BioNexus Program Call for Projects (CFP) Q&A Document

Last Updated: July 8, 2026

This document contains answers to questions submitted during the June 30th Proposer's Day, as well as inquiries received via email.

For full program details, timelines, and the application portal, please visit the Program Website at https://nemicroelectronics.org/bionexus

General BioNexus Program Information

Applicant Eligibility & Project Teams:

Who is eligible to apply?

A: Any Massachusetts-based entity may serve as lead proposer, including universities, colleges, nonprofits, public entities, startups, large companies, incubators, accelerators, and FFRDCs. Team members may be outside Massachusetts, but the lead proposer must be Massachusetts-based.

Can any for-profit companies serve as lead applicants?

A: Yes. As long as the lead applicant is based in Massachusetts, for-profit organizations from startups to large corporations are eligible to lead proposals.

Q: Can a Massachusetts-based entity apply if it is a subsidiary of a foreign company?

A: Yes, as long as the entity is based in MA, they are eligible to apply.

Q: Can one organization be a lead applicant on one project and be a sub-performer/team member for another project?

A: Yes, applicants can be involved in multiple white paper submissions as lead applicant and/or sub-performer.

Q: Are multi-organization teams required?

A: Single-organization applications are eligible. However, award preference will be given to multi-organization and cross-functional teams.

Q: Can projects have subrecipients and subcontracts with organizations in other states?

A: Yes, while the lead applicant must be physically located in Massachusetts, sub-recipients can be located across the U.S.

Q: Is there a certain distribution of work required when working with out of state recipients?
A: While the lead applicant must be an organization located in Massachusetts, the distribution of project work across participating entities and states is at the project team's discretion.

Q: Can applicants collaborate with DEVCOM?
A: DEVCOM or any US Army entity cannot be a funded subrecipient because it participates in proposal evaluation. Once projects are awarded, collaboration with DEVCOM can occur to drive the best possible project outcomes.

Q: What is the purpose of the CRADA and what are the terms of the agreement?
A: A Cooperative Research and Development Agreement (CRADA) is one of the primary, legally binding mechanisms used by federal laboratories and agencies to collaborate directly with non-federal partners. The principal intent of a CRADA is to bridge the gap between government research and commercial markets, driving innovation by transferring federally funded R&D into usable, marketable products.

Q: Are security clearances required?
A: Security clearances are not required to submit a white paper proposal. However, note the reference to classified capabilities in the Topic 10 (Novel Application-Driven Engineered Bacteria Chassis for Army/DoW Applications) description.

Awards & Funding:

Q: How much funding is available?
A: $3 million in total is available across all awarded projects for Year 1 ($3 million in total for all projects, not per project).

Q: How many awards will be made?
A: The number of awards will depend on the proposal volume, quality and budgets received.

Q: How will awardees receive the funds?
Awarded grants are intended to firm fixed-price contracts with defined milestones.

Eligible Expenses:

Q: Can indirect costs such as rent and utilities be charged?
A: Generally no, unless the costs are directly attributable to project execution.

Q: Would indirect expenses (i.e administrative surcharges) be an eligible expense?

A: Include any standard government-approved rates for project execution as eligible expense. There may be follow up on a case-by-case basis.

Q: Could grant funding be awarded to an investor to put into a startup?
A: No, acceptable uses of funds must be used to execute on the proposed projects.

Cost Share:

Q: Is cost share required?
A: Yes. A cost share is required. The target is 0.5:1 ratio of cost match to grant dollars. Cost share may take forms other than direct cash.

Q: If we are unable to provide cost share, how can we submit an eligible proposal?
A: Entities unable to provide cost share are encouraged to partner with organizations that can contribute cost share.

Q: Are there requirements for how cost share is provided across project teams?
A: What cost share and how much cost share is provided per organization in a team is up to the discretion of the project team.

Q: Could a FFRDC offer government owned laboratory facilities as part of a cost share?
All cost share must be applicable to the project execution. If a project requires facilities to be paid to utilize a process, service or equipment, and that cost is not included in the project grant budget, it can be included as cost share.

