EXposure of Human Aerosols to far-UVC Light for pathogen Elimination (EXHALE)

Request for Proposal (RFP)

I. Overview Information

Title:

EXposure of Human Aerosols to far-UVC Light for viral pathogen Elimination (EXHALE)

Important Dates:

- Posting Date: June 18, 2025
- Abstract Due Date: July 21, 2025, 11:59 pm ET (SUBMIT HERE)
- Full Proposal Due Date: 3 weeks after Notice of Recommendation, 11:59 pm ET

Description:

Purpose: Quantify far-UVC inactivation of viral pathogens contained within actual human respiratory aerosols.

The majority of far-UVC studies rely on aerosolizing microbes in experimental media in controlled settings. While efficient and easily reproducible, these studies do not replicate the complex biological and physical properties of human respiratory aerosols that may impact far-UVC penetration and pathogen inactivation. Furthermore, different respiratory pathogens may have different far-UVC susceptibilities when contained in human respiratory aerosols.

We are especially excited to support researchers who have not worked with far-UVC before. You do not need to be a far-UVC expert—we will help orient you.

Out of scope: Studies using 254-nm UVC, computational models of far-UVC inactivation, inactivation on surfaces.

Abstract Requirements

Max 4 pages (references and supplemental materials not counted); optional 1-slide summary. Include a rough budget estimate. See Section V for additional information.

Budget and Timeline

We expect to fund multiple teams. Up to $1,000,000 ($1 million) is available. However, if you have an idea that costs significantly more, we recommend you reach out to the Blueprint team to start a conversation prior to submitting to EXHALE. We are especially interested in proposals that achieve the program goals keeping cost reasonableness in mind. Most strong proposals will:

- Be completed within 12 months, ideally faster
- Include a clear plan, reasonable cost, and fast execution

Contact Information:

- **Technical POC:** James Montavon, Far-UVC Program Deputy Director
- **RFP Email:** EXHALE@blueprintbiosecurity.org

II. Program Information

A. Introduction and Background

Blueprint Biosecurity's mission is to achieve breakthroughs in humanity's capability to prevent, mitigate, and suppress pandemics. We aim to do this by providing actionable roadmaps, which we call Blueprints, for accelerating and derisking countermeasures, and then tackling the main bottlenecks to realizing progress.

Far-UVC is a promising technology for reducing airborne transmission of pathogens in indoor spaces. While 254-nm UVC has long been used to disinfect unoccupied spaces[1,2], far-UVC appears capable of inactivating airborne pathogens while remaining safe for human exposure, opening the door to real-time, passive protection in occupied environments. To realize that potential, however, we need a stronger evidence base. Much of the existing research on far-UVC focuses on only a few pathogens per experimental setup, often with differmethods or incomplete reporting.

The COVID-19 pandemic reignited studies on aerosolized pathogens from humans and highlighted the lack of efficacious biorisk mitigation strategies, especially for pathogens spread by human aerosols. Far-UVC is one evolving mitigation strategy that may prove effective in inhibiting airborne pathogens. However, before far-UVC can be effectively deployed, effective large-scale trials are necessary that provide robust data on required doses when targeting pathogens within actual human-generated respiratory particles (HGRPs). The majority of far-UVC studies rely on aerosolizing microbes in experimental media in controlled settings. While efficient, these studies do not replicate the majority of the complex biological and physical properties of HGRPs that may impact far-UVC penetration and pathogen inactivation.

The goal of this RFP is to determine far-UVC inactivation of viral pathogens within HGRPs and compare results to traditional laboratory methods. This study will not only provide conclusive evidence that far-UVC could be effective in real-world settings, but will also provide a potential scaling or comparison factor to established protocols.

B. Program Description/Scope

This RFP seeks to quantify the viral pathogen inactivation potential of far-UVC on human-generated aerosol particles with comparison to current laboratory methods. While experiments using more traditional aerosolization media (e.g., simulated saliva, DI water, PBS, etc.) are not a part of the EXHALE program, a major outcome of this study is the ability to compare inactivation in HGRP with these existing studies.

