

Program Announcement

Protein Palace

Multi X Office

DARPA-PA-27-02

November 12, 2026

OVERVIEW INFORMATION:

- **Federal Agency Name**: Defense Advanced Research Projects Agency (DARPA), Multi X Office (MXO)
- **Funding Opportunity Title:** Protein Palace
- **Announcement Type:** Initial
- **Funding Opportunity Number:** DARPA-PA-27-02
- **Assistance Listing Number:** Not applicable
- **Dates/Time:** All Times are Eastern Time Zone (ET)
  - Posting Date: November 12, 2026
  - Proposers Day: November 17, 2026
  - Abstract Due Date: December 4, 2026, at 3:00 p.m.
  - Question and Answer Deadline: January 8, 2027, at 3:00 p.m.
  - Deadline to Submit Required Intent to Propose: January 12, 2027, at 3:00 p.m.
  - Proposal Due Date: January 22, 2027, at 3:00 p.m.
  - Anticipated In-Person Oral Presentation Dates: February 1, 2027 – February 5, 2027
- **Anticipated Individual Awards:** Multiple awards are anticipated
- **Types of Instruments That May Be Awarded:** Other Transaction for Research
- **NAICS Code:** 541715
- **Cybersecurity Maturity Model Certification (CMMC) Required Level:** At the time of award, a minimum CMMC Level 1 is required. In addition, a CMMC Level 2 (Self-Assessment) must be completed before the 12-month mark or milestone 5 (see Section IV.G for additional information).
- **Agency Contact:** The Program Announcement Coordinator for this effort may be reached at:

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Program Announcement
DARPA-PA-27-02

Protein Palace
Defense Advanced Research Projects Agency (DARPA)
Multi X Office (MXO)

SECTION I: FUNDING OPPORTUNITY DESCRIPTION

The Defense Advanced Research Projects Agency (DARPA) is soliciting innovative proposals in the area of tunable purification of any protein from complex feedstocks. Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, or systems. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.

The objective of the Protein Palace program is to enable the rapid purification of virtually any protein with high specificity, purity, and yield. To achieve this goal, Protein Palace seeks to break the traditional tradeoff between generalizability and specificity by leveraging dynamic chemical and physical approaches that probe the physicochemical variations of a protein rather than relying on its bulk surface properties or rigid, predefined binding pockets and affinity tags. By establishing a universal, generalizable protein purification platform, Protein Palace could accelerate production, scale-up, and accessibility of mission-critical and high-value biomacromolecules by reducing one of the most expensive and time-consuming bottlenecks in modern biomanufacturing.

To significantly improve protein purification methods, Protein Palace seeks to address the lack of agility in the state of the art and solve the challenge of purifying multiple proteins from a single tunable system while achieving high purity and yield. The Protein Palace program is interested in novel approaches to separate proteins, beyond fixed lock-and-key and non-specific physiochemical methods, that target the unique physicochemical characteristics of a protein, leveraging the subtle heterogeneities of different proteins and providing multiple new design tools. The program addresses the technical challenge of specific separation of a target protein at high purity by a method that can be tuned to purify other proteins.

A. BACKGROUND

Protein purification represents one of the most challenging chemical separation problems because the target protein exists at low concentrations within highly complex mixtures of soluble and insoluble components. Whether harvested from natural sources or genetically engineered, the raw feedstock contains cellular debris alongside a dense matrix of host-cell proteins, sugars, lipids, nucleic acids, salts, and small organic molecules. Beyond feedstock complexity, purification is hindered by a fundamental challenge: proteins are structurally diverse yet chemically similar. Proteins are constructed from unique sequences of the same 20 canonical amino acids. While these distinct sequences dictate each protein's unique 3D structure and biological function, they yield only subtle chemical differences. A viable purification method must resolve these minute differences among thousands of proteins.

Conventional separation methods such as chromatography achieve high-purity protein separations by utilizing one of two primary approaches, each governed by distinct tradeoffs:

- **Bulk physicochemical separation:** This approach is general to a variety of diverse proteins, as it separates based on surface charge, hydrophobicity, and size, but inherently lacks chemical specificity.

- **Affinity ("lock-and-key") separation:** This approach can achieve exceptional purification specificity due to its targeting of a highly specialized active site of a protein; however, because each separation requires a biologically optimized molecular key, the process is costly, slow to develop, and difficult to scale for emerging biomolecules.

Standard protein purification processes consist of a customized combination of both physicochemical and lock-and-key chromatography approaches.

For applications with lower purity requirements, such as industrial or agricultural processing, lower-resolution bulk fractionation methods (e.g., isoelectric point or salt precipitation) are sufficient. However, for any application requiring moderate to high purity, the broader biomanufacturing industry relies on rigid, pharmaceutical-grade chromatographic sequences. This creates a major bottleneck: conventional purification protocols must be custom-developed for each specific target protein.

