Program Solicitation (PS)

Protein ENGineering (PENG)

DEFENSE SCIENCES OFFICE

DARPA-PS-26-129

August 7, 2026

OVERVIEW INFORMATION:

- **Federal Agency Name:** Defense Advanced Research Projects Agency (DARPA), Defense Sciences Office
- **Funding Opportunity Title** – Protein ENGineering (PENG)
- **Announcement Type –** Initial Announcement
- **Funding Opportunity Number –** DARPA-PS-26-129
- **Assistance Listing Number:** Not applicable
- **Dates/Time - All Times are Eastern Time Zone (ET):**
  - Posting Date: August 7, 2026
  - Proposers Day: August 10, 2026
  - Question Submittal Closed: August 17, 2026, at 4:00 p.m.
  - Proposal Abstract Due Date: August 24, 2026, at 4:00 p.m.
  - Tentative Proposal Due Date: October 19, 2026, at 4:00 p.m.
- **Anticipated individual awards:** Multiple awards are anticipated
- **Period of Performance:** Eighteen months for Phase 1A. Six months for Phase 1B. Eighteen months for Phase 2.
- **Types of instruments that may be awarded:** Other Transaction Agreements for Prototype
- **NAICS Code**: 541714
- **Agency contact:**

  The PS Coordinator for this effort may be reached at:

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SECTION I: FUNDING OPPORTUNITY DESCRIPTION

INTRODUCTION

The Defense Advanced Research Projects Agency (DARPA) is soliciting innovative proposals for the development of a multifunctional, target-agnostic platform for precise, programmable editing of endogenous proteins under the Protein ENGineering (PENG) program. The PENG program seeks to transform proteome engineering from a collection of isolated, bespoke tools into a universal, software-defined discipline.

The PENG program will establish a comprehensive, integrated platform composed of modular targeting, generalizable effector chemistries, and multiplexed control systems. Rather than developing isolated, target-specific tools, performers will integrate novel splicing, ligation, and co-translational techniques to directly recognize, modify, and rewrite endogenous proteins within complex biological architectures. Performers may explore multiple technical paths, progressively advancing their approaches from foundational validation to robust demonstrations of efficacy. Ultimately, this integrated platform will be validated in high-fidelity cellular models (e.g., organoids), to provide an integrated proof-of-concept at the tissue level.

By the end of the 42-month program, DARPA expects performers to deliver a fully integrated editing prototype platform capable of executing multiplexed, on-demand modifications to endogenous proteins. The culminating prototype deliverable will be a validated system that provides tunable, reversible, and context-dependent control over physiological functions, achieving transient, mechanism-based therapeutic outcomes without requiring permanent genomic modifications or relying on pharmacological approaches. The prototype platform should demonstrate robust adaptability and rapid programmability against diverse, previously unannounced protein targets and achieve multiple point-specific, measurable and functional outcomes in complex tissue models and animal models.

BACKGROUND

The defense and broader scientific research communities require agile biological technology to constantly shift and adapt for changing environments and needs. Currently, advanced interventions rely on indirect pharmacology or permanent genomic editing (e.g., CRISPR). While powerful, gene editing acts as a permanent, binary switch. Modifying a gene to survive an acute insult leaves lasting changes, potentially causing permanent physiological alterations or unintended off-target effects.

To achieve dynamic biological resilience, the ideal intervention point is the functional execution layer: the mature protein. Direct protein editing provides a non-permanent and non-heritable tunable control knob. It enables transient modification of a protein’s structure, activity, or localization in real-time, allowing physiological responses to scale up or down just long enough to limit acute cellular stress, toxicity, injury, or pathogenesis. Proteins may then naturally degrade and turn over, or their half-life dynamics can be explicitly altered through multiplex editing.

Historically, realizing a generalizable "CRISPR for proteins" was blocked by intractable biophysical barriers: the thermodynamic inability to access tightly folded domains, a reliance on bespoke chemistry that required custom point-solutions for every new target, and the extreme difficulty of programmable multiplexing without causing protein misfolding.

A recent convergence of generative AI and synthetic biology has started to overcome these limits. Structural AI models now enable the computational design and *in silico* modeling of editing machinery

onto virtually any mature target with near-atomic precision. Simultaneously, breakthroughs[1] have yielded sequence-tolerant programmable inteins, logic-gated cellular chassis, and co-translational techniques that intercept nascent peptide chains before they fold.

Capitalizing on this inflection point, the PENG program will move beyond isolated tools to establish a universal platform for target-agnostic proteome engineering. Precise control over the proteome will transform biochemistry into a reprogrammable engineering discipline, enabling programmable targeting over the functional building blocks of life. Successful completion of this program will establish a new foundation for advanced research tools for biological interrogation and accelerate the development of tunable, mechanism-based therapeutics, advanced materials, and sustainable solutions.

