



REQUEST FOR APPLICATIONS 18-2: WALTER A. ROSENBLITH NEW INVESTIGATOR AWARD

INTRODUCTION

HEI has established the Walter A. Rosenblith New Investigator Award to provide funding for outstanding investigators who are beginning independent research. By providing financial support for investigators at this early point in their careers, HEI hopes to encourage highly qualified individuals to undertake research on the health effects of air pollution. The candidates may have training and experience in any of the many branches of science relevant to air pollution.

Each award will be a maximum of \$500,000 for three years in total costs to support a research project. The funds can be used to provide salary support for the investigator and supporting junior personnel as well as operating costs, including supplies and equipment. It is expected that the investigator will devote at least 25% of his or her time on the proposed research. HEI expects to provide one or two awards from this RFA and make additional awards each year. For information on past awardees, please see the List of Awardees below.

HEI RESEARCH PROGRAM

Since the early 1980s, HEI's research program has addressed a broad range of questions about the health effects of air pollutants derived from motor vehicle emissions, including carbon monoxide, nitrogen oxides, ozone, particulate matter — including diesel particles and associated compounds — methanol, and air toxics. Several studies have addressed the effects of exposure to more than one pollutant. Research projects are often interdisciplinary in nature and span a range of scientific fields, including atmospheric science, epidemiology, exposure science, statistics, and toxicology. In considering potential research topics, applicants should be aware of HEI's current areas of interest, as described in the HEI Strategic Plan for the Health Effects of Air Pollution 2015-2020¹.

The Plan focuses on four key areas: (1) addressing challenges of multi-pollutant science, (2) improving science for decisions: accountability and transparency, (3) addressing emerging fuels and technologies, and (4) addressing global health science. Appendix A² includes sections of the Strategic Plan 2015-2020 that describe HEI's current research priorities and plans for implementing them. Appendix B provides a listing of HEI studies and reports, which gives information on the pollutants and issues in which HEI has been interested over recent years.

HEI studies have used a wide range of designs: modeling, methods development, experiments with cell cultures, animal studies, controlled human exposure studies, and epidemiologic investigations. In all studies, accurate characterization of exposure and appropriate statistical analyses are important. HEI's ultimate goal is to provide scientific evidence that can be used in regulatory decisions or provide better information for risk assessment; thus, human studies and studies to improve extrapolation from animals to humans are an important part of HEI's program.

In addition, there are several crosscutting issues that the HEI Research Committee would like to emphasize in HEI-funded studies: development, application, and testing of multipollutant statistical models and methods; identification and integration of at-risk populations into HEI studies; enhanced exposure assessment; consideration of climate change and health; application of new biologic techniques in air pollution health research; evaluation of other health outcomes and modifying factors; and capacity building, particularly support of early-career investigators.

HEI encourages investigators to submit applications addressing these high priority research areas. However, HEI realizes that other areas of research may lead to results important to its mission. For this reason, we will

¹ Available at www.healtheffects.org/about/strategic-plan

² All information and forms referred to in this RFA are available at www.healtheffects.org/research/funding

also consider particularly innovative or high quality applications in other areas that are relevant to the overall goals of HEI's program.

