH
Trainees	Medical Students
# Trainees	10 annually
Project Abstract	The Medical College of Wisconsin (MCW) Medical Student Training in Aging and Injury Research is a 12 week summer research training program to introduce ten medical students per year to injury control research in aging during the summer between their first and second years. The experience focuses on the impact and outcomes of injury through the lifespan, especially improving safety, health and quality of life for older individuals. Based in MCW's CDC-funded Injury Research Center, the program builds on a highly successful institutional summer research program infrastructure, and strong collaborations with Internal Medicine's Geriatrics and Gerontology Division, the Departments of Family and Community Medicine, Emergency Medicine, Trauma Surgery and Physical Medicine and Rehabilitation, to address injury prevention at every level. Seasoned mentors from basic, clinical and social scientist work together to create a rich learning atmosphere and translational environment. The program's goal is to increase the pool of students who will pursue careers in injury control research, with an emphasis on the impact of injury through the life stages. Specific objectives are to: 1) provide early exposure to injury research at a critical time in medical students' career decision-making; 2) increase medical student knowledge regarding current investigative frontiers in injury prevention, treatment and policy; 3) have students apply a geriatrics approach in their research, therapy and injury control efforts, emphasizing the special risks, needs and circumstances of the elderly; and 4) to stimulate and retain medical students' interest in research, injury control and aging beyond the short-term experience, by providing on-going support and strengthening their connection to the scientific community and future research pursuits throughout the medical school training. Trainees will be matched with experienced research faculty and research teams to work on injury projects relevant to aging and the aged, such as falls prevention, older drivers, elder abuse and patient safety. They will participate in enrichment activities including: 1) seminars offered to all summer research students, including training in ethical conduct in research, career development and presentation skills; 2) weekly core seminars on injury and injury prevention, with attention to the special needs and considerations of the elderly, including Falls in the Elderly, Wound Healing, Quality of Life after Trauma; 4) presentation of their work at an Annual Medical Student Research Poster Day; and 5) opportunities for continued research through on- going mentorship and an optional Research Honors track.

For more information about these opportunities, please contact the listed Principal Investigator.

Project Title	GASTROENTEROLOGY POSTDOCTORAL RESEARCH TRAINING GRANT
Activity	T32
Project Number	5T32DK061923-14
Principal Investigator	SHAKER, REZA
Trainees	Postdoctoral Fellows
# Trainees	1-2 per year
Project Abstract	Current trends in the health care delivery system and their impact on the gastroenterology research community have resulted in a shortage of basic, clinical and translational science investigators in this field. Fortunately, this negative circumstance has begun to lessen in the past few years due to the following significant developments: 1. higher quality applicants in larger numbers are applying to Gastroenterology Fellowship programs, for example the Gastroenterology Division at the Medical College of Wisconsin received over 294 applications for the academic year 2013-14, and more importantly, 2. the rollout of the NIH roadmap initiative aimed at re-engineering the clinical and translational research that in turn has resulted in significant institutional commitment to further develop this distinct discipline across the country including MCW which received a CTSA grant along with its 7 academic and healthcare system partners in 2010, directly benefiting this training program. These encouraging changes, combined with the need for increasing the limited pool of physician scientists and the track record of the Division of Gastroenterology and Hepatology in training academic gastroenterologists provides the impetus for submission of this competitive renewal proposal. The objective of this proposed training grant is to rigorously train and prepare 10 postdoctoral fellows for a research career in academic gastroenterology. The program offers training in two understudied areas of gastrointestinal research with paramount clinical significance in terms of human suffering and health care resource utilization: 1. upper GI and aerodigestive tract sensory motor function and their physiologic and pathophysiologic relationships such as most notably seen in dysphagia and airway complications of reflux disease and 2. neurogastroenterology and brain-gut interactions in health and disease such as functional GI disorders. To achieve this goal, we have designed a rigorous, multidisciplinary program based on a long history of interdisciplinary collaboration between faculty investigators from Gastroenterology (adult and pediatrics), Biophysics, Neurology, Otolaryngology, Pulmonary Medicine, and Radiology. We are also making three modifications to the existing program: (1) increasing training opportunities by engaging more pediatric gastroenterology faculty as preceptors and one as Co-Director, (2) increasing the involvement of Neurology faculty to enhance the neurogastroenterology and brain gut interaction research that is ongoing, and (3) putting an external advisory committee in place to review the program annually and make recommendations to the PI

For more information about these opportunities, please contact the listed Principal Investigator.