PROGRAM OBJECTIVE AND STRUCTURE

To realize the vision of transient, programmable control over the proteome, the PENG program seeks to develop a prototype platform that overcomes historic biophysical and biochemical limitations. To achieve this, proposed efforts must integrate three core technological capabilities into a single, unified pipeline:

- **Programmable Targeting:** Bypassing the historical inability to address specific folded domains by utilizing generative deep learning models and structural computational chemistry tools. This approach enables the computational design of *de novo* protein binders capable of docking editing machinery to virtually any epitope on a mature, native target protein.
- **Generalizable Chemistry:** Transitioning away from single use point-solution chemistry toward universal mechanisms for protein modification. Highly innovative approaches may include, but are not limited to:
    - Engineering generalized intein chassis capable of logic-gated chemistry triggered by specific cellular environments.
    - Utilizing co-translational editing to intercept and modify nascent peptide chains at the ribosomal exit tunnel, bypassing the thermodynamic and steric barriers of fully folded proteins.
- **Multiplexing Capability:** Deploying multiple, orthogonal, non-interfering editing modules simultaneously. This capability must achieve precise, multi-site reprogramming of biological machines in real-time without destabilizing the mature protein structure or inducing cellular toxicity.

The PENG program fundamentally focuses on the direct, transient engineering of endogenous biology. Proposed research must therefore utilize technology to physically edit existing proteins in their native cellular environments, not isolated in vitro protein preparations. Proposed technologies must be adaptable to diverse protein types and edit locations, and performers must demonstrate a clear, credible path to scale their platform from single-cell models into higher-order tissue complexity (e.g., 3D cell layers or organoids), including a defined validation strategy for confirming edits in these more complex models. Proposed research must not include human subjects research, but could include animal use research, particularly in phase 2.

[1] Beyer, J. N., Serebrenik, Y. V., Toy, K., Najar, M. A., Feierman, E., Raniszewski, N. R., ... & Burslem, G. M. (2025). Intracellular protein editing enables incorporation of noncanonical residues in endogenous proteins. *Science*, *388*(6746), eadr5499.
Hua, Y., Tay, N. E., Ye, X., Owen, J. A., Liu, H., Thompson, R. E., & Muir, T. W. (2025). Protein editing using a coordinated transposition reaction. *Science*, *388*(6742), 68-74.
Kofoed, C., Erkalo, G., Tay, N. E., Ye, X., Lin, Y., & Muir, T. W. (2025). Programmable protein ligation on cell surfaces. *Nature*, *645*(8081), 793-800.

The program aims to fundamentally transform the way protein function is engineered by shifting the field away from static, genome-level intervention toward direct, reversible, and precise control of the proteome itself. By enabling researchers to target, chemically modify, and simultaneously reprogram multiple sites on existing proteins within living systems, PENG seeks to unlock capabilities that are inaccessible to current genetic engineering approaches, which may include transient correction of protein misfolding or dysfunction, real-time modulation of protein-protein interactions, and dynamic control over cellular machinery without permanent genomic alteration. Success in this program would establish a generalizable, reusable editing platform applicable across diverse protein families and biological contexts, laying the technical foundation for future therapeutic, diagnostic, and biomanufacturing applications built on precise, on-demand proteome engineering.

Program Schedule

The PENG program is structured as a 42-month, multi-phase effort designed to systematically de-risk, develop, and integrate a comprehensive platform for generalized, precise protein editing (Figure 1).

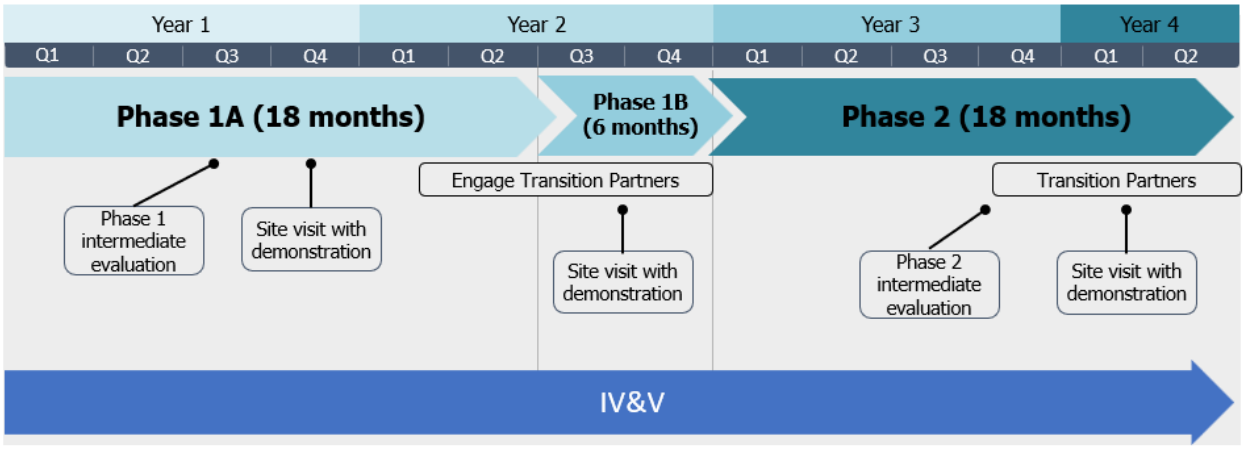

Figure 1. Program schedule

Phase 1A (Base): Platform Foundations (Months 1–18)

The initial 18-month Base Period focuses on establishing the foundational biochemistry of the editing platform and demonstrating target generalizability. Performers will validate their platforms using self-selected protein targets with description of precise, quantitative functional outcomes of the proposed edits. To prove the generalizability of their editing chemistry, performers are required to successfully edit targets spanning at least three distinct structural protein families (e.g., globular, transmembrane, and fibrous proteins).