General Project & Submission Questions:

Q: Can a proposal address multiple topics?
A: No. Each proposal should address a single topic, though an organization may submit multiple proposals to address different topics.

Q: Is there a limit on the number of white papers submitted?
A: Organizations may submit white papers to multiple topics. Please give each project a distinct title to clearly differentiate each white paper.

Q: Can the same person be PI or Co-PI on multiple white papers?
A: Yes.

Q: Can I submit a proposal if I work on a topic area that is relevant to but not explicitly stated in the Topic description?
A: If the work or solution is not explicitly listed in the topic area description, it should not

be submitted as a standalone proposal. However, work that is relevant to a topic area can be incorporated as a supporting element to another proposal that directly addresses the topic area of interest.

Q: What maturity or technology readiness level (TRL) be targeted for each topic area?
A: The technology maturity level varies based on each topic area, please see the topic area descriptions for the target TRLs and Manufacturing Readiness Level (MRLs).

Q: If I have a project already meeting some of the success criteria but is in a later Phase than the topic area describes, can I submit a proposal?
A: Yes, the intent of these projects is to develop innovative solutions, so if you can already meet some of the criteria and can outline further development steps in your proposal, please submit a proposal.

Q: How should I approach my solution if the end use applications are not clear?
A: Propose a project with a solution that aligns with the topic area and you are capable of delivering. Many topics are written to be use case agnostic with multiple solutions to the Topics of interest.

Topic 1 – Nutritional Biotechnology for Gut Resilience

Q: Does taste matter?
A: Yes. Palatability is a top priority and a key factor in adoption by warfighters.

Q: What preferences do you have for bioactive components to focus on?
A: There is no preference for what pre and post-probiotics projects focus on. Innovative combinations are encouraged.

Q: What can the solution be incorporated into?
A: Food, powders, or alternatives are acceptable approaches. Keep in mind that water is potentially limited in end use applications, but solutions can take any form for this topic.

Q: Could a project focus on encapsulation capabilities to protect the bioactives?
A: Yes. Encapsulation solutions can be submitted in a project proposal.

Topic 2 – Advanced Smart Packaging for Rations

Q: Should solutions assume retort processing?
A: Generally yes, although alternative technologies that eliminate the need for retort are welcome. Packaging must meet the 3 year field life requirement.

Q: What are the specs to evaluate against when looking to improve the packaging?
A: Mil specs can be found online at *https://www.dla.mil/Logistics-Operations/Packaging/*. The primary milspec is MIL-PRF-44073 (Packaging of Food in Flexible Pouches). It defines the material structure, integrity, and testing criteria for flexible pouches to ensure they are hermetically sealed and impervious to gases, light, and moisture

Q: Is biodegradable packaging of interest?
A: Yes, provided performance and shelf-life requirements are met.

Topic 3 – Bioreactor Production of High-Quality Cellulose

No questions at this time

Topic 4 – Scalable Production of Melanized Filamentous Fungi

Q: Should solutions focus on a specific fungal organism?
A: Proposals can submit solutions for any melanized fungi that meets the topic area requirements.

Topic 5 – Ruggedized Whole-Cell Biosensors

Q: Does the solution have to focus on the analyte and readout process or can it be modeled?
A: Experimental results are preferred. There is no specific analyte or readout specified in the call since the focus is on information like how the readout drops after it is put out in the environment.

Q: Is the long term goal to have the solution be self-sustaining?
A: The target metric is for the solution to last 48 hours in the field. The ultimate goal is 1-2 weeks but that is not a requirement for this topic.

Q: What environmental ranges would this be deployed in?
A: Tests should be done to reflect a day night cycle covering temperature, light, and humidity swings. Approaches that swing to high temperatures are preferred (e.g. 50-90°F and beyond, as direct solar exposure can drive surface temperatures up to 130+°F).

Q: Should the solution focus on the gene expression of the chassis or the natural system?