LIST OF AWARDEES

<i>Year</i>	<i>Awardee and Project Title</i>
1999	Francesca Dominici, Johns Hopkins University: Air pollution and daily mortality in a national sampling frame
2001	Quanxin Meng, Battelle Toxicology Northwest: Mutagenicity of stereochemical configurations of 1,3-butadiene epoxy metabolites in human cells
2002	Jamie Schauer, University of Wisconsin: Source apportionment and speciation of particulate matter to support exposure and health studies
2003	Michael Borchers, University of Cincinnati: T cell subpopulations regulate airway inflammation and injury following acrolein exposures
2004	Michelle Bell, Yale University: Assessment of the mortality effects of particulate matter characteristics
2004	Michaela Kendall, Uludag University, Turkey: Molecular adsorption at PM surfaces: a compelling PM toxicity mediation mechanism
2005	Jonathan Levy, Harvard School of Public Health: Using geographic information systems to evaluate heterogeneity in indoor and outdoor concentrations of particle constituents
2005	Timothy Nurkiewicz, West Virginia University: Pulmonary particulate matter exposure and systemic microvascular function
2006	Christopher Paciorek, Harvard School of Public Health: Integrating monitoring and satellite data to retrospectively estimate monthly PM _{2.5} concentrations in the eastern United States
2006	Qunwei Zhang, University of Louisville: Activation of endothelial cells and gene expression in lungs following exposure to ultrafine particles
2007	Charles Stanier, University of Iowa: Development and application of a personal exposure screening model for size-resolved urban aerosols
2007	Yifang Zhu, Texas A&M University Kingsville: Assessing children's exposure to ultrafine particles from vehicular emissions
2008	Thomas Barker, Georgia Institute of Technology: Extracellular matrix stiffness associated with pulmonary fibrosis sensitizes alveolar epithelial cells
2008	Jiu-Chiuan Chen, University of Southern California: Particulate air pollutants, risk of cognitive disorders, and neuropathology in the elderly
2010	Jun Wu, University of California–Irvine: Adverse reproductive health outcomes and exposures to gaseous and particulate matter air pollution in pregnant women
2011	Juana Maria Delgado-Saborit, University of Birmingham, UK: Use of real-time sensors to assess misclassification and to identify main sources contributing to peak and chronic exposures
2011	Richard Peltier, University of Massachusetts, Amherst: Development of a new method for measurements of reactive oxygen species associated with PM _{2.5} exposure
2012	Jason Surratt, University of North Carolina–Chapel Hill: Understanding the health effects of isoprene-derived particulate matter enhanced by anthropogenic pollutants
2013	Nga Lee (Sally) Ng, Georgia Institute of Technology: Composition and oxidative properties of particulate matter mixtures: Effects of particle phase state, acidity, and transition metals
2014	Lydia Contreras, Texas University–Austin: Understanding the impact of air quality on the changing chemistry of regulatory nucleic acids
2015	Kymerly Gowdy, East Carolina University, Scavenger receptor B1 regulates oxidized lipid driven pulmonary and vascular inflammation after ozone exposure
2016	Mònica Guxens, IS Global, Barcelona, Spain: Air pollution, autism spectrum disorders, and brain imaging amongst children in Europe — the APACHE Project
2017	Joshua Apte, University of Texas–Austin: Scalable multi-pollution exposure assessment using routine mobile monitoring platforms
2017	Marie Pedersen, University of Copenhagen, Denmark: impact of exposure to air pollution on asthma; A multi-exposure assessment
2018	Manabu Shiraiwa, University of California–Irvine: Formation of reactive oxygen species by organic aerosols and transition metals in epithelial lining fluid



RFA 18-2: APPLICATION PROCESS AND DEADLINES

ELIGIBILITY REQUIREMENTS

Scientists of any nationality holding a PhD, ScD, MD, DVM, or DrPH degree or equivalent are eligible to apply; they can reside in the US or elsewhere. At the time of application the candidate should have two to seven years of research experience after obtaining the highest degree and must be in an assistant professor or equivalent position at an academic or research institution. Evidence that the candidate's institution is prepared to make a tangible commitment to helping the awardee become established as an independent investigator is required as part of the application. Candidates should possess outstanding research potential. Evidence of this potential, in the form of written letters of support and the candidate's publication record, is an essential part of the application materials and will be valued equally with the scientific proposal.

Please note that an applicant who does not meet all eligibility requirements will not be considered for this award. HEI will not review applications from individuals with more than seven years research experience after obtaining the highest degree. However, time spent on non-research activities since obtaining the highest degree, such as medical residencies without a research component, or maternity or paternity leave, may be excluded. Candidates outside the U.S. are advised to contact HEI with questions if their country does not have a direct equivalent to the assistant professor title. **All prospective applicants are required to contact Dr. Annemoon van Erp (avanerp@healtheffects.org, +1-617-488-2346) to verify their eligibility before applying.** Candidates can apply to this award twice in their career.

PRELIMINARY APPLICATION

Applicants should submit a **Preliminary Application** that provides the following information: title, scientific rationale, a brief description of the study aims, design and methods, statistical methods, and anticipated results. The Preliminary Application should also briefly discuss the applicant's eligibility and include a biographical sketch (maximum two pages). We may contact the applicant if we have questions about his/her eligibility and/or the topic of the proposal.

Investigators should use the Preliminary Application Form to submit the preliminary application. The preliminary application must be no more than 4 pages in length (using 11-point font size and 1-inch margins, single-spaced; including the cover page, but excluding references and biosketches); longer applications will be rejected. For the biosketches, applicants can use HEI form F-8 or another format, as long as each biosketch is no longer than 2 pages. For details please visit www.healtheffects.org/research/funding/application-instructions. The HEI Research Committee will review the Preliminary Applications and invites selected candidates to submit a Full Application.