Phase 1B (Option Period 1): Capability Demonstration (Months 19–24)

Following the base period, a 6-month capability demonstration serves as a critical gate to evaluate platform adaptability and readiness. Teams continuing onto Phase 1B will be evaluated head-to-head on their ability to execute difficult, precise edits on targets of DARPA interest. This phase will test the "programmability" of the technologies by requiring performers to edit previously unannounced target proteins under short-notice constraints within complex tissue systems. Phase 2 advancement is predicated upon participation in Phase 1B and selection by DARPA.

Phase 2 (Option Period 2): Advanced System Integration (Months 25–42)

Phase 2, 18-months, focuses on translating the validated editing platforms into higher-order biological systems. Work in this phase will transition from tissue models to complex cellular systems, optimizing the kinetics, safety, and delivery parameters necessary to position the technology for future.

Program Metrics

Pillar	**Program Goal**	**Phase 1**	**Phase 2**
Programmable Targeting	Ensuring robust targeting with minimal off-target effects in a complex system that can produce fast editing	≥50% of nascent proteins in cell edited over 8 weeks	≥75% across diverse proteins over 4 weeks
Generalizable Chemistry	Metrics to ensure the editing machinery is generalizable to all protein types and machinery is reusable	≥3 different edit sites (non-simultaneous) with more than 5 edits / machine	≥5 different edit sites on proteins with more than 20 edits / machine
Multiplexing & Complexity	Metrics to ensure the editing machinery can function in complex environments	Produce functioning protein with >2 edits / protein and in >2 cell types, which demonstrates different effect from endogenous protein	Produce functioning protein with >3 edits/ protein and in >3 cell types/organoid system, which demonstrates different effect from endogenous protein
Future Capabilities Readiness	Program aims to ensure end-product viability for editing and successful transition	Viable system for early feasibility with edited protein stable for hours to days	Viable edited protein in system stable for > 3 weeks and true feasibility for future transitional use

Proposals MUST explicitly address each of these metrics for both Phase 1A and Phase 1B and Phase 2, across at least three self-selected targets spanning distinct structural protein families, providing a detailed justification for how the proposers will meet the metrics stated in the table above, using calculations, theory, and data. This must also detail the precise, quantitative functional outcomes of the proposed edits for each. Target selection should reflect a deliberate difficulty gradient designed to de-risk each core technical capability, rather than a list of high-profile targets chosen without a clear technical rationale. Proposals should present *in silico* modeling and computational design work that establishes reasonable confidence in the proposed protein edits at the time of submission. However, computational confidence alone is insufficient for the proposed effort: proposals must describe planned comprehensive wet-lab experimental work to empirically validate computational designs, including for each proposed capability (targeting, chemistry, and multiplexing) individually, not solely at the level of final integrated outcomes.

Regarding multiplexing, proposals must address both the computational premise and the empirical evidence supporting the ability of multiple edits to operate simultaneously without interference. Proposals must explicitly identify critical failure points and corresponding mitigation strategies, particularly with respect to the three core pillars described above (targeting, chemistry, multiplexing). The team must demonstrate strong, evidence-backed capability in at least one to two of these pillars, with a credible development plan for the remaining pillar(s), and must describe how overall program outcomes would be preserved or adapted if one or more pillars fail to mature as proposed.

Finally, proposals must demonstrate the laboratory infrastructure and team expertise required to execute this work, spanning computational structural biology, protein biochemistry, synthetic biology, and cell/tissue biology, sufficient to support the interdisciplinary demands of an integrated targeting–chemistry–multiplexing platform.

Exclusion criteria: Several approaches are explicitly out of scope for the PENG program. The proposals relying on the following approaches will be deemed non-conforming: This includes genomic editing technologies that permanently alter the underlying DNA sequence (e.g., traditional CRISPR-Cas9 gene editing or viral gene therapies) rather than acting dynamically at the mature protein or translational level. Additionally, efforts that strictly focus on traditional pharmacology such as utilizing standard biologics or static small molecules to simply mimic or interact with existing targets will not be considered. Strategies that circumvent the core challenge of editing endogenous proteins, such as simply delivering new synthetic proteins or transgenes as standalone workarounds, are out of scope. Similarly, post-translational modification strategies that merely attach chemical tags (e.g., PROTACs) without further editing the endogenous protein are excluded. Finally, proposals consisting solely of *in silico* modeling without experimental validation, as well as research that primarily results in evolutionary or incremental improvements to the existing state of practice, are out of scope.

Milestones and Deliverables

Performers will be expected to at a minimum meet the below milestones and provide the associated deliverables:

Phase 1A Milestones:

MS1: Month 1	In-person kick-off meeting and present slide deck of initial concept from proposal and path for development.
MS2: Month 6	Milestone report on the technical accomplishments of editing efficiency and initial test data reported to IV&V team.
MS3: Month 9	Submission of technical report demonstrating successful editing against the Phase 1 criteria of at least one self-chosen protein and any other relevant technical accomplishments.
MS4: Month 12	Demonstration of editing capability during site visits from DARPA team to performer. Submission of milestone report showing technical accomplishments relative to the editing capability against the Phase 1 metrics.
MS5: Month 18	Delivery of data package to IV&V and final delivery of Phase 1A technical report. Share proof of certification that IT systems are CUI compliant.