To build a truly generalizable protein purification platform, we must break the tradeoff between specificity and generalizability. Thus, the ultimate goal of Protein Palace is a reconfigurable, universal system that achieves both high specificity and rapid adaptability, enabling the efficient extraction of any protein of interest from any complex feedstock.

B. PROGRAM DESCRIPTION

The Protein Palace program aims to purify virtually any target protein on demand with high specificity, purity, and yield. The program's aim is to achieve this by targeting the unique physicochemical characteristics of the proteins replacing static, single-parameter paradigm with tunable separation approaches. To isolate a target protein from a complex feedstock, a purification platform must be able to distinguish these differences among thousands of other proteins. This requires precise, molecular-level discrimination, a level of multi-dimensional and tunable specificity that is now possible. The program objective is to break the specificity–generalizability trade-off by replacing fixed separation workflows with reconfigurable, tunable physicochemical mechanisms, compressing process development timelines from months to mere hours. Beyond establishing a new purification paradigm, the Protein Palace program's goal is to ensure the process achieves scalability. Scalability is crucial for translating bench-scale protein purification into robust, high-yield manufacturing workflows.

To achieve the program goals, performers will purify at least eight categories of proteins representing a wide range of structures and functions (see program metrics below). Proteins will be separated from standard biomanufacturing feedstocks that are highly complex, containing multiple proteins with similar size, charge, and function. Standard biomanufacturing feedstocks include but are not limited to bacterial, yeast, and mammalian cells. The output of the Protein Palace platform will be properly folded functional proteins.

The proposed approach must provide a detailed scientific and technical approach that includes the following:

- A table describing proposed target proteins meeting all specified classes
- Proposed feedstocks for target proteins and plans to acquire or generate them
- Methods that can purify host or endogenous proteins
- A technoeconomic analysis of the proposed methods

The following methodologies are excluded from the technical approach and must not be proposed:

- Separation of proteins doped into a feedstock

- Methods that involve the addition of affinity tags
- A method only applicable to a single category of protein
- Extensive processing of feedstocks prior to use in platform
- Methods that denature proteins
- Further protein processing steps to output properly folded and fully functional proteins (this does not exclude adjustments to buffer solutions)

C. PROGRAM STRUCTURE

Protein Palace is structured as a 42-month program divided into two technical phases, both of which will involve performer demonstrations and evaluations. In Phase 1 (24 months), performers will demonstrate the simultaneous specificity and generalizability of their proposed approach at a purity and yield similar to the state of the art. Within the first year of the program, performers will work with the independent verification and validation (IV&V) team for an initial evaluation of their approach with a DARPA-defined protein using a common starting feedstock. A downselect is anticipated at month 12, following a demonstration of the proposed method to separate three proteins. By the end of Phase 1, performers will prove the feasibility of their approach to separate eight categories of proteins, using performer-proposed classifications and metrics. Progression to Phase 2 depends on funding availability and performance towards Phase 1 metrics.

In Phase 2 (18 months), performers will demonstrate increases in both the scalability and throughput of their proposed platform. Performers will demonstrate improvements in purity and yield beyond the current state of the art and will purify two challenge proteins. The first challenge protein will comprise a category of proteins that cannot be purified by state of the art methods and will be performer proposed. The second challenge protein will address decreasing development time and will be provided by DARPA. The DARPA-defined challenge protein will be provided to performers in alignment with the metrics for lead time to method development at month 36.

Performers will be required to propose a knowledge preservation plan to ensure that successful methods and protocols developed throughout the Protein Palace program will be documented in sufficient detail for the experiments to be repeated. In Phase 1, performers will be required to perform a technoeconomic analysis of their proposed approach, examining the technical feasibility and economic viability. Proposed approaches should demonstrate an overall decrease in cost over state of the art methods and be suitable for the purification of proteins that do not possess the high market value of pharmaceuticals. In addition, performers will present a transition and commercialization plan considering paths to technology maturation both at a research scale, applicable to DoW partners, and at larger commercial scale enabling transition to industry.

Independent Verification and Validation (IV&V)

To ensure objective assessment and reliable program execution, DARPA intends to utilize an IV&V team. The IV&V team, comprising subject matter experts, will assess the program deliverables throughout the program and advise DARPA on overall program progress. The IV&V team will collaborate with DARPA and performers to validate that key milestones are achieved, determine appropriate testing methods, measure key metrics, and engage with stakeholders at meetings throughout the program. Performers will provide appropriate deliverables per the program schedule to the IV&V team and DARPA.

Transition Opportunities

DARPA will host events to encourage opportunities for performers to transition technologies throughout the course of the program. At the end of Phase 1, a Protein Pop-up transition event will be held to

facilitate performer engagement with DoW communities of interest and the broader commercial industrial base. Following this event, performers will be asked to analyze the commercial feasibility of their approach for purification of non-pharmaceutical grade proteins, which typically have a lower unit cost than pharmaceutical products. In Phase 2, performers will develop and present a transition and/or commercialization plan detailing specific paths for technology maturation and commercialization, and Government and/or industry transition.

