Mentor/ AHA Mentee Award

Award Deadline: Jan. 24, 2014
Award Activation: July 1, 2014

Program Description, Eligibility and Peer Review Criteria

Purpose

To provide enhanced mentoring opportunities for early-career faculty from experts within fields of study important to their career development. Some mentoring may be accomplished face-to-face, but this funding mechanism is designed to include virtual channels (teleconferences, virtual rooms, etc.) and also should include journal clubs, discussions, etc. Creativity is encouraged, and mentoring of researchers from underrepresented racial and ethnic groups in science, or from smaller universities and academic institutions, or working in a particularly difficult or emerging area of science will be particularly encouraged (*see list provided at the end of this program description*).

Objectives

- To provide protected time for mentoring activities for investigators who have an established record of accomplishments in mentoring.
    - Mentor candidates must have a demonstrated commitment to cardiovascular or cerebrovascular science, as indicated by publication history and scientific accomplishments.
- To support early-career AHA funded investigators by providing supportive mentoring relationships which, in addition to supporting the pursuit of the research in question, also facilitate expansion of investigator skills.
    - Mentees must be current awardees of the AHA Scientist Development Grant (SDG) or Beginning Grant-in-Aid (BGIA) program, and will be identified as potential candidates by AHA if they are from an underrepresented racial and ethnic groups or an institution that is included in the NIH-AREA definition, or if the scientific area they are pursuing does not have sufficient mentoring at their own institution.

Awarded mentors will be “matched” by AHA, to be paired with two or three current SDG or BGIA awardees.

Method of application

Mentor candidates apply to the AHA, and must be willing:

1. To mentor a current SDG or BGIA awardee who is working in a particularly difficult or emerging area of science, a new area of inquiry, or an area for which it would be helpful to have additional mentoring from outside the awardee’s institution;
2. To mentor a current SDG or BGIA awardee from an underrepresented racial and ethnic groups in science (Hispanic/Latino, Black or African-American, Native American/Native Alaskan, or Pacific Islander);

3. To mentor a current SDG or BGIA awardee who is conducting research at an institution eligible for NIH-AREA program grants (or a similar institution) defined as follows:

There are two levels of eligibility for AREA grants: the eligibility of the institution and the eligibility of the principal investigator (Source: http://grants.nih.gov/grants/funding/area.htm)

Institutional Eligibility

- Only domestic institutions of higher education are eligible.
- The institution must offer baccalaureate or advanced degrees in the health-related sciences.
- The institution may not receive more than $6 million per year in NIH support in each of 4 of the last 7 years. Please view the AREA Program Ineligible Institutions website for more information.

Principal Investigator Eligibility

- The PI must have a primary faculty appointment at an AREA-eligible institution.
- The PI may not be the PI of an active NIH research grant at the time of an AREA award.
- The PI may not be awarded more than one AREA grant at a time.

Note: The mentor is not required to be (and usually will not be) from an NIH-AREA eligible institution.

Funding is available for the mentor's time, related to research projects on cardiovascular function and disease, stroke, or to related clinical, basic science, and public health problems. Applications are encouraged from those working in all basic disciplines, including multidisciplinary efforts, as well as for epidemiological and clinical investigations that bear on cardiovascular and stroke problems.

Target Audience

At time of application, independent investigators holding a faculty/staff appointment equivalent to Associate or full Professor. Applicants must hold an M.D., Ph.D., D.O. or equivalent doctoral degree.

Applicants must have current national-level funding as principal investigator on an R01 grant or its equivalent (e.g. VA Merit Award, NSF Grant, or PI on Program Project Grant from NIH). NIH "K" series awards are not considered equivalent to an R01. Current or past AHA research funding as a principal investigator is a plus.

Applicant must be an AHA Professional Member.

Applicants must be U.S. citizens or foreign nationals holding a permanent residence visa (e.g., in possession of an alien registration receipt card), or foreign nationals who have applied for permanent residency (form I-485 on file with U.S. Citizenship and Immigration Services) and who have received authorization to legally remain in the U.S. (having filed an Application for Employment form I-765), an exchange visitor (J-1), temporary worker in a specialty occupation (H-1, H-1B, E-3), Canadian or Mexican citizen engaging in professional activities (TC, TN) or temporary worker with extraordinary ability in the sciences (O-1) visa, family member of employee of international organizations and NATO (G4). Student visas are not acceptable. Awardee must meet American Heart Association citizenship criteria throughout the duration of the award.

Location of Work

American Heart Association research awards are limited to non-profit institutions, including medical, osteopathic and dental schools, veterinary schools, schools of public health, pharmacy schools, nursing schools, universities and colleges, public and voluntary hospitals and others that can demonstrate the ability to conduct the proposed research.

Applications will not be accepted for work with funding to be administered through any federal institution or work to be performed by a federal employee, except for Veterans Administration employees.