Phase 1B Milestones:

MS6: Month 21	Execution of initial adaptability testing on DARPA-chosen proteins and delivery of preliminary experimental results during a DARPA team site visit.
MS7: Month 23	Demonstrate functional editing of 2 of the 3 DARPA-chosen proteins in cells or organoids. Conduct presentation and submit milestone report reflecting results of functional editing against the Phase 1 metrics.
MS8: Month 24	Delivery of Phase 1B data packages to IV&V, technical reports and end-to-end protein editing capability.

Phase 2 Milestones:

MS9: Month 30	Report detailing initial efforts and experimental results for integrating the protein editing platform into higher-order biological systems.
MS10: Month 33	Assess prototype transition readiness and provide a go-to-market strategic plan. Areas to explore and not limited to: business model, techno-economic analysis, IP rights and protection, product package and sales (i.e., licensing), various markets, customers, partnerships, and funding needs.
MS11: Month 36	Demonstrate protein editing platform capability, components, and results during DARPA team site visit. Provide full package of completed and planned results to IV&V team.
MS12: Month 42	Delivery of final technical reports, data packages, and prototype of protein editing pipeline for execution of a final technological evaluation briefing with transition partners. Provide update on go-to-market strategy.

Proposers are expected to build upon the baseline milestones provided above by detailing specific technical details and measurable criteria. For example, proposers must detail the exact analytical validation methods (e.g., quantitative Mass Spectrometry, Western Blot, or functional assays) they will use to verify each milestone and quantify off-target effects. Likewise, the specific methods used to demonstrate and quantify functional protein editing must be clearly documented within the proposer's milestone descriptions. Where applicable, milestone payments will be contingent upon DARPA's receipt of materials and package for the independent verification and validation of submitted work. Proposers may add additional milestone, but acceptance is at DARPA's discretion. Proposers may not delete any Milestones.

Schedule, Travel, and Recurring Meetings:

Performers will be expected to attend the following meetings:

- In-person kick-off meeting with DARPA shortly after program start (2 days in person). For planning purposes, assume the kick-off will take place in the NCR.

- Monthly technical teleconferences with DARPA team. A slide-based report must be submitted two business days prior to each monthly technical review meeting.
- Virtual or in-person PI meeting (1 per year).
- 1 in person site visit from DARPA Program Manager per year at each performer
- Note: Travel costs to support conferences and publication costs are considered out of scope.

STUDENT OPTIONS

- **DSO Fundamental Defense Research Talent Award (FDRTA) Option**

University proposers are invited to include an optional task for the DSO Fundamental Defense Research Talent Award (FDRTA) in their abstract, to be further elaborated on in a proposal (if invited). FDRTA is limited to one award per Prime proposer. This option is intended to foster the development of the next generation of clearable scientific talent in strategically important areas of research by providing supplementary funding for a U.S. citizen graduate student or postdoctoral researcher involved in the proposed fundamental research.

If this option is proposed, the Government may, at its discretion, provide an additional award of up to $150,000 per year for the duration of the effort. Award of the FDRTA option is contingent upon the successful award of the base proposal. FDRTA funding decisions will be made independently based on the availability of funds and an assessment of the option's merits.

The FDRTA may be exercised only once an eligible graduate student or postdoctoral researcher has been identified and confirmed. A U.S. citizen graduate student assigned under this option can only be replaced by another U.S. citizen graduate student. If the U.S. citizen graduate student departs before the end of the option period, and no eligible replacement can be identified, the option PoP will be de-scoped to reflect the work completed, and any remaining funds will be returned to DARPA. DARPA recognizes that identifying an eligible graduate student may take time; however, the replacement process must be executed in a timely manner to ensure continued progress with the option period.

The Proposer is to provide a description of the additional research scope the student will lead while working alongside the rest of the performer team supporting the primary award. The additional scope should be distinct from, but related to, the main effort. The description should include a brief explanation of how this award will enhance the educational and research experience of the individual and contribute to the overall research goals of the program. A description of how the funds will be used to support a specific student or researcher (e.g., stipend, tuition, travel, research materials). The name and credentials (CV or resume) of the proposed individual (they must be proposed as Key or Senior Personnel, and thus will need FRRBS documentation). University confirmation of U.S. citizenship.

- **DSO Industry Immersion Program (IIP) Option**

Industry proposers that include university teams as subcontractors are invited to propose an optional task for the DSO Industry Immersion Program (IIP) in their abstract. This option is designed to accelerate the transition of research to practice by funding one U.S. citizen graduate student (Master’s or Ph.D. student) or postdoctoral researcher from each university partner to embed within a corporate partner's facility for a nine to twelve (9-12) month period. The purpose is to embed a scientist developing new capabilities into industry labs to accelerate transition and integration of the technology being developed on the program and to help expose graduate students to integration-level work usually executed beyond the lab. Proposers should consider timing carefully as, depending on the work plan, it might be most advantageous to embed early in the period of performance for risk reduction, or later in the effort to expose them to deeper

integration. Proposed option periods near the beginning of an effort are less likely to be funded as work during that time may tend to be more focused on basic research.

The Government will provide funding to cover the labor, travel, and per diem costs associated with the immersion period, up to $160,000 per student. Proposals may include separate options for each university subcontractor, but each option is limited to a single student. The decision to fund IIP options is independent of the decision to fund the base proposal and will be made based on the availability of funds and an assessment of the option's merits.