The Performer shall develop a test and experimentation framework that enables the Government to assess the technical performance, utility, supportability, and affordability of the platform. The framework shall be sufficiently detailed to support Government consideration of a potential follow-on procurement for experimental or test purposes, including a potential procurement under 10 U.S.C 4023 subject to funding, external interest and compliance with the statute.

Technical Program Metrics and Constraints

The program metrics and time and volume constraints are summarized in Table 1.

Table 1. *Program Metrics*

Metric	Phase 1	Phase 2	Notes
Total number of proteins purified* *(generalizability)*	8	10	Phase 2 adds 2 challenge proteins
Purity *(specificity)*	80%	95%	80-95% purity is state of the art
Yield** *(efficiency)*	50%	75%	50% yield is state of the art
Lead time for method development	2 months	1 week	DARPA will provide Phase 2 challenge protein, allowing 1 week for development of purification method
Volume	100 mL	1000 mL	
Throughput	10 mL/hour *(approx. mg/day)*	100 mL/hour *(approx. g/day)*	

*Each protein is purified as a single task, not multiple proteins purified from the same feedstock. Performer must demonstrate functionality of protein.

**It is assumed that each unit operation could result in a percentage loss of starting target protein.

Performers must define and justify their program target proteins for purification. Proposals must include a panel of at least eight categories of proteins (including but not limited to enzymes or catalysts, structural proteins, signaling or receptor proteins, transport proteins, nucleic acid binding proteins, motor proteins) to be separated. The panel must be described in detail with protein category attributes and protein characteristics, as well as DoW or commercial application. The panel must also include experimental details, such as the proposed source feedstock and method to determine functionality for each protein. At least one proposed protein must have a quaternary structure containing multiple subunits as its functional form; DARPA strongly encourages performers to include more than one protein with a complex quaternary structure. In addition to the eight protein categories specified in their target protein panel, proposers must identify a "challenge protein" category in their proposal, including the reason why purification is challenging, (i.e., proteins that cannot be purified by current state of the art methods).

All program target proteins will be approved by DARPA and the final selection of proteins will be made by program kickoff. The second protein purification challenge will assess reductions in process development time, and the target protein will be provided by DARPA one week ahead of the

demonstration. An outline of a target protein panel is shown in Table 2 with an example of the information required.

Table 2. *Outline of Target Protein Panel*

Protein	Category / Classification	Protein Characteristics (pI, size, etc.)	Solubility/ Compartment	Key Challenge	Proposed Feedstock	Assay for Functionality	DoW / Commercial Application
Example protein: GFP	Cytoplasmic, soluble reporter/enzyme	Neutral (~5.5–6), 27 kDa	Soluble, cytoplasmic	Baseline/easy case — control for basic platform function	E. coli	Detect fluorescence	Reporter in detectors, sensors
Challenge protein:							

D. SCHEDULE, MILESTONES, AND DELIVERABLES

A summary of the program schedule is presented in Figure 1. For planning and budgetary purposes, proposers should assume a program start date of May 1, 2027.

Proposers should anticipate that the Government will conduct a thorough review of the process at each milestone throughout the program. If it is determined that sufficient progress is not being made or that the effort is unlikely to achieve the desired outcomes, the Government may decide not to fund subsequent milestones.

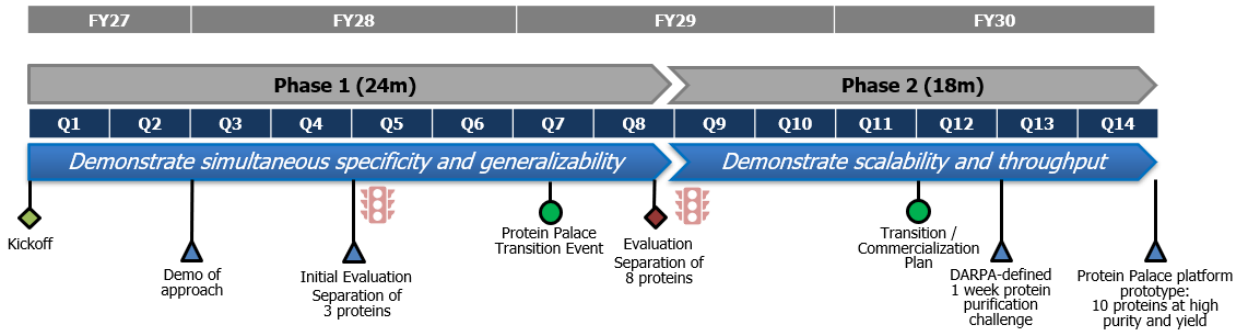


Figure 1. *Program schedule*

Deliverables

Bimonthly Technical Reports

Technical review meetings with the Protein Palace Program Manager are anticipated to be held every other month, usually by teleconference. Technical report presentations should be submitted bimonthly beginning after the kick-off meeting and either two working days prior to each subsequently scheduled technical review meeting or within 10 days from the beginning of each month, whichever is closest to the beginning of the month.