Funding is prohibited for awards at non-U.S. institutions.

Peer Review Criteria

The following describes principal factors that enter into the peer review committee's evaluation of applications. Generally, the candidate, innovativeness of the science, and techniques proposed to effectively mentor from a distance are being evaluated. The following criteria are given consideration, but the relative weight given to each may differ from case to case.

Investigator: Is the applicant an independent investigator (minimum Associate Professor) with a strong track record of mentoring productive prior fellows and other trainees? Does the mentor have the required experience to provide the proposed research training, as evidenced by experience, career evolution, productivity, extramural funding, publication record, and productive prior trainees? Does the applicant have demonstrated excellence/national recognition in his/her field?

Demonstrated commitment to cardiovascular or cerebrovascular diseases: Has the research program of the mentor candidate focused on basic, clinical, or population science related to cardiovascular or cerebrovascular disease? Does the applicant provide demonstrated commitment to cardiovascular / cerebrovascular research in his/her current and past studies? Do the proposed studies continue to illustrate this commitment to cardiovascular or cerebrovascular science?

Prior or current independent national-level awards: Does the candidate's track record regarding funding provide evidence for independence, excellence, and potential for future success? Has the candidate held independent national awards, such as an NIH R01 and/or the equivalent?

Mentoring Plan and Approach: Does the mentor provide a comprehensive mentoring plan which details how he/she will facilitate the development of mentees? What will be the impact of the proposed mentoring plan? How often will the mentor meet with the mentee? Routine teleconferences?

Environment: Does the mentor candidate's scientific environment contribute to the probability of success? Does the proposed mentoring benefit from unique features of the scientific environment, or subject populations, or employ useful collaborative arrangements? Is there evidence of institutional support?

Award

Amount:
Two mentees: $15,000 per year for three years, totaling $45,000 per award.
Three mentees: $20,000 per year for three years, totaling $60,000 per award.

Funds may be used to cover a portion of the mentor's salary and fringe benefits, and/or to cover travel costs for the mentee to visit the mentor's lab for a specific purpose (e.g., learning a new experimental technique, etc.).

Duration: Three years.

Interim Reporting: Assessment of annual progress reports filed jointly by the mentor and designated mentee(s).

Evaluation: Feedback from the mentee on the results of this relationship/contact with the mentor; mentee's publications, citations by others, ability to attract ongoing research funding, faculty advancement and/or other evidence of career progression, contribution of Association support to career advancement.

AHA-funded early-career faculty have expressed interest in mentors for their projects in the following areas:

1) Evaluating treatment for patients with acute decompensated heart failure (ADHF). HF represents a dramatically growing segment of the US population -- particularly among patients >65 years. There are few evidence-based strategies that have shown benefit in this population.

2) Measuring pulmonary and arterial pressures in an exercising rat (running on treadmill) for the first time using implantable telemetry technology. Combining these measures with metabolic data (via expired gases) collected during exercise testing. The rats will have experimentally-induced pulmonary arterial hypertension.

3) Metabolism in macrophage polarization, inflammation.

4) Identifying the biological mechanisms that cause children and adolescents from disadvantaged, "high stress" backgrounds to have an increased risk for heart disease over the course of their lifetime. Few laboratories are currently addressing this question in animal models that allow for detailed biochemical studies; applying emerging proteomics methods to answer this question.

5) Examining the possible roles that microRNAs play in brain recovery after stroke, and the therapeutic potential of miRNA inhibitors to rescue functional deficits in stroked animals. MicroRNA research is a recently thriving field, and its clinical value has just started to be elucidated.

6) Dissecting the complex molecular mechanisms of coronary artery disease using integrative genomics approaches that leverage multiple levels of genetic and genomic data from large human and rodent populations. This is an emerging field and requires sophisticated computational data integration and experimental testing of any hypotheses generated from data analysis.

7) Developing therapeutic agents to manipulate the interaction between ion channels and phosphoinositides (a physiological regulator shared by many ion channels), and thus modulate channel activity in cardiovascular abnormalities. Requires multi-disciplinary effort including medicinal chemistry, cardiology and biophysics.

8) Although it has been known for more than two decades that most of tissue factor expressed on cells is encrypted and a stimulus is required to decrypt tissue factor, it is still unclear what keeps tissue factor in an encrypted state, and what changes in tissue factor or cell microenvironment results in tissue factor activation. Controversial area of research, and many conflicting hypotheses have been put forth to explain this phenomenon. Examining one of the hypotheses…

9) Data derived from these studies identify new signaling cascades mediated by miRNA in diabetes-induced angiogenesis impairment. Filling the significant gap in such knowledge is a key step toward a breakthrough in autologous cell therapy in combination with miRNA modification for augmenting angiogenesis in the future treatment of ischemic disease.