The proposer should provide a plan for the nine to twelve-month immersion, including research objectives and expected outcomes, and a rationale for the timing relative to the base award work plan. The name and credentials of the proposed individual, if known. If an individual is not identified, the proposal must describe the planned selection process. A letter of support from the corporate partner confirming their willingness to host the student/researcher. A description of the mentorship plan for the student/researcher at the corporate partner facility. A detailed cost breakdown, including estimated labor, travel, lodging, and per diem expenses.

SECTION II: GENERAL GUIDELINES FOR ABSTRACTS AND EVALUATION CRITERIA

GENERAL GUIDELINES FOR ABSTRACT

This solicitation contains a REQUIRED abstract phase. Proposers are required to submit an abstract to DARPA to be considered for full proposal package submission. DARPA will review the abstracts and issue an invitation to submit a full proposal package to submitters of abstracts deemed selectable. Abstracts are due no later than the date and time stated in the Overview section. Additional instructions for abstract submission are contained below and within **Attachments A** and **B.**

Abstracts shall address all Phases. Abstracts should also include the following:

- Provide preliminary technical rationale of how the proposed solution can achieve the program goals and metrics, including, but not limited to, supporting empirical data, relevant literature citations, robust structural modeling, and/or *in silico* predictions. Any quantitative performance figures must be supported by discussion or biological/computational theory.
- Clearly identify the initial Phase 1 target proteins (at least three self-selected targets spanning distinct structural protein families) and provide a clear justification for each, detailing the precise, quantitative functional outcomes of the proposed edits. Proposers must detail the exact analytical validation methods (e.g., quantitative Mass Spectrometry, Western Blot, or functional assays) they will use to verify their functional edits.
- Outline preliminary platform specification and methodologies, to include:
    - The proposed generalizable chemistry.
    - The proposed programmable targeting mechanism.
    - The intended complex cellular systems planned for Phase 2 validation.
- Briefly describe the roles of key personnel and provide evidence of the team's ability to execute the proposed research.
- Include a Rough Order of Magnitude (ROM) cost estimate, clearly broken out by Phase.

Abstracts maybe deemed non-conforming and not considered for further review if they:

- Rely on permanent genomic editing or transgenic bypass to circumvent editing existing endogenous proteins.
- Consist solely of *in silico* modeling without a planned wet-lab experimental validation component.
- Strictly rely on traditional pharmacology.
- Contain Human Subjects Research.
- Fail to address the entire solicitation by offering only partial solutions or addressing only one Phase.
- Are received through mechanisms other than DARPA's Broad Agency Announcement Tool (BAAT), such as through Grants.gov or directly to the PENG@darpa.mil e-mail.
- Required Templates are not used.

All proposal abstracts are required to be submitted via DARPA's Broad Agency Announcement Tool (BAAT). Please visit Proposer Instructions and General Terms and Conditions for instructions on how to submit your abstract through DARPA's BAAT. It is important to note that the terms and conditions on the remainder of the Proposer Instructions and General Terms and Conditions link above do not apply to this solicitation. The purpose of referencing the website is for you to obtain instructions for DARPA's BAAT. Questions regarding proposal abstracts can be sent to PENG@darpa.mil by the date in the Overview Information section.

ABSTRACT EVALUATION

Abstracts will be evaluated by DARPA using the evaluation criteria listed below in descending order of importance, and not against other abstracts submitted in response to this PS. Proposers are required to submit an abstract for evaluation by DARPA to be considered for any subsequent award. DARPA will respond to proposed abstracts with a statement as to whether or not DARPA invites the submission of a full proposal package. Upon review of abstracts, the Government may elect to invite all, some, or none of the proposers to submit a proposal package. ***Only abstract submitters invited by DARPA to submit a proposal package are eligible to provide one. Proposals submitted by entities who were not invited to submit will be deemed non-conforming and will not be evaluated.***

Abstracts will be evaluated against the evaluation criteria outlined below.

- **Technical Rational and Approach:** The proposed technical approach is innovative, feasible, and comprehensively addresses the challenges posed in the solicitation. The detailed technical rationale is supported by accurate scientific understanding, robust structural modeling, *in silico* predictions, or preliminary experimental data. Task descriptions are logically sequenced with clearly defined deliverables that map directly to achieving the program metrics. Furthermore, the proposal explicitly identifies major technical risks and provides realistic, well-defined mitigation strategies.
- **Technical Capability:** The proposed team possesses the specialized expertise, facilities, and demonstrated experience necessary to accomplish the program goals within the aggressive timeline. The proposal clearly outlines the roles of key personnel and provides evidence of the team's ability to execute complex, multi-phase biological research. The proposer demonstrates a realistic, proven capacity to successfully meet the program milestones and validation testing requirements laid out in the solicitation.

Unless otherwise specified in this announcement, for additional information on how DARPA reviews and evaluates proposals through the Scientific Review Process, please visit: Proposer Instructions: General Terms and Conditions.

A ***selectable*** abstract is one that the Government has evaluated against the evaluation criteria listed in the above and the positive aspects outweigh the negative aspects.

An abstract is considered ***non-selectable*** when the Government has evaluated it against the evaluation criteria listed above, and the positive aspects do not outweigh the negative aspects.