Deadline for Preliminary Applications

Preliminary Applications should be submitted by email in PDF format to funding@healtheffects.org (subject line: *[PI last name] RFA 18-2 Preliminary Application*) no later than **APRIL 15, 2019** with a copy to our Science Administration Assistant (science-admin@healtheffects.org). HEI will acknowledge receipt of the application. Applicants will be informed whether or not to submit a full application by mid-May, 2019.

FULL APPLICATION

Deadline for Applications

Full applications for RFA 18-2 (by invitation only) should be submitted to funding@healtheffects.org (subject line: *[PI last name] RFA 18-2 Full Application*) no later than **AUGUST 1, 2019**. Applications should be in PDF format with a maximum file size of 20 MB.

After submission, please notify our Science Administration Assistant (science-admin@healtheffects.org, +1-617-488-2345) of your submission; do not attach the PDF documents to this second email. HEI will acknowledge receipt of the application. Applicants will be notified of the funding decision by the end of October, 2019.

Investigators invited to submit a full application should use forms **F-1 to F-12** and consult the Instructions for Completing the Application. Note that there is a separate set of forms for this Award; Form F-12 is optional. Please note that the required font size is **11 point with 1-inch margins**, single spaced. The application forms should be turned into a PDF with appropriate bookmarks before submitting. Please check our website for updates. Letters of recommendation can be included with the application or sent separately to HEI.

Content of Application

The full application consists of two equally important parts: (1) a formal proposal for a research project of up to three years and associated materials; and (2) evidence of the candidate's qualifications and outstanding research potential as well as a mentoring plan (see below). Inquiries regarding application and evaluation procedures may be directed to Dr. van Erp. **Specific budget requirements:** The project should not exceed a total of \$500,000 (*i.e.*, including indirect costs) for a 3-year project. Suggested budget totals are \$150,000 for Year 1, and \$175,000 for Years 2 and 3. The budget can be used to support the candidate's salary, to hire additional *junior* personnel (*e.g.*, postdocs, graduate or undergraduate students, or technicians), and to purchase equipment and supplies. **It is expected that the investigator will devote at least 25% of his or her time on the proposed research.** Under "Other Support", please specify the candidate's time commitment to other research projects. Please contact HEI with questions about the forms.

Mentoring

Having a mentor or mentors is considered part of the supportive research environment that is required for this Award. Mentors should be active senior investigators in the area of the proposed research and be committed both to the career development of the candidate and to the direct supervision of the candidate's research. The candidate must work with the mentor(s) in preparing the application.

HEI requires candidates to submit a mentoring plan that identifies one or more senior investigators who will act as a mentor and be available for consultation during the project; it is expected that at least one of the mentors will be at the same institution as the applicant. The mentoring plan should describe in detail how and how often the mentor(s) will advise the candidate throughout the study. In addition, mentors are asked to provide a letter indicating their commitment to helping the candidate and their availability for regular consultation, as well as their research qualifications in the area of the proposed research and their experience in fostering the development of independent investigators. During the period of the Award, the mentor(s) will also be requested to provide periodic evidence — for example, in the form of a letter describing meeting dates, reviews of research plans, comments on manuscripts, etc. — that the mentoring plan is being followed. Mentors are asked to sign off on each progress report indicating they have read the report and communicated with the awardee about potential issues that arose during the study.

Because the Rosenblith Award is meant specifically to support the candidate's career, senior faculty and consultants can be included for percentage time but not for cost (*e.g.*, 5% effort at \$0 cost). Please contact HEI with questions about how to include mentors or senior personnel on the budget pages.

Institutional commitment

HEI requires evidence of medium to long-term institutional commitment toward the applicant's career. Commitments can take many forms, such as providing laboratory space, access to core facilities, financial support for a laboratory, or paying part of the awardee's salary. In addition, it should be evident that the candidate is guaranteed at least 50% time away from teaching and/or clinical duties to pursue research and that the department includes faculty capable of productive collaboration and interaction with the candidate. If a start-up package was awarded at the time of hiring it should be described.

In addition to the materials required in the application, the following should also be submitted as evidence of the applicant's outstanding research potential:

1. A cover letter from the applicant describing his or her interest in the award and how this project fits with his or her career goals, including information concerning his/her long-term career plans and how the HEI Award would contribute to these plans.
2. Two letters of reference from well-established scientists familiar with the candidate's professional capabilities but who are not directly involved in the proposed project. The letters should not focus on the scientific proposal per se, but rather address the candidate's past contributions to scientific achievements, the candidate's potential to pursue and develop an independent research program, and how the HEI Award could contribute to this potential. Whenever possible, one of these letters should be from a postdoctoral research mentor or someone else who has worked closely with the candidate. The second letter should come from an expert in the candidate's field, who is not a collaborator but can adequately judge the candidate's potential. Please note that these letters are of paramount importance.
3. One letter from the department chair, dean or other administrative official from the candidate's present institution, indicating tangible institutional commitment to the candidate and his/her research, as described above.
4. A description of the mentoring plan and letters from the candidate's mentor(s) indicating the commitment of the mentor(s) to providing consultation to the candidate on a regular basis, as described above.
5. Three recent publications and a list of all publications by the candidate.