A: Solutions should focus on the gene expression and showing that the genetic circuit remains active during the defined time range. Projects can focus on a solution that indicates changing a natural community and reports out, but an engineered organism is the focus.

Q: Can heavy metals be sensing targets?
A: Yes. Heavy metals such as arsenic are included as toxic industrial materials.

Q: Does the biosensor need to be purely a microorganism, or can it be a device that incorporates microorganisms?
A: The microbial component is the topic focus.

Q: Should the solution address regulatory issues and biocontamination? How much focus should be put on addressing contamination?

A: These are out of scope for the proposal.

Topic 6 – Predictive Tools for Microbial Scale-Up

Q: Why are five organisms referenced in the success criteria?
A: Projects should demonstrate applicability across multiple organisms, especially non-traditional chassis to indicate what works and does not work. We encourage looking into the capabilities of non-traditional organisms.

Topic 7 – Bioceramic Coatings for Textiles

Q: Is there a target coating thickness?
A: There is no target metric, for solutions, coating thickness should be minimized while maintaining breathability, flexibility, and required performance.

Q: Can Army intellectual property be used?
A: Yes. Government-developed IP may be licensed, but independent approaches are also encouraged. Applicants should submit an application that outlines the general solution and the details including the licenses can be added later.

Q: Can biophysical characteristics for the peptides be shared?
A: The government will share any biophysical characteristic data generated to date, for example Isoelectric Point (pI), hydrophobicity, etc.

Q: Are the peptides secreted by Pichia?
A: The peptides were intentionally designed to be secreted into the media, which has been confirmed.

Q: Will the Army share Pichia strains or only peptide sequences?
A: The Pichia strains will be shared as well as all peptide sequence information for awardees choosing to enter a licensing agreement.

Topic 8 – Bacteriophage-Based Female Warfighter Hygiene Solutions

Q: What is the delivery method?
A: Hygiene wipes and spray are delivery method options, other approaches can be proposed.

Q: What is the solution focused on?
A: The focus of the solution is prevention and hygiene maintenance while addressing the thermal stability and hydration challenges with the delivery method. The solution is not targeting treatment.

Topic 9 – Biologically Derived Pigments and Dyes

Q: Are dyes, pigments, or both of interest?
A: In the field of color chemistry, dyes and pigments are the two main forms of colorants. The main difference between them is that dyes are soluble while pigments are insoluble and usually suspended in a medium or binder. In the natural world, many colorants are produced by plants and animals, having the characteristics of either dyes or pigments. However, a common practice has been to call biologically derived colorants as pigments even though some colorants are soluble. Topic 9 uses the term biological pigments to define colorants grown through biotechnology.

Q: Are specific colors required?
A: To develop biological pigments for modern multi-environment military camouflage one needs a palette of earthy, desaturated tones: greens, browns, and tans and a minimum of 4 to 7 distinct pigment types depending on the specific environmental application. While military-relevant camouflage colors are preferred, a broader pigment library is also valuable.

Q: Can biological production be combined with chemical modification?
A: Limited downstream chemical modification may be acceptable if sustainability goals are maintained.

Q: How much pigment is needed? For example, will 4 pigments at 1 kg each is preferred or would you want, say 20 pigments at 100 g each.

A: If more pigments can be produced on a smaller scale, we can work with that. In order to test and evaluate the produced colorant on multiple substrates with sufficient replicates, we should have enough colorant amount to allow formulations development, substrate coatability testing, color fastness testing and color retention under multiple military wash cycles testing, among others. If the amount of colorant produced will allow these tests to be performed, we can work with less than 1 kg sample amount.

Topic 10 – Alternative Microbial Chassis for Defense Applications

Q: Is the focus on microbial chassis or delivery systems?

A: The solution should focus on the biology and all solutions are welcome. Applicants are encouraged to look at higher risk solutions that focus more on the innovativeness of the project rather than the economical production side.

Q: Are enhanced existing organisms acceptable?

A: Yes. Improved existing chassis and entirely new organisms are both of interest.