SECTION III: FULL PROPOSAL GUIDELINES

If DARPA requests a Full Proposal, the proposers will be asked to provide further details on their proposed solution. Full Proposals are by invitation only. Information provided here regarding the Full Proposal is for ***informational purposes*** only and is subject to change. Any materials and information provided with the Invitation to Submit a Full Proposal and the accompanying proposal instructions will supersede any information provided in this solicitation or its attachments.

- **PROPOSAL EVALUATION:** Proposals will be evaluated using the following criteria listed in descending order of importance:
    - **Overall Scientific and Technical Merit:** The proposed technical approach is innovative, feasible, achievable, and complete. Detailed technical rationale is provided delineating why the proposed approach can achieve the program goals and metrics. Task descriptions and associated technical elements provided are complete and logically sequenced, with all proposed deliverables clearly defined so the final outcome of the award's work achieves the goal. The proposal identifies major technical risks, and planned mitigation efforts are clearly defined and feasible.
    - **Potential Contribution and Relevance to the DARPA Mission:** The potential contributions of the proposed effort bolster the national security technology base and support DARPA's mission to make pivotal early technology investments that create or prevent technological surprise.
    - **Cost and Schedule Realism:** The proposed costs and schedule are realistic for the technical and management approach and accurately reflect the technical goals and objectives of the solicitation. All proposed labor, material, and travel costs are necessary to achieve the program metrics, are consistent with the proposer's TDD, and reflect a sufficient understanding of the costs and level of effort needed to successfully accomplish the proposed technical approach. The costs for the prime proposer and proposed subawardees are substantiated by the details provided in the proposal (e.g., the type and number of labor hours proposed per task, the types and quantities of materials, equipment and fabrication costs, travel, and any other applicable costs and the basis for the estimates). It is expected that the effort will leverage all available, relevant, prior research to obtain the maximum benefit from the available funding. For proposals containing cost share, the proposer has provided sufficient rationale regarding the appropriateness of the cost share arrangement, relative to the objectives of the proposed solution (e.g., high likelihood of commercial application, etc.). The proposed schedule aggressively pursues performance metrics in an efficient time frame that accurately accounts for the anticipated workload. The proposed schedule identifies and mitigates any potential schedule risk.

- **Full Proposal Review and Selection Process:** DARPA's policy is to ensure impartial, equitable, and comprehensive proposal evaluations based on the evaluation criteria listed in Section III and to select the source (or sources) whose proposal meets DARPA's technical, policy, and programmatic goals. DARPA will evaluate each conforming full proposal in its entirety, documenting the strengths and weaknesses relative to the evaluation criteria. DARPA will not evaluate proposals against each other during the scientific review process, but rather evaluate the proposal on its own merit to determine how well the proposal meets the criteria stated in this PS. Based on the identified strengths and weaknesses, DARPA will determine whether a proposal is selectable or non-selectable. For the purposes of this proposal evaluation process, DARPA defines a "selectable" or "non-selectable" proposal as follows:
    - A ***selectable*** proposal is one that the Government has evaluated against the evaluation criteria listed in the PS (Section III), and the positive aspects outweigh the negative aspects.

- A proposal is considered ***non-selectable*** when the Government has evaluated it against the evaluation criteria listed in the PS (Section III), and the positive aspects do not outweigh the negative aspects.

- **PROPOSAL SUBMISSION:** Full proposals are by invitation only. Only abstract submitters invited by DARPA to submit a proposal package are eligible to provide one. Proposals submitted by entities who were not invited to submit will be deemed non-conforming and will not be evaluated. Proposals are due no later than the date and time stated in the Overview section. **Attachments C, D, E, F, G, H, I, and J** contain specific instructions and templates and constitute a full proposal submission. Please visit Proposer Instructions: General Terms and Conditions for specific information regarding submission methods through the Broad Agency Announcement Tool (BAAT).

- **MODEL OTHER TRANSACTION FOR PROTOTYPE**: This solicitation allows for Other Transaction for Prototype award type only. Proposers must complete and submit the Model Other Transaction (OT) for Prototype provided as **Attachment G**. DARPA has provided the model OT to expedite the negotiation and award process. The model OT for Prototype is representative of the terms and conditions that DARPA intends to award for the PENG Program. Proposers must edit the blue text/complete/redline the text within the model OT to the best of their knowledge to reflect their negotiation position.

  Proposers must review the following links:

  - **Proposer Instructions: General Terms and Conditions:** https://www.darpa.mil/about/offices/contracts-management/proposer-general-terms
  - **Other Transaction Agreements**: https://www.darpa.mil/about/offices/contracts-management/proposer-transactions

- **COST SHARING:** Cost sharing is not required unless the proposer is a traditional defense contractor, who is not working with a nontraditional defense contractor, as defined in 10 U.S. Code § 3014, to a significant extent.

  - Proposers must include a statement that identifies and substantiates which of the following condition(s) are met to permit use of OTs for Prototypes in accordance with 10 U.S.C. § 4022(d)(1): (A) There is at least one nontraditional defense contractor or nonprofit research institution participating to a significant extent in the prototype project; (B) All significant participants in the transaction other than the Federal Government are small businesses (15 U.S.C. § 638) or nontraditional defense contractors; (C) At least one third of the total cost of the prototype project is to be paid out of funds provided by sources other than the Federal Government; or (D) The senior procurement executive for the agency determines in writing that exceptional circumstances justify the use of a transaction that provides for innovative business arrangements or structures that would not be feasible or appropriate under a contract, or would provide an opportunity to expand the defense supply base in a manner that would not be practical or feasible under a contract.

