

REQUEST RFP_2019_0112(0113) Technology that Prevents Increase in Water Activity of Freeze-dried Bacteria

RESPONSE DUE DATE: July 19, 2019

Contract information:

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Opportunity

Collaborative research, joint development, licensing, contract manufacturing, and sales of materials

Timeline

Phase 1 – Within 6 months before starting of sample testing
Phase 2 – Within two years before completing development of the technology in a lab

Promising research seeds will be reviewed individually as a medium- and long-term project

Financials

For solving this technical challenge, the budget is guaranteed (Negotiable depending on the proposal)



DESCRIPTION

NineSigma, representing a multi-billion-dollar food manufacturer, seeks a technology that prevents the increase in water activity of freeze-dried bacteria in food product. The client aims to maintain the viability of freeze-dried bacteria over a long period of time by preventing the increase in water activity. We also welcome proposals that can improve the viability of freeze-dried bacteria by focusing on the other factors besides water activity. In particular, we expect proposals from organizations that proactively respond to sample testing.

KEY SUCCESS CRITERIA

At the current stage, proposals that satisfy the requirement of either 1) water activity or 2) viability are welcome.

- 1) The water activity (Aw) of freeze-dried bacteria is maintained at 0.3 or less in substances with Aw>0.6, (including aqueous solution) at cold or room temperature (10–25°C) for 1 month to 1 year.
- 2) The decrease of viability of freeze-dried bacteria can be lowered under the following conditions:

- Refrigerated conditions (10–15°C, 1 month)
- Room temperature conditions (20–25°C, 1 month-1 year)
- Frozen conditions (-18°C, 2 years)

- 3) Applicable to food
- 4) Hygienic treatment is possible

POSSIBLE APPROACHES

Possible approaches might include, but are not limited to the following. Proposals from a wide range of technology such as chemical and pharmaceutical fields, including technology that has not been applied to food products, are also welcomed.

- Coating with protective agents
 - Oily (hydrophobic) substance
 - Ionic liquid
- Encapsulation
- Physicochemical approach
 - Surface treatment (hardening or water repellent treatment etc.)
 - Retaining freeze-dried bacteria in oil drops in water

- Production process of freeze-dried bacteria
 - Inclusion of viable freeze-dried bacteria in crystals

BACKGROUND

The client, a leading food manufacturer, is working to produce food products containing freeze-dried bacteria. The viability of freeze-dried bacteria can be maintained for a long time in low water activity, but the viability decreases when the water activity increases. Therefore, it is a challenge to disperse the freeze-dried bacteria in food product without increasing the water activity.

The client has been examining coating technology by using several protective agents, but the effects have not been acceptable. As a result, we decided to seek proposals in order to identify effective technology for preventing the increase in water activity or improving the viability of freeze-dried bacteria from various approaches including coating technology.

ITEMS TO BE SUBMITTED

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

Proposal may include the following items along the response form shown by clicking the "Respond" button.

- Overview of the technology
- Uniqueness of the technology
- Development stage (Lab level / Pilot scale / Commercialized)
- Relevant data
 - Water activity data
 - Viability data
- Knowledge related to application to food (with experience, with knowledge, without knowledge)
- Possible challenges and solutions in applying the technology
- Conditions of sample test (cost, timeline, contract conditions, etc.)
- Hopes concerning the current status of the intellectual property and the handling of new intellectual property
- Track records concerning proposal (application record, research paper etc.)
- Organization overview

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

ANTICIPATED PROJECT PROCESS

After reviewing submitted proposals, the client possibly ask 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.