Program Requirements

All performers must complete studies on direct human-generated aerosol particles, with sufficient patient numbers for a given viral pathogen. It is the responsibility of the proposing team to provide a strategy and timeline for ensuring

Requirements:

- Must study human-generated aerosol particles directly

[1] Bergman, 2021. [2] Reed, 2010.

- Patient requirements
    - Notation of sufficient patients (power analysis or other methods are recommended)
    - Proposers are responsible for any IRB or other approvals necessary for study completion.
        - Completion of IRB/other approvals will be one funding gate
- Disease status
    - All teams must provide a strategy and timeline to ensure sufficient patients are enrolled. Other factors that must be considered include:
        - Ensuring the patients have the same viral pathogen (we are open to choice of pathogen, but they must cause respiratory infection/disease)
        - Ensuring the patient is actively sick and shedding viral pathogens in human-generated aerosol droplets
- Controlled Study
    - Proposers must include a plan for comparing with and without far-UVC on human-generated aerosol particles, taking into consideration potential changes in particle size, pathogen shedding (if measured on different days)
- Wavelengths
    - Proposers may use far-UVC wavelengths (222 nm, 233 nm, 235 nm) and different lamps (e.g., KrCl, LED). Preference will be given to filtered KrCl lamps.
    - Proposers may not use 254 nm.

We welcome submissions from teams expert in microbiology but new to far-UVC. Please reach out to EXHALE@blueprintbiosecurity.org if you have questions about far-UVC lamps or measurement requirements- we are happy to help.

In scope:

- Challenge studies
    - Human-to-human
    - Human-to-animal
- Studies based on sampling and determining infectivity of viral pathogens in exhaled air

Out of scope:

- Studies using 254-nm UVC, computational models of far-UVC inactivation.
- Inactivation of viral pathogens contained in HGRPs on surfaces.

C. Schedule/Milestones

We desire projects to be completed within 12 months of contract award. However, we understand that there may be time consuming requirements including: IRB and other required approvals, patient recruitment, and others. Please account for these in your timeline.

We typically provide partial payment at the start of the project following confirmation of all approved IRB and other necessary approvals and the remainder upon completion. You are welcome to suggest a different payment structure, like interim milestones, if that works better for your needs.

D. Deliverables

Blueprint Biosecurity will negotiate project deliverables with individual awardees. Blueprint Biosecurity anticipates that, at a minimum, selected awardees may be required to provide the following:

- Monthly technical reports describing progress, challenges, and next steps
- Virtual meetings to discuss progress
- A completion report within 30 days of the end of each project phase
- Any models or data analysis developed during the project, with clear documentation

Depending on the proposer's approach and plan, other examples for deliverables may include:

- Experimental protocols, data, results, and analysis
- Models, simulation tools, or analysis scripts, with documentation
- Publications, validation data, or supporting materials
- Software tools, scripts, or design documents
- Periodic financial reporting

III. Award Information

A. General Award Information

Number and Size of Awards

There is no fixed number or size of awards. Blueprint Biosecurity understands this study may require significant capital. We encourage teams to propose the best study possible, but also encourage cost reasonableness. Proposals will be evaluated on cost-effectiveness: how much useful information they generate per dollar spent. See Section VI.A for more information about evaluation criteria.

Blueprint Biosecurity reserves the right to:

- Select for negotiation all, some, one, or none of the proposals received in response to this RFP;
- Provide abstract feedback and request proposals at any time;
- Begin contracting with selected teams at any point, including prior to listed proposal due date;
- Conduct discussions with proposers if needed;
- Fund entire proposals or only specific portions;
- Fund awards in increments or by milestone achievements;
- Request additional documentation once the award instrument has been determined (e.g., representations and certifications); and
- Withdraw a proposal from consideration if terms cannot be agreed upon in a reasonable time, required information is not provided, or the proposal does not meet RFP requirements.