- **MILESTONES:** Fixed payable milestones are payments based on successful completion of the milestone accomplishments agreed to within the milestone plan. Proposals may suggest modifications or additions to the Schedule of Milestones and Payments; **please note that suggested edits may not be accepted by DARPA**. A Schedule of Milestones and Payments is included as **Attachment I**. Payments are triggered by completed performance of observable technical events (milestones).

- **Representations and Certifications:** All proposers are required to submit the DARPA-specific representations and certifications for Prototype OT awards (section/attachment in Attachment G) to be eligible to receive an OT award. See https://www.darpa.mil/research/opportunities/reps-certs for further information on required representations and certifications for Prototype OT awards.

- **Controlled Unclassified Information (CUI) on Non-DOD Information Systems:** The PENG program may contain CUI at times. It is recommended and preferred but not required for performers to be capable of handling CUI and compliant with NIST 171/CMMC. However, performers must become CUI compliant by or before the end of Phase 1A to be eligible to participate in Phase 1B capability demonstration. A CUI Guide will be provided during Phase 1B to help performers determine CUI thresholds for information and technologies developed under the program. All individuals accessing CUI agree to protect CUI in accordance with DoD Instruction 5200.48 CONTROLLED UNCLASSIFIED INFORMATION (CUI) and NIST Special Publication 800-171 Protecting Controlled Unclassified Information in Nonfederal Systems and Organizations. Additional resources can be found here: https://www.darpa.mil/about/offices/contracts-management/proposer-general-terms/.
- All technical, contractual, and administrative questions regarding this notice must be emailed to PENG@darpa.mil. Emails sent directly to the Program Manager or any other address, may result in a delayed or no response. DARPA will attempt to answer all questions in a timely manner and post a "Frequently Asked Questions" document on the DARPA website. This will be updated on an ongoing basis until the closing date listed above.

PS Attachments:

- **(required abstract) Attachment A**: Abstract Summary Slide Template
- **(required abstract) Attachment B**: Abstract Instructions and Template
- The below attachments are informational at the time of posting. If invited to submit a proposal, they are required and updated attachments may be provided.
  - **(informational) Attachment C**: Proposal Summary Slide Template
  - **(informational) Attachment D**: Proposal Instructions and Volume I Template (Technical and Management)
  - **(informational) Attachment E**: Proposal Instructions and Volume II Template (Cost) Amendment 1
  - **(informational) Attachment F**: DARPA Cost Proposal Spreadsheet
  - **(informational) Attachment G**: Model Other Transaction for Prototype
  - **(informational) Attachment H:** Task Description Document (TDD) Template
  - **(informational) Attachment I**: Schedule of Milestones and Payments

SECTION IV: SPECIAL CONSIDERATIONS AND ELIGIBILITY REQUIREMENTS

- This solicitation, stated attachments, and websites incorporated by reference constitute the entire solicitation. In the event of a discrepancy between the announcement, attachments, or websites, the solicitation takes precedence.
- Non-U.S. organizations and/or individuals cannot participate in this solicitation. All other responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities, Small Businesses, Small Disadvantaged Businesses and Minority Institutions are encouraged to submit proposals and join others in submitting proposals; however, no portion of this announcement will be set aside for these organizations' participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities.
- University-Affiliated Research Centers (UARCs), Federally Funded Research and Development Centers (FFRDCs), Government Entities, and National Laboratories:
  Due to their specialized roles and longstanding regulatory relationships with the Government, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and Government Entities to include National Laboratories present potential conflicts and advantages that would compromise fair and open competition. These entities typically may only receive funding through existing awards they hold with their sponsoring agencies. If these entities are proposed as subawardees, their costs must be clearly segregable in cost proposals. If scientifically merited, DARPA may fund work proposed by these entities with the following caveats:

  FFRDCs: (1) FFRDCs must clearly demonstrate that the proposed work is not otherwise available from the private sector. (2) FFRDCs must provide a letter, on official letterhead from their sponsoring organization, that (a) cites the specific authority establishing their eligibility to propose to Government solicitations and compete with industry, and (b) certifies the FFRDC's compliance with the associated FFRDC sponsor agreement's terms and conditions. DARPA, under this solicitation, will not award separate contracts to FFRDCs as prime or subawardees but will instead leverage their existing sponsors' agreements.

  UARCs: While UARCs typically have statutory authority to compete with industry, internal DARPA policy views them as trusted advisors who are only eligible to act as performers in fields where they do not serve in an advisory role. Even in those situations, DARPA still considers UARCs as having organizational conflicts of interest (OCI) when applying for a performer role. Proposals with UARCs as prime or subawardees must include an OCI mitigation plan.