Travel

All proposals must include the following meetings and travel in the proposed schedule and costs:

- To foster collaboration between teams and disseminate program developments, a two-day Principal Investigator (PI) meeting will be held approximately every 12 months, with locations split between the East and West Coasts of the United States. For budgeting purposes, plan for five two-day meetings over the course of 42 months: three meetings in the Washington, D.C., area and two meetings in the San Francisco, CA, area.

- Regular teleconference meetings will be scheduled with the Government team for progress reporting as well as problem identification and mitigation. Proposers should also anticipate at least two site visits per phase by the DARPA Program Manager during which they will have the opportunity to demonstrate progress towards agreed-upon milestones.

A summary of the program milestones and deliverables is presented in Table 3 and Table 4.

Table 3. *Phase 1 Milestones and Deliverables*

#	Milestone and Deliverables	Month
1	Kickoff meeting Deliverables: • Kickoff slide package • Detailed program execution plan including knowledge preservation plan	1
2	Initial components of protein purification approach Deliverables: • Initial results of protein characterization • Technical report documenting progress toward the proposed protein purification approach • Report outlining acquisition schedule for required reagents and equipment	3
3	Initial demonstration of proposed approach Deliverables: • Raw data, analysis, and report of purification demonstration • Draft protocol for purification approach for IV&V team	6
4	IV&V purification test Deliverables: • Materials and experimental support to IV&V team • Raw data, analysis, and report of first target protein purification from IV&V team	9
5	Purification of at least 3 proteins Deliverables: • Report detailing purification of three proteins to include protein characteristics utilized for separations, target protein functionality, and progress towards Phase 1 metrics • All POA&M items associated with NIST SP 800-171 / CMMC Level 2 controls have been fully closed and operationalized • Final self-assessment reflecting full compliance (SPRS score of 110) has been officially posted to SPRS with the required executive affirmation	12
6	Initial results towards purification of different protein categories Deliverables: • Report describing experimental or simulated data and analysis of separation of at least eight proteins, including the scope of targeted protein characteristics	15
7	Phase 2 scale up plan Deliverables: • Report describing proposed approach for achieving Phase 2 metrics of increased volume, throughput, yield, and purity, as well as methods for purification of DARPA-directed proteins	18
8	Protein Pop-up report Deliverables: • Protein Pop-up presentation • Technoeconomic analysis of commercial feasibility of approach developed in Phase 1 for purification of non-pharmaceutical grade proteins • Initial transition and commercialization framework	21
9	Purification of 8 proteins and Phase 1 final technical report Deliverables: • Report detailing purification of eight proteins to include protein characteristics utilized for separations, target protein functionality, and progress towards Phase 1 metrics • Draft final report detailing technical progress, achievements, and lessons learned throughout Phase 1	24

Table 4. *Phase 2 Milestones and Deliverables*

#	Milestone and Deliverables	Month
10	Phase 2 execution plan and Initial Scale up demonstration Deliverables: • Detailed Phase 2 execution plan • Report describing initial progress towards final program metrics for volume and throughput	27
11	Initial results of progress towards purification of challenge protein categories Deliverables: • Report describing initial progress towards separation of hard to purify protein categories and the methods utilized	30
12	Transition/commercialization plan Deliverables: • Report detailing specific paths for technology maturation and commercialization, and Government and/or industry transition both at a research scale, applicable to DoW partners, and at larger commercial scale enabling transition to industry	33
13	DARPA-defined 1 week protein purification Deliverables: • Report describing methods utilized characterize and purify protein with decreased method development timeline • Report detailing results of purification of DARPA-directed protein within one week timeline, including all methods	36
14	Demonstration of high purity and yield Deliverables: • Report describing methods utilized to reach final program purity and yield metrics	39
15	DARPA-directed protein categories and end of program final technical report Deliverables: • Draft final report detailing technical progress, achievements, and lessons learned throughout the program • Final transition and commercialization plan	42

Milestone Payment Values

Protein Palace will utilize a fixed-price payment milestone structure. Payments will be made exclusively upon the Government's technical verification and written acceptance of predetermined, verifiable milestone deliverables. Proposers are responsible for establishing milestone payment amounts that align technical progress, cash flow requirements, and tangible Government value.

The Government recognizes that non-traditional defense contractors, commercial entities, and small businesses require sufficient working capital to sustain operations. However, milestone valuations should represent a balanced allocation of risk and verifiable technical output. Milestones that propose large upfront payments such as disproportionally high kickoff meetings, initial planning sessions, or preliminary design reviews without corresponding deliverables substance could be challenged or rejected during negotiations.

E. GOVERNMENT FURNISHED EQUIPMENT/PROPERTY/INFORMATION

At the start of the program, the Government will provide specific feedstock composition for the first IV&V evaluation of the purification methods. The Government will also provide information regarding the Phase 2 challenge protein for decreased method development timeline.