Please refer to application form F-2 (table of contents) for a list of all applications materials and the order in which they should be assembled.



RFA 18-2: EVALUATION PROCESS

Qualifications and career potential of the applicant, the quality and relevance of the proposed research, the research environment, and the mentoring plan will be considered in evaluating applications. Applications will be evaluated by HEI in the two-stage process described below:

PRELIMINARY APPLICATION REVIEW

Preliminary applications will be reviewed by the Research Committee. If the Committee expresses interest in the study, the investigator will be invited to prepare a full application. The selection is based on relevance of the proposed research to HEI's mission, the scientific merit of the preliminary application, eligibility of the candidate, and his or her likelihood to become a leader in the field.

FULL APPLICATION REVIEW

External Review

External scientists selected for their relevant expertise in the area of proposed research will evaluate the applications according to the following criteria:

- Scientific merit of the research design, approaches, methodology, analytical methods, and statistical procedures;
- Adequacy of the personnel and facilities;
- Appropriateness of the use of requested funds;
- Consistency of the research plan with the candidate's career goals;
- Adequacy and appropriateness of the mentoring plan.

Qualifications and research potential of the candidate will be reviewed according to the following criteria:

- Capacity to carry out independent research based on level of training, experience and competence commensurate with the purposes of this award;
- Potential to make significant contributions to the field;
- Evidence of a supportive research environment;
- Involvement of mentors or other senior consultants at the Institution or elsewhere;
- Appropriateness of the applicant's career development plan to HEI and the likelihood that the award will contribute substantially to the continued scientific development and productivity of the candidate.

Internal Review

The HEI Research Committee will then review the full applications and all additional materials, taking into consideration the comments and recommendations of the external reviewers. In reaching its decision, the Research Committee will evaluate not only the research proposal but also the letters of support, institutional support, and the applicant's career development and mentoring plan. The Research Committee does not ask for revised applications under this Award. Applicants can apply twice during their early career; the second application will be reviewed as a new application (although it should be evident that any feedback given on the first application has been considered). The Research Committee makes final recommendations regarding the recipient(s) of the Award to the Institute's Board of Directors, which makes the final decision.

CONFLICTS OF INTEREST

HEI's procedures for conflicts of interest are similar to the guidelines set forth by NIH. Members of HEI's sponsor community are excluded from participating in RFA development, applying for support, application review, and funding decisions.

HEI invites external reviewers (or in the case of a major RFA, Review Panel members) who are unlikely to have a conflict of interest with the proposal(s) they are asked to review. A conflict occurs when the reviewer is named on the application in a major professional role; the reviewer (or close family member) would receive a direct financial benefit if the application is funded; the PI or others on the application with a major role are from the reviewer's institution or institutional component (e.g., department); during the past three years the reviewer has been a collaborator or has had other professional relationships (e.g., served as a mentor) with any person on the application who has a major role; the application includes a letter of support or reference letter from the reviewer; or the reviewer is identified as having an advisory role for the project under review. In addition, HEI Staff screen external reviewers for potential conflicts of interest with other applicants who have submitted a proposal under the same RFA.

For Review Panel members and Research Committee members, in some situations it may not be possible to avoid all possible conflicts of interest as outlined above. In such cases, Review Panel and Research Committee members who have a conflict of interest will not be assigned to review the application(s) in question and will be asked to leave the room during the discussion of those application(s). They will also not score or vote on the application(s) at issue and refrain from commenting on them during the overall discussion, and in the case of the Research Committee, from all deliberations regarding recommendation of applications for funding. If several Research Committee members are recused from the overall discussion of applications for such reasons, HEI will invite external consultants to join the Committee to fill in the missing expertise.

This peer review system relies on the professionalism of each reviewer, Review Panel member, and Research Committee member to declare to HEI the existence of any real or apparent conflict of interest. If a reviewer feels unable to provide objective advice for any other reason, he/she is expected to recuse him/herself from the review of the application(s) at issue.

This document was posted at www.healtheffects.org on December 7, 2018.

Health Effects Institute
75 Federal Street, Suite 1400
Boston, MA 02110, USA
Phone: +1 (617) 488 2300
www.healtheffects.org