  For this solicitation, DARPA will not establish new contractual agreements for the participation of FFRDCs and UARCs. Accordingly, any proposal submitted directly by these entities in a prime contractor capacity may be deemed non-conforming and not evaluated. Proposals that include a UARC, FFRDC, Government entities, or National Laboratory as a subcontractor may also be deemed non-conforming unless: (1) their role is clearly defined in the technical proposal with a point of contact, and (2) a rough order of magnitude cost is provided in the technical proposal only—cost proposals must exclude their funding, as DARPA will not fund them through the prime. It is important to note that if funded, these organizations will be required to share their work and findings with other performers also supporting the same program. Additionally, DARPA may contact these entities directly to discuss proposed activities.
- As of the date of publication of this solicitation, the Government expects that program goals as described herein may be met by proposed efforts for fundamental research and non-fundamental research. Some proposed research may present a high likelihood of disclosing performance

characteristics of military systems or manufacturing technologies that are unique and critical to defense. Based on the anticipated type of proposer (e.g., university or industry) and the nature of the solicited work, the Government expects that some awards will include restrictions on the resultant research that will require the awardee to seek DARPA permission before publishing any information or results relative to the program. For additional information on fundamental research, please visit Proposer Instructions: General Terms and Conditions.

- Proposers should indicate in their proposal whether they believe the scope of the research included in their proposal is fundamental or not. While proposers should clearly explain the intended results of their research, the Government shall have sole discretion to determine whether the proposed research shall be considered fundamental and to select the award instrument type. Appropriate language will be included in resultant awards for non-fundamental research to prescribe publication requirements and other restrictions, as appropriate. This language can be found at Proposer Instructions: General Terms and Conditions.

- For certain research projects, it may be possible that although the research to be performed by a potential awardee is non-fundamental research, its proposed sub-awardee's effort may be fundamental research. It is also possible that the research performed by a potential awardee is fundamental research while its proposed sub-awardee's effort may be non-fundamental research. In all cases, it is the potential awardee's responsibility to explain in its proposal which proposed efforts are fundamental research and why the proposed efforts should be considered fundamental research.

- DARPA's Fundamental Research Risk-Based Security Review Process (FRRBS) is an adaptive risk management security program designed to help protect the critical technology and performer intellectual property associated with DARPA's research projects by identifying the possible vectors of undue foreign influence. DARPA will create risk assessments of all proposed Senior/Key Personnel selected for negotiation of fundamental research awards. As such, Foreign Nationals will be required to submit documentation for review prior to meetings with DARPA. The DARPA risk assessment process will be conducted separately from the DARPA scientific review process and adjudicated prior to final award. For additional information on this process, please visit Proposer Instructions: Other Transactions.

- Proposals could potentially include animal use. Proposers that anticipate involving animals in the proposed research must comply with the approval procedures detailed at https://www.darpa.mil/policies/human-animal-research to include providing the information specified therein as required for proposal submission. This program will not involve human subjects research.

- The APEX Accelerators program, formerly known as the Procurement Technical Assistance Program (PTAP), focuses on building strong, sustainable, and resilient U.S. supply chains by assisting a wide range of businesses that pursue and perform under contracts with the DoD, other federal agencies, state and local governments, and government prime contractors. See www.apexaccelerators.us/ for more information.

  APEX Accelerators helps businesses:
  o Complete registration with a wide range of databases necessary for them to participate in the government marketplace (e.g., SAM).
  o Identify which agencies and offices may need their products or services and how to connect with buying agencies and offices.
  o Determine whether they are ready for government opportunities and how to position themselves to succeed.
  o Navigate solicitations and potential funding opportunities.
  o Receive notifications of government contract opportunities on a regular basis.

  - Network with buying officers, prime contractors, and other businesses.
  - Resolve performance issues and prepare for audit, only if the service is needed, after receiving an award.

- Project Spectrum is a nonprofit effort funded by the DoD Office of Small Business Programs to help educate the Defense Industrial Base (DIB) on compliance. Project Spectrum is vendor-neutral and available to assist businesses with their cybersecurity and compliance needs. Their mission is to improve cybersecurity readiness, resilience, and compliance for small/medium-sized businesses and the federal manufacturing supply chain. Project Spectrum events and programs will enhance awareness of cybersecurity threats within the manufacturing, research and development, and knowledge-based services sectors of the industrial base. Project Spectrum will leverage strategic partnerships within and outside of the DoD to accelerate the overall cybersecurity compliance of the DIB.

  www.projectspectrum.io is a web portal that will provide resources such as individualized dashboards, a marketplace, and Pilot Program to help accelerate cybersecurity compliance.

- DARPAConnect offers free resources to potential performers to help them navigate DARPA, including "Understanding DARPA Award Vehicles and Solicitations," "Making the Most of Proposers Days," and "Tips for DARPA Proposal Success." Join DARPAConnect at www.DARPAConnect.us to leverage on-demand learning and networking resources.

- DSO is seeking feedback regarding our proposal submission process. Please consider completing the survey at this link: https://events.sa-meetings.com/esurvey/126974

DATA RIGHTS AND INTELLECTUAL PROPERTY

The Government expects unlimited rights for the technology and data developed and/or generated under the program but is open to flexible intellectual property (IP) proposals from proposers that are advantageous to the Government. IP proposals should, at a minimum, allow DARPA to:

- Brief U.S. Government stakeholders regarding technical progress and accomplishments.
- Allow validation of technical performance, capabilities, and accomplishments by independent technical (potentially non-Government) experts, subject to NDA restrictions.
- Facilitate discussion of technical challenges and applications with the broader technical community – for example, by starting a new DARPA program that attempts to solve a serious technical challenge that limits further progress.
- Support transition opportunities, including design and performance data required to support other acquisition activities. These latter activities may require the Government to conduct an independent performance analysis.