F. INTELLECTUAL PROPERTY

To support the Protein Palace program's transition and commercialization objectives, Performers will be required to submit an initial transition and commercialization framework at Milestone 8, revised frameworks at Milestone 12, and a final transition and commercialization plan at Milestone 15. These submissions are expected to describe the Performer's anticipated approach to commercializing intellectual property (IP) developed under the resulting Agreement, including target markets; commercialization milestones; manufacturing or scale-up plans; prospective partners or customers; material dependencies; and a schedule for achieving key commercialization events.

Ownership of Foreground IP and Background IP

The Performer, to include all sub-performers, shall retain ownership of all Background IP and Foreground IP developed under any agreement resulting from this announcement and shall have the right to commercialize such IP, including the right to grant licenses to third parties.

Rights in Foreground and Background IP During the Agreement

For all Foreground IP, the Government expects to receive, at a minimum, Government Purpose Rights (GPR). GPR grants the Government the royalty-free right to use, duplicate, modify, release, perform, display, or disclose technical data and computer software within the Government, and to release or disclose such data to third parties for Government purposes. The Government requires a level of rights to all processes, hardware, datasets, and software data deliverables—expressly including Form, Fit, and Function (FFF) data—sufficient to allow full test, evaluation, and verification of the deliverables by the Government team and its designated Covered Government Support Contractors.

Potential performers must identify Background IP assertions in the full proposal which will be used during program execution or necessary to use, test, evaluate, or transition program deliverables. Proposers must clearly define the nature of all proposed restrictions and the specific rights granted to the Government; identification of Background IP in a proposal does not constitute Government acceptance of such restrictions.

To ensure program deliverables can be verified and validated, the Performer shall grant or obtain for the Government and its designated Covered Government Support Contractors, at a minimum, a non-exclusive, royalty-free, worldwide, non-transferable license to use, operate, maintain, inspect, test, analyze, and evaluate any asserted BIP solely for the purposes of performing IV&V, technical milestone verification, and performance metrics evaluation under the Agreement.

Rights in Foreground and Background IP After the Agreement

A principal goal of Protein Palace is to accelerate the development, commercialization, and transition of innovative technology for Government and broader commercial applications. To support this goal, the Government anticipates retaining GPR in Foreground IP during a defined commercialization period following completion or termination of the Agreement. This period provides the Performer an opportunity to achieve Commercialization Events and advance transition of the technology, while preserving the Government's ability to use the Foreground IP for Government purposes.

Each resulting Agreement will establish an approach-specific commercialization period based on the Performer's proposed technical maturity, transition pathway, manufacturing or scale-up requirements,

regulatory considerations, capital requirements, commercial business model, and other material factors. Unless otherwise established in the resulting Agreement, the period will begin upon final milestone delivery and will not exceed four years after that date.

At the end of the commercialization period, or upon the occurrence of other conditions specified in the resulting Agreement, the Government may convert its rights in applicable Foreground IP to Unlimited Rights. This will be centered on a principle where the performer does not intend to commercialize or pursue the technology in a future state. The Government does not intend to exercise this conversion right solely because the Performer does not achieve a particular Commercialization Event within the established period. Rather, the Government may consider the totality of relevant circumstances, including the Performer's progress toward its commercialization and transition plans; maintenance and timely updates of applicable plans or roadmaps; demonstrated efforts to secure investment, partnerships, manufacturing capacity, regulatory approvals, or other resources necessary for commercialization; material deviations from the agreed commercialization strategy; and abandonment or discontinuation of commercialization efforts for applicable Foreground IP, Foreground Data, or commercialization-enabling Background IP.

Performer-Proposed Changes to the Commercialization Period

The Performer may request a shorter or longer commercialization period in its proposal or during performance of the Agreement. A request must identify the relevant Foreground IP, the requested end date, the supporting rationale, and any anticipated effect on Government use or transition. In evaluating a request, the Government may consider technical maturity, the transition pathway, manufacturing or scale-up requirements, regulatory considerations, capital requirements, the commercial business model, progress toward Commercialization Events, and Government needs.

Definitions:

Background IP: The IP developed or acquired before the Agreement or developed independently of performance under the Agreement without the use of any Government resources, that is used in performance or is necessary to use, test, evaluate, reproduce or transition a deliverable. The act of delivery or incorporation into a deliverable does not in itself constitute the conversion of Background IP into Foreground IP.

Commercialization Event: A documented commercial license, commercial sale, paid pilot, strategic manufacturing agreement, committed third-party investment or other event as specified in the Agreement which constitutes a tangible step towards the commercial use of the relevant Protein Palace technology.

Covered Government Support Contractor: An individual or organization performing work under a contract or agreement with the Government, to furnish independent and impartial advice or technical assistance directly to the Government in support of its management and oversight of a program or effort. Such contractors are granted access to Data necessary for contract performance, and their agreements contain clauses or articles that: 1. Prohibit the public disclosure or release of proprietary and nonpublic information furnished by the Government; 2. Require the handling of Controlled Unclassified Information (CUI) in accordance with 32 C.F.R. Part 2002; 3. Strictly limit the use and disclosure of any Government-furnished technical data or software marked with restrictive legends, ensuring the information is used solely for the performance of the contract and is protected from unauthorized release to third parties.