Awardees are responsible for ensuring that research is conducted in compliance with rules set forth by relevant institutional, local, and national research regulatory bodies such as Institutional Review Boards (IRBs) and/or Institutional Ethics Committees (IECs).

Blueprint Biosecurity retains sole discretion to select awards and to negotiate all terms and conditions with selectees.

B. Non-proprietary Research

We expect that results from this work will be shared openly with the scientific community. Outputs should be published as open-access or open-source, as appropriate. If your proposal includes any proprietary components, please clearly identify what they are, why they need protection, and whether there is a way for Blueprint Biosecurity to share the information with others to maximize impact.

C. Administrative Overhead Policy

Blueprint Biosecurity maintains the following policy that limits indirect costs ("overhead") for any grant it makes or recommends:

> When making or recommending grants to universities and community colleges, Blueprint Biosecurity restricts indirect costs to no more than 10% of direct costs.

Direct costs are defined as expenses that support and advance the project's specific goals; indirect costs are defined as general administrative and operational expenses that are not specifically identified with the funded project.

IV. Eligibility Information

A. Eligible Applicants

Submissions are welcome from all responsible sources, inside and outside the United States, capable of satisfying the requested work in this RFP. We will be unable to provide awards to any entities subject to United States sanctions.

B. Organizational Conflicts of Interest

Proposers are required to disclose all potential real or perceived conflicts of interests, such as:

- Current or past funding, financial interests, advisory roles, or personal ties involving the far-UVC industry or competing industries
- Personal ties to the Blueprint Biosecurity team

V. Guidelines for Submissions

Please submit as a PDF or Word document, in English. Use the template if helpful. We care more about the clarity of your plan than perfect formatting or polish.

We request that proposals do not include brochures or marketing materials; please provide only information relevant to the submission requirements or evaluation criteria. In an effort to provide focus on meeting the program objectives, proposers should limit their discussions about motivation for the proposal or potential impact.

A. Abstract Guidelines

Blueprint Biosecurity requires proposers to submit an Abstract. Proposers may opt to provide supplemental papers for consideration as part of the evaluation, though these may not be reviewed in their entirety.

An Abstract should not exceed 4 single-sided pages. References/bibliography and supplemental papers do not contribute to the page limit.

Abstracts should include a rough order of magnitude (ROM) budget, which provides estimates for: direct labor, subcontractors, materials/equipment, and travel/other direct costs. Blueprint Biosecurity encourages healthy and open dissemination of the findings from this program to the scientific community. As such, estimates should (where appropriate) include reasonable costs for travel and registration to conferences, and for open-access publications. Capital expenditures (>$10,000) are allowable if necessary, but will be subject to additional justification at the Proposal stage.

B. Proposal Guidelines

A full proposal will consist of a technical section and a cost section. Blueprint Biosecurity will provide templates and further guidance following review of abstracts.

VI. Application Review Information

A. Evaluation Criteria

All proposals will be evaluated based on the following criteria, in descending order of importance:

1. **Overall scientific and technical quality**

Proposals will be evaluated for achievability, reasonableness, and completion. Proposals should include a logical plan with timelines, deliverables, and a clear connection to the goals of this RFP. We will also assess whether the proposed schedule is realistic and whether technical risks are identified with feasible mitigation strategies.

2. **Proposer's capability and/or related experience**

Proposals will be evaluated for the technical team's experience and expertise relevant to the proposed work. Strong proposals will show a track record of delivering similar projects on time and within budget. Please include any related current or past efforts, with details such as the funder, timeline, summary of progress or results, and award value, to help us assess capability.

3. **Speed**

Proposals will be evaluated for the speed at which the work is initiated and completed, while not sacrificing scientific integrity. Proposers should identify the advantages of their proposed study and how the approach accelerates the experimental timeline. Proposals must explain how timeline acceleration will preserve scientific integrity and meet EXHALE goals.

