Request for Proposals: OUCH-Int'l and LCRF Research Grant Program on the Effects of Air Pollution and Climate Change on Carcinogenesis and Lung Cancer Prevalence

1. Program Summary

In 2021, the World Health Organization called climate change the single biggest health threat facing humanity. Over the past 10–15 years, we have learned more and more about how greenhouse gases heat up the planet, causing a myriad of problems—such as rising sea levels, severe weather events, rising temperatures, and a changing environment, among others.

Climate change and air pollution are not separate issues but are synergistic in their effects on population health and lung cancer. Air pollution causes detrimental impacts on multiple environmental aspects in both urban and rural areas (Tan WC et al, *Am J Respir Crit Care Med*, 2000). These effects are worsened when combined with climate change.

Increasing evidence indicates that air pollution is a major cause of lung cancer, and the number of estimated lung cancer deaths attributable to air pollution has increased by nearly 30% since 2007, as smoking has decreased and air pollution has increased (Turner MC et al, *CA Cancer J Clin*, 2020). The International Agency for Research on Cancer (IARC) has classified outdoor air pollution and particulate matter (PM) with an aerodynamic diameter of less than 2.5 microns (PM2.5) as carcinogenic to humans and a cause of lung cancer (Straif K et al, IARC Press, 2013; Loomis D et al, *Lancet Oncol*, 2013; GBD 2019 Risk Factors Collaborators, *Lancet*, 2020). Data now show that exposure to pollution—whether from industrial sources or wildfires—increases the risk of lung cancer in both smokers and non-smokers (Hill et al, *Nature*, 2023). Globally, outdoor (ambient) air pollution is regarded as the second most important cause of lung cancer mortality after smoking, and indoor air pollution is considered the seventh most important cause (GBD 2019 Risk Factors Collaborators, *Lancet*, 2020).

Air pollution causes many health hazards, can contribute to the development of lung cancer, and can worsen its prognosis. Awareness that exposure to air pollution is the second-largest risk factor for lung cancer needs to be at the forefront of the lung cancer community—to recognize its risks and to educate patients and the healthcare community at large. Close collaborative efforts in research and advocacy are urgently needed to reduce the toll of air pollution and climate change, which will also benefit patients with lung cancer, their families, and society as a whole (Berg C et al, *J Thorac Oncol*, 2023).

OUCH-Int'l and LCRF Research Grant Program on the Effects of Air Pollution and Climate Change on Carcinogenesis and Lung Cancer Prevalence is a two-year award supporting investigators at any level in their career. This award's objective is to fund innovative projects to support research that examines the impact of climate change and environmental pollution on lung cancer risk, diagnosis, treatment, and outcomes and identifies strategies to mitigate these effects.

The intended outcomes/goals of this award are:

- Improved understanding of how climate change and environmental pollution influence lung cancer risk, diagnosis, treatment, and patient outcomes.

- Development of effective, evidence-based strategies to mitigate the impact of climate change and air pollution on lung cancer incidence and outcomes.
- Expanded knowledge of the specific mechanisms by which climate change and air pollution contribute to lung cancer development in never-smokers.

Topics of interest include, but are not limited to:

- Impact of climate change on cancer incidence and prevalence
- Role of screening for lung cancer in a warming climate, particularly in never-smokers or anyone who falls outside of the screening guidelines
- Understanding the impact of extreme weather events on lung cancer prevalence and outcomes (e.g., extreme weather events, severe heat, access to care, etc.)
- Investigations into the role of air pollution and lung cancer in never-smokers
- Research focused on the effects and interactions of environmental carcinogens and ways to mitigate their impact
- Research into the mechanisms by which PM2.5 and other environmental carcinogens cause lung cancer

2. Eligibility Criteria

Investigators must be affiliated with a non-profit academic or research institution. Applicants may be at any level in their career. Applicants from post-doctoral researchers; clinical fellows; or early-, mid-, or senior career investigators are eligible to apply. Applications from US-based and international organizations are welcome and may hold any residency/citizenship status. Inquiry related to eligibility should be sent to LCRF grants office (see Inquiries section below) before submitting an application and at least a week before submission deadline.

3. Budget Requirements

The maximum award amount is $200,000 for a period of two years (disbursed at $100,000 per year). Additional budget requirements and considerations include the following:

- The grant must be the primary source of support for the project. Additional secondary funding (e.g. for core services support) is permitted.
- There is no limit on the amount of salary support that may be requested. However, appropriate justification for all budget items is required. Any salary requests in excess of 20% of the total budget must be explicitly justified. Queries related to justification should be sent to LCRF grants office (see Inquiries section below) at least a week before submission deadline.
- Any equipment costs must be limited and directly applicable to the research project (i.e. large, general equipment costs are not permitted).
- Direct patient care costs reimbursable by other sources may not be included.
- Up to 10% of the funding from this award may be used to support institutional indirect / facilities and administrative costs.
- Travel and publication costs are permitted.
- Co-investigator(s) are allowed to be part of the proposal. If awarded, funds will be disbursed to the sponsoring institution where the lead-investigator is primarily affiliated.