10) Exploring a novel therapeutic strategy for poststroke seizures and epilepsy. Due to the lack of the animal model of poststroke seizures and epilepsy, there is a need for mentors with expertise of poststroke seizures and epilepsy to help to establish an animal model of poststroke seizures and epilepsy.

11) A sole pathogenic bacteriologist who is working at an NIH AREA institution seeks mentoring for a funded project which is, by design, straight forward. The project title is: Dual regulation of genes within the Shigella dysenteriae heme utilization locus.

12) Identifying genetic determinants in intracranial aneurysms. Because intracranial aneurysm etiology is poorly understood, the area of inquiry is still emerging and difficult, as it requires collaborative effort among geneticists, clinicians and vascular biologists.

13) CRAC channel, formed by STIM1 and Orai1 proteins, is essential for the human immune system. The understanding of its physiological and pathophysiological roles in the cardiovascular systems are emerging.

14) The burden of cardiorenal disease (CRD) on human health is extensive and there is high priority need for novel therapeutics to treat and prevent heart failure (HF) which is the end-result of syndromes associated with CRD and organ fibrosis. The endogenous C-type natriuretic peptide/guanylyl cyclase receptor-B/cGMP signaling system represents an emerging and innovative opportunity that potentially addresses this unmet need. The proposed research will: 1) enhance our understanding of the biology of C-type natriuretic peptide; 2) may aid in the detection of preclinical cardiac structural and functional changes, commonly seen in CRD of varies etiologies; and 3) may lead to novel therapeutic strategies to reduce the progression to HF.

15) Focusing specifically on using novel optical approaches to study the trafficking and functional regulation of HERG-IKr channel complexes in guinea-pig heart.

16) Reliance upon functional MRI has been usual in assessing recovery-related reorganization in the stroke brain. But, recently, the field is considering its use in guiding brain stimulation. Although fMRI assays reorganization well, its ability to accurately localize stimulation in a stroke brain is contorted by poor hemodynamics. This pilot study explores use of other methods to instead localize stimulation to human stroke brain.

17) Using advanced computational (supercomputing) tools to simulate heart valves in patient-specific settings from echocardiography images.

18) Understanding calcium overload in cardiac myocytes due to the absence of PI3Kgamma and its effect on cardiac hypertrophy. How PI3Kgamma regulates cardiac calcium homeostasis is a new area of discovery. Guidance from an expert in the field of cardiomyocyte calcium regulation would be highly beneficial

19) While years of research in reconstituted HDL has focused on ApoA-I protein component, this project investigates how lipid composition of reconstituted HDL affects its safety and efficacy. The research could likely result in novel lipid-compositions of HDL that could be patented and translated into novel therapeutics.

20) Developing a new technology that will be able to resolve cardiac function in vivo and the relation to blood flow at microscopic resolution. Adapting this imaging method from work in brain, and as someone new to the cardiac field, a mentor would be of great assistance.

21) Developing novel drugs and drug delivery vectors for treatment of preeclampsia.

22) Examining whether tailored dietary recommendations for African-Americans can help alleviate the health disparities experienced by them with respect to heart disease. A mentor in the area of cardiovascular epidemiology would be of great value.

23) Biomedical materials research like this project is highly interdisciplinary; therefore, it requires a wide range of expertise. Major difficulties/hurdles include developing clinically-relevant materials. A mentor with expertise in supramolecular chemistry/biochemistry would be very beneficial.

24) Studying the mechanisms of fetal growth restriction. A novel concept of this emerging and difficult area of research is that angiotensin converting enzyme 2 (ACE2) is involved in the regulation of fetal growth through its actions on placental inflammatory factors particularly interleukin 6. Little is known about the role of ACE2 in normal or pathological pregnancy, as well as ACE2 regulation of interleukin 6 in fetal

growth restriction is not established. Using whole animal models (ACE2KO mouse and its normal counterpart C57Bl/6 mouse) and ex-vivo system (placental explants) to prove the hypothesis.

25) Measuring direct muscle sympathetic nerve activity (mSNA) in human subjects via peroneal nerve microneurography. The project involves measuring the direct effect of inhibiting mSNA with clonidine on microvascular endothelial dysfunction in obese adults with hypertension. The technique takes enormous skill; a mentor who performs this technique routinely would be of great benefit. An emerging technical aspect of microneurography is 'ultrasound guided' microneurography, which increases success of finding and recording from the peroneal nerve.

26) Discovering and characterizing novel proteins required for mitochondrial electron transport chain biogenesis is challenging, because 1) Despite decades of research in this area many factors essential for electron transport chain formation are not identified and 2) the exact biochemical function of the already identified factors remains extremely hard to decipher. Although a method has been developed to quickly identify novel factors, this research will greatly benefit from guidance by an expert who has years of experience in deciphering biochemical functions of metabolic enzymes and chaperones.