4. **Cost effectiveness/realism/reasonableness**

Each proposal will be subject to cost analysis to ensure effective, reasonable, and realistic proposed costs for technical work and equipment, labor, and other associated program costs. By 'cost effectiveness', we mean the ability to extract the most useful information for this RFP per dollar spent. By 'cost realism' we mean the necessity of each expense to address the program objectives. By 'cost reasonableness', we mean the justification of the monetary value of those expenses. For example, 'cost realism' would address whether a specific piece of equipment is required for the project, and 'cost reasonableness' would address whether the budgeted cost of that equipment is reasonable.

B. Proposal Evaluation Process (Review and Selection Process)

It is the policy of Blueprint Biosecurity to ensure impartial, equitable, comprehensive evaluations of Proposer Submissions. The review team will consist of at least two employees of Blueprint Biosecurity, as well as a small number of outside contractors/consultants/experts.

Review team members will individually evaluate and comment on the proposals. A subsequent discussion will weigh the merits of each proposal to inform funding decisions. Final funding decisions will be made by the members from Blueprint Biosecurity.

Blueprint Biosecurity will identify and execute a mitigation plan for identified conflicts of interest between review team members and any proposals. Our Chief Operating Officer, who will not be part of the review team, will manage this process, and adjudicate conflicts.

C. Handling of Proposal Submissions and Proprietary Information

Blueprint Biosecurity treats all submissions as protected information and will only share them with personnel involved in evaluation. This may include support contractors who assist with administrative or technical review. All contractors performing this role are prohibited from conducting Blueprint-sponsored research and are bound by nondisclosure agreements. Input on technical aspects may also be solicited from external experts under the same confidentiality obligations.

Blueprint Biosecurity will retain an electronic copy of each proposal; all other copies will be destroyed. Submissions will not be returned.

To the extent possible, please submit non-proprietary information. If proprietary or confidential information must be included, it must be clearly marked as “Proprietary,” and you must have the authority to disclose it. Such information will be shared only with authorized personnel bound by nondisclosure agreements and used solely for evaluation.

Please note that Blueprint Biosecurity may already possess, or may separately obtain, information similar or identical to your proprietary submission. In such cases, we reserve the right to use that information according to the applicable rights from those sources.

VII. Award Administration Information

A. Selection Notices

1. Types and Delivery of Notices

The following notices will be provided as applicable:

- Notice of Disinclination (for proceeding from Abstract to full Proposal)
- Notice of Recommendation (for proceeding from Abstract to full Proposal)
- Notice of Non-Selection (for proceeding from Proposal to negotiation of an Award)
- Notice of Selection (for proceeding from Proposal to negotiation of an Award)

All notices will be sent by email to the Technical and Administrative POCs identified on the abstract/proposal cover sheet.

2. Abstracts

Blueprint Biosecurity will respond to abstracts with either a Notice of Recommendation or a Notice of Disinclination, along with a brief description containing feedback. All proposers may still submit a full proposal, regardless of Blueprint Biosecurity's response to the provided abstract. All conforming full proposals will be reviewed according to the evaluation criteria listed in Section VI.A; these reviews will be independent of the abstract reviews, though consideration may be given to the proposers' responses to feedback provided.

3. Proposals

After proposal evaluations are complete, proposers will be notified as to whether their proposal was selected for award negotiation. For proposals that receive a Notice of Selection, the funding negotiation could be for the proposal in whole or in part. If a proposal has been selected for award negotiation, Blueprint Biosecurity will initiate those negotiations following the notification.

VIII. Other Information

A. Frequently Asked Questions (FAQs)

Please email all administrative, technical, and contractual questions to EXHALE@blueprintbiosecurity.org. Questions about this program that are not sent to this email may not be replied to. All questions must be in English, and must include the name, email address, and telephone number of a point of contact.

Where Blueprint Biosecurity deems it to be helpful for all interested parties to the RFP, answers to questions (paraphrased where necessary to protect proposer information) may be posted in a public FAQ on Blueprint Biosecurity's website.