4. Data Sharing and Open Access Policy

OUCH-Int'l and LCRF are committed to promoting open science by helping to increase access to investigators' findings and improving collaboration and data sharing among the lung cancer research community. Accordingly, it is a condition of OUCH-Int'l and LCRF funding that all peer-reviewed articles supported in whole or in part by OUCH-Int'l and LCRF funds must be made available in the PubMed Central online archive no later than 12 months after publication. In addition, OUCH-Int'l and LCRF grantees must indicate explicitly in all reports, publications, and other research communications whether the data, methods used in the analysis, and materials used to conduct the research will be made available to any researcher for purposes of reproducing the results or replicating the procedure. At the time of submission, all investigators must indicate if they will or will not make their data, analytic methods, and study materials available to other researchers.

The selected project and the resulting research will generate valuable insights to help advance understanding of the connection between lung cancer and pollution—findings that could help shape future scientific studies, policy discussions, screening guidelines, and more. Published results and/or scientific presentations at national and international conferences will be amplified by both OUCH-Int'l and LCRF through their marketing channels.

5. Application Instructions and Requirements

A. Go to https://proposalcentral.com/ and login under the "Application Login" section. After logging in, complete your Professional Profile before starting an application If you are already registered with Proposal Central, access the site and log in with your Username and Password. If you do not have an account yet, please click on "Need an account?" and follow the instructions.
B. Click on the "Grant Opportunities" Tab.
C. A list of applications will be displayed. The list of applications can be filtered for just this organization by clicking "Filter by Grant Maker" at the top and selecting "Lung Cancer Research Foundation" in the drop-down menu. Find the "OUCH-Int'l and LCRF Research Grant Program on the Effects of Air Pollution and Climate Change on Carcinogenesis and Lung Cancer Prevalence" and click the "Apply Now" button in the "Apply Column".
D. All deadlines are at 5 PM US Eastern Time. If a document icon is showing, you can click on it to download it. This includes necessary information about the deadline from the grant maker.
E. Click the link or download the document in the Contact Information column. Clicking the link opens an email to the program administrator. If a document is provided instead, it includes the grant maker contact information.
F. Technical assistance related to submission will not be provided after 5 PM US Eastern Time on the day of submission deadline. Applicants are encouraged to contact LCRF grants office (see inquiries section below) well before the deadline.

All applications for funding must be submitted online at Proposal Central. Any applications for an extension of a previously awarded grant require resubmission as a new complete application and must include an update describing the progress made during the prior award period. Text should be Arial, Times New Roman, Palatino Linotype, Courier New, Georgia, or Helvetica 11-point font or higher. Margins should not be less than 0.5" on standard letter paper (8 ½" x 11"), and the applicant must verify the margins on the documents that are uploaded.

The following application components are required for a complete submission:

- NIH Biosketch (NIH Biosketch Instructions)
- Lay summary
- Specific Aims (one page in length)
- Narrative (six pages maximum):
  - Background and Significance
  - Preliminary Data (if applicable)
  - Experimental Approach
  - References (not included in page-limit)
- Timeline
- Future plan
- Budget
- Letter(s) of support

Additional Considerations

- All applications must include the NIH biosketch (five pages maximum length) of the lead investigator and any key personnel involved in the project.
- Applications must include at least one letter of support from the lead investigator's program director/advisor affirming the following statements:
  - The applicant will be officially affiliated with or employed by the institution during the grant period.
  - There is adequate institutional space and equipment to accomplish the proposed project.
  - The program director/advisor confirms his/her commitment to and provision of institutional space and equipment for the grantee.

6. Timeline

Release of RFP	January 2026
Proposal submission deadline	June 2, 2026
Notification of award	November 2026
Project start date	December 1, 2026

7. Evaluation of Applications

The evaluation consists of an administrative review, a comprehensive review by OUCH-Int'l and LCRF's Scientific Advisory Board and a review conducted with research. Submissions will additionally be evaluated for overall rationale, feasibility, potential impact on the lung cancer field, study design, and creativity/innovation. Similar to an NIH R21 award, reviewers will be asked to provide an impact score reflecting their assessment of the likelihood for the project to exert a sustained, powerful influence on the field of lung cancer research and/or reducing disparities in lung cancer outcomes.

8. Award Notification and Announcement
All applicants will be notified of their award status by the date specified in the Timeline section above. Regrettably, due to the high volume of submissions, OUCH-Int'l and LCRF is not able to provide feedback on proposals that are not selected to receive an award.

9. Post-award Reporting Requirements
During the funding period, all investigators are required to submit at least two scientific progress reports and at least four lay audience update reports including the following:

Report Type	Due Date
Interim Report	At conclusion of year one of the grant term
Final Report (includes financial summary report)	Within sixty days of conclusion of the grant term
Lay audience update	Every six months after project start date

All reporting is required to be done in Proposal Central, and additional reports may be assigned when project terms are amended (e.g. in the case of a no-cost extension or institutional transfer). Receipt of the second year of funding is contingent upon submission and approval of the interim progress report at the conclusion of the first year of the grant term.

10. Inquiries
For questions, please contact the LCRF grants office at grants@lcrf.org OR

If you have any difficulties registering, logging in, or creating your application, contact Proposal Central Customer Support at: pcsupport@altum.com or 800-875-2562 (Toll-free U.S. and Canada), +1-703-964-5840 (Direct Dial International). 875-2562 (Toll-free U.S. and Canada), +1-703-964-5840 (Direct Dial International).