Foreground IP: The IP which is first generated, created or developed in performance of the Agreement. It includes any new modifications or improvements to Background IP but does not include the Background IP itself (including specifically identified Background IP which is incorporated into the deliverables).

Form, Fit, and Function Data: A technical data that describes the required overall physical, functional, and performance characteristics (along with the qualification requirements, if applicable) of an item, component, or process to the extent necessary to permit identification of physically and functionally interchangeable items.

Government Purpose: Includes, but is not limited to, use by or on behalf of the Government, including use by Government contractors, for research, development, testing, evaluation, production, operation, maintenance, repair, modification, or disposal. Government Purpose does not include use for commercial purposes.

Government Purpose Rights: The rights to use, duplicate, or disclose Data, in whole or in part and in any manner, for Government purposes only, and to have or permit others to do so for Government purposes only.

Unlimited Rights: Rights to use, duplicate, release, or disclose, Data in whole or in part, in any manner and for any purposes whatsoever, and to have or permit others to do so.

SECTION II: EVALUATION CRITERIA

Full proposals will be evaluated using the following criteria listed in ***descending order of importance***: Overall Scientific and Technical Merit; Potential Contribution and Relevance to the DARPA Mission; and Budget, Price, and Schedule.

- **Overall Scientific and Technical Merit:** The proposed technical approach is innovative, feasible, achievable, and complete. The proposed technical team has the expertise and experience to accomplish the proposed tasks. Task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined such that a final outcome that achieves the goal can be expected as a result of award. 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. The proposed intellectual property restrictions (if any) will not significantly impact the Government's ability to transition the technology.

  Budget, Price, and Schedule: The proposed solution is realistic and affordable. The budget is realistic and accurately reflects the technical goals and objectives of the program announcement and reflects a sufficient understanding of the level of effort and staffing needed to successfully accomplish the proposed technical approach. Each price element provides commensurate technical, schedule, or execution value, and is it necessary, appropriately scaled, and neither materially overestimated nor underestimated. 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.

SECTION III: AWARD INFORMATION

Given the program focus on dual-use technology development and commercialization, this Program Announcement (PA) will result in the award of Other Transaction (OT) for Research agreements. In alignment with 10 U.S.C. § 4021, and in consideration for Intellectual Property rights and mutually beneficial capability development, the Government will consider resource share commensurate with the proposed approach for both Phase 1 and Phase 2. To the maximum extent practicable, proposers are encouraged to consider resource sharing, which generally consists of labor, materials, equipment, software, and facilities costs directly related to the project. The final amount of any proposed and recognized resource share will be based on full consideration of factors such as the team's existing tools, equipment, and staff; prior investment in the technology; commercial versus military relevance; and unusual performance risk.

DARPA will consider a variety of proposed resource contributions to include cash and in-kind contributions, provided they are allowable, allocable, reasonable, and consistently accounted for by the Performer. The proposed resource sharing should be 1) straightforward and clearly described; and 2) include assets that will be used in the performance of the program, not just items of inherent value. It is the responsibility of the proposer to provide detailed justification for any proposed resource sharing to include value assessments and determinations, rationale as to the relevance to the proposed scope of work, and a commitment schedule.

DARPA will not consider foregone profit or fee on this resultant award or other awards, previously funded Government research, pre-existing IP, Internal Research and Development (IR&D) conducted prior to the OT award, or cost of money as resource share.

Regardless of the type of resource-shared asset offered, any resource-shared Research OT will not include payment of profit or fee to the performer. Such a payment would skew the share ratio and would be contrary to the principles behind the purpose of resource sharing.

To enable the rapid transition of emerging technologies, performers demonstrating successful technology under this agreement may be considered for follow-on agreements under the authority of 10 U.S.C. § 4023, Procurement for Experimental Purposes. This authority allows the Government to acquire quantities of the Phase 2 integrated systems on a non-competitive basis, when necessary for (1) continued experimentation and technical evaluation; (2) assessment of operational utility in realistic environments; or (3) maintaining a limited residual operational capability for assessment purposes. The Government's decision to exercise this authority will be based on demonstrated technical capability and performance of the integrated systems, feedback from transition partners and potential end-users regarding operational suitability, and availability of funding to support experimentation and evaluation. Selection for a follow-on agreement under 10 U.S.C. § 4023 is at the sole discretion of the Government and is not guaranteed by successful performance under this initial agreement.

