

## REQUEST #RFP\_2019\_0127

# Technology to Collect or Detect Airborne Microorganisms

**RESPONSE DUE DATE:** August 8, 2019

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### Opportunity

Joint/contract development, technology licensing, product supply

### Timeline

Phase 1 – Verification at a lab level: March 2020  
 Phase 2 – Establishment of technology: March 2021

### Financials

Necessary development expense will be covered (Details to be discussed).



### DESCRIPTION

NineSigma, representing a **global machinery manufacturer whose annual sales reach more than billions of dollars**, seeks **technology to collect or detect airborne microorganisms**. A wide range of proposals are welcome if you have any technology to collect or detect microorganisms, even though it has not been implemented for practical use.

### Prerequisites

- Target to be collected/detected: microorganisms (bacteria, fungi)
- Size of the target: 1-15 µm
- Environment: in the air
- Intended use: use in public facilities or ordinary households

### Requirements of the technology

The Client seeks any one or both of the following technologies, A and B:

- A. Technology to collect airborne microorganisms
- Volume of air collected: 1 m<sup>3</sup>
  - Operating noise: keep it quiet so as to be 40 dB or lower
  - Size of device: A side length of 10 cm or shorter is preferable toward practical use.
  - Form of collection
    - Preferably capable of collecting microorganisms alive

- Preferably capable of collecting microorganisms as a fluid sample

- B. Technology to detect collected microorganisms
- Measurement time: within 2 hours
    - Detection in a short time is preferable
  - Preferably capable of identifying microorganisms

The level of above technological requirements are high, and therefore all requirements may not be met at present.

Your proposal for technology A may be acceptable if the requirements are likely to be verified at a lab level through additional development by March 2020. As for technology B, if verification data have been or will be obtained, it does not matter which development stage you are in.

### POSSIBLE APPROACHES

The Client expects technologies such as the following approaches, but is open to others:

- A. Technology to collect airborne microorganisms
- Filter method
  - Impactor method
  - Cyclone method
  - Falling bacteria test
- B. Technology to detect collected microorganisms
- Laser-induced fluorescence (LIF)

- Gas phase flow cytometry
- Melanoidin fluorescence assay

### APPROACHES NOT OF INTEREST

The following approaches are not of interest:

- Measurements that require microbial culture in microbial detection technology

### BACKGROUND

The Client engages in the development of a device for detecting/identifying microorganisms, taking into account its mounting on devices available at public institutions or ordinary home. This development demands two technological criteria: capabilities to collect airborne microorganisms effectively and detect/identify the collected microorganisms with high accuracy in real time.

The Client has examined these two technological requirements but has not achieved the goal of required characteristics.

On the other hand, collection and detection technologies have been studied/developed in various fields, and prospective technologies to solve the challenges are considered present around the world. Therefore, the Client has decided to make this RFP to solve the technological challenges and put prospective technology into practical use in an early stage.

### ITEMS TO BE SUBMITTED

Please include the following items in your proposal:

- Characteristics, principle, and uniqueness of proposed technology
- Target challenges (A. Technology to collect airborne microorganisms; B. Technology to detect collected microorganisms)
- Development stage (concept level, lab level verification, development for practical use, or implemented for practical use)
- Current performance
  - A. Technology to collect airborne microorganisms
    - Collectable targets (e.g. target object, size)
    - Flow rate
    - Time required for a series of processes
    - Continuous operating time
    - Motion sound

- Size of the current device and expected size of a finally feasible device
- State of microorganisms collected (e.g. in solution, in powder form)
- B. Technology to detect collected microorganisms
  - Measurable targets (e.g. target object, size)
  - Measurement time
  - Measurement accuracy
  - Possibility or impossibility to identify targets (Please specify identifiable targets, their identification level, etc., and clearly indicate that the technology can identify targets either theoretically or actually.)
- Condition for sample testing (e.g. presence of NDA, period, cost)
- Current challenges and future development plan
- Past results (e.g., additional information showing research and development capabilities such as research papers or patents)
- Profile of proposer

Please submit your proposal via [NineSights](#), the platform of NineSigma's Open Innovation community, which allows you to manage all your proposals. Please contact the Solution Provider Help Desk [phd2@ninesigma.com](mailto:phd2@ninesigma.com) for assistance about registration and proposal submission.

### NOTES ON RESPONSE

Proposal shall have clear points and should not include confidential information. Supplemental files may be submitted in addition to the proposal.

### RESPONSE EVALUATION

The client will evaluate all responses with the following criteria.

- Overall scientific and technical merit
- Approach to proof of concept or performance
- Economic potential of concept
- Realism of the proposed plan (action items, timeline, roles, deliverables, cost estimation)
- Potential for proprietary position
- Respondents' capability and related experiences

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**ANTICIPATED PROJECT PROCESS**

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After the submission due date, the client will review all submitted proposals. NineSigma will send the review results to each proposer 6-8 weeks after the due date. The client possibly asks clarifying questions before selecting the most suitable candidates for collaboration. The client will select best candidates through evaluations. During the selection process, the client may execute NDA with selected respondents, seek further information disclosure, and discuss specific development targets or potential opportunities. The client will execute necessary agreements with the selected respondents and move to the advanced development phase. Specifics of any collaboration will be determined through consultation with the concerned parties.

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**FREQUENTLY ASKED QUESTIONS**

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Please see the following FAQ link.

<https://www.ninesigma.com/about-us/solution-providers/>