- Proposer Instructions and General Terms and Conditions: Proposer Instructions and General Terms and Conditions
- Other Transaction agreements: Proposer Instructions: Other Transactions

SECTION IV: SUBMISSION INFORMATION

A. ABSTRACT SUBMISSIONS

This announcement contains an abstract phase. Abstracts are strongly encouraged but not required. Abstracts are due no later than the due date and time stated in the Overview section. Additional instructions for abstract submission are contained within **Attachment A**. Please visit Proposer Instructions and General Terms and Conditions and see Enclosure 2 for specific information regarding submission methods through the Broad Agency Announcement Tool (BAAT).

B. INTENT TO PROPOSE

Proposers must submit a notification of intent to propose by the due date and time stated in the Overview section to support scheduling of oral presentations. Failure to do so may place your team at a significant administrative disadvantage and result in lower scheduling priority and delays in the evaluation process.

Notifications of intent to propose must be submitted by email to Protein_Palace@darpa.mil and include:

- Statement of intent to propose.
- Abstract control number.
- Prime organization and their Principal Investigators (PI) and Co-Principal Investigators (Co-PIs).
- Subcontractor organizations and their PIs and Co-PIs.
- Statement indicating which Key Personnel (prime and subcontractor PIs and Co-PIs) or oral presentation attendees have submitted a DARPA eForm 104.
    - **Any Key Personnel or individual participating in the oral presentation must submit a DARPA eForm 104 no later than the notification of intent due date. U.S. Permanent Residents (i.e., Green Card holder) or foreign nationals must also submit a DARPA eForm 60 via the eForm 104. Failure to submit may result in denial of participation in the oral presentation or the program.**
    - **The prime is responsible for ensuring all personnel, including sub-awardees, comply with these requirements.**

C. ORAL PRESENTATION

Requirements for oral presentation slides are contained within **Attachment C**. Pre-recorded presentations, videos, voice recordings, narrated slide decks, or other pre-recorded media are not permitted during the oral presentation.

D. FULL PROPOSALS

Full proposals include written materials and an oral presentation and are due no later than the due date and time stated in the Overview section. **Attachments B, C, D, E, F, G, and H** contain specific instructions and templates and constitute a full proposal submission. Please visit Proposer Instructions and General Terms and Conditions and see Enclosure 2 for specific information regarding submission methods through the Broad Agency Announcement Tool (BAAT).

DARPA is interested in whether, and to what extent, proposers are using super intelligence (SI) tools to contribute to Volume 1 of proposals submitted in response to DARPA program announcement. Therefore, proposers must answer the following questions on the cover sheet of Volume 1 of this program announcement:

- Did you use SI tools to assist in preparing this proposal?
- If yes, what tools did you employ?

Any content in Volume 1 that utilized an SI tool to generate information, assist in technical understanding, or guide the technical work should have a citation and a corresponding reference in the Bibliography section of Volume 1. The citation should specify the tool, content, and purpose. For example, "[SI tool] was used to understand existing state of the art in manufacturing."

NOTE – THIS INFORMATION WILL NOT BE USED FOR EVALUATION PURPOSES. Proposals will be evaluated in accordance with the Evaluation Criteria outlined in the program announcement regardless of whether SI tools were employed.

E. PA ATTACHMENTS

- **(required) Attachment A**: Abstract Instructions and Template
- **(required) Attachment B**: Proposal Summary Slide Template
- **(required) Attachment C**: Proposal Instructions and Volume I Template (Technical and Management)
- **(required) Attachment D**: Proposal Instructions and Volume II Template (Price)
- **(required) Attachment E**: DARPA Price Summary Spreadsheet
- **(required) Attachment F**: Other Transaction Certification Template
- **(required) Attachment G**: Task Description Document (TDD) Template
- **(required) Attachment H**: Schedule of Milestones and Payments
- **(informational) Attachment I**: Model Other Transaction for Research
- **(informational) Attachment J**: Protein Palace Controlled Unclassified Information (CUI) Guide
- **(informational) Enclosure 1**: Proposer Checklist
- **(informational) Enclosure 2**: DARPA BAAT Submission Portal Guide

F. SUBMISSION GUIDANCE

Abstract and proposals must be submitted through the Broad Agency Announcement Tool (BAAT) at https://baa.darpa.mil. Instructions for BAAT account creation are provided in Enclosure 2. Note that accounts are disabled after a period of 30 days of inactivity (i.e., not logging in). Email submissions will not be considered. Proposers are encouraged to submit at least 48 hours prior to the due date. Late submissions will not be accepted.

G. CYBERSECURITY MATURITY MODEL CERTIFICATION REQUIREMENTS

As codified in 32 CFR Part 170, the Cybersecurity Maturity Model Certification (CMMC) Program is designed to ensure DoW performers are properly safeguarding Federal Contract Information (FCI) and CUI that is processed, stored, or transmitted on performer information systems. FCI and CUI must be protected to meet evolving threats and safeguard nonpublic, unclassified information that supports and enables the warfighter. The CMMC Program provides a consistent methodology to assess a defense contractor's implementation of required cybersecurity requirements. Proposers are encouraged to visit the DoW Chief Information Officer CMMC Resources & Documentation site for more information on CMMC: https://dodcio.defense.gov/cmmc/Resources-Documentation/.

This provision outlines the CMMC requirements pertaining to this program announcement, to include the required CMMC level and the corresponding proposal requirements. All DARPA efforts, including those involving Fundamental Research, at a minimum require prime performers and subcontractors to demonstrate compliance with CMMC Level 1, which focuses on the protection of FCI and consists of the security requirements that correspond to the 15 basic safeguarding requirements specified in 48 CFR 52.204-21.

i. Required CMMC Level

The minimum required CMMC level for this program announcement at the time of award is:

- CMMC Level 1 (Self-Assessment). Level 1 focuses on the protection of FCI and consists of the security requirements that correspond to the 15 basic safeguarding requirements specified in 48 CFR 52.204-21.

It is anticipated that performers will generate Controlled Unclassified Information by month 12 or milestone 5 of the program, whichever occurs first. For this reason, performers must have achieved the following CMMC level prior to month 12 or milestone 5, whichever occurs first:

- CMMC Level 2 (Self-Assessment). Level 2 focuses on the protection of CUI and incorporates the 110 security requirements specified in NIST SP 800-171 Rev 2.

ii. Eligibility for Award

To be eligible for award under this program announcement, the CMMC Unique Identifier (UID) associated with the prime proposer must reflect a current CMMC status (representing either Final or Conditional status) posted in the Supplier Performance Risk System (SPRS) indicating compliance at the required level above. Additionally, the proposer must have a current annual CMMC affirmation, submitted by an authorized Affirming Official, posted in SPRS. Further, as some entities may have multiple business segments, multiple CAGE codes, etc., DARPA must reasonably be able to relate the CMMC UID in SPRS to the proposing entity.

(Note: SPRS is housed within the Procurement Integrated Enterprise Environment https://piee.eb.mil; an additional resource on SPRS is located here: https://dodcio.defense.gov/Portals/0/Documents/CMMC/CMMC-SPRS.pdf.)

iii. Subcontractor Flow-Down

Prime Proposers are responsible for verifying subcontractor compliance. In the proposal, the prime proposer must attest that all subcontractors who will process, store, or transmit FCI or CUI under a resultant award will meet the applicable CMMC level required by 32 CFR § 170.23, and indicate how proposers will verify subcontractors' status prior to subcontract award. The proposal must also describe the verification method

the prime proposer will use to ensure subcontractors have the required CMMC status in SPRS prior to subcontract award.

Specifically:

If the Subcontractor will process, store, or transmit...	**...the Subcontractor's Minimum Required CMMC Level is:**
Federal Contract Information (FCI) only	CMMC Level 1 (Self-Assessment)
Controlled Unclassified Information (CUI)	The CMMC Level required by this program announcement

H. SUBMISSION CORRESPONDENCE

All technical, contractual, and administrative questions regarding this notice must be emailed to Protein_Palace@darpa.mil. Emails sent directly to the Program Manager or any other address may result in delayed or no response. All questions must be in English and must include the name, email address, and telephone number of a point of contact. DARPA will attempt to answer all questions in a timely manner and post an FAQ list on the DARPA/MXO Opportunities page at (http://www.darpa.mil/work-with-us/opportunities). The list will be updated on an ongoing basis until one week prior to the proposal due date.

SECTION V: SPECIAL CONSIDERATIONS

A. GENERAL INFORMATION

This announcement, stated attachments, and websites incorporated by reference constitute the entire program announcement. In the event of a discrepancy between the announcement, attachments, or websites, the announcement shall take precedence.

B. ELIGIBILITY

All responsible sources capable of satisfying the Government's needs, including both U.S. and non-U.S. sources, 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. Non-U.S. organizations and/or individuals may participate to the extent that such participants comply with any necessary nondisclosure agreements, security regulations, export control laws, and other governing statutes applicable under the circumstances.

DARPA encourages technical solutions from all responsible sources capable of satisfying the Government's needs. To ensure fair competition across the ecosystem, DARPA prohibits performers from concurrently providing Systems Engineering Technical Assistance (SETA), Advisory and Assistance Services (A&AS), or similar support services and being a technical performer, unless the DARPA Deputy Director grants a written waiver.

i. FFRDCs, UARCs, and Government Entities to Include National Labs

Due to their specialized roles and longstanding regulatory relationships with the Government, FFRDCs, UARCs, and Government Entities to include National Laboratories present potential conflicts and advantages that could compromise fair and open competition. These entities may participate as prime or subcontractor proposers, subject to the conditions set forth below.

If an FFRDC, UARC, or Government Entity believes they offer unique and innovative capabilities for this program announcement and are interested in this program announcement, they should contact the Agency Point of Contact (POC) listed in the Overview section prior to the abstract due date to discuss potential participation as part of the Government team or eligibility as a performer. There are two key criteria that will be utilized to determine the ability of these entities to participate in the program as performers:

- Critical, specialized capabilities such as tool accessibility, critical components or fabrication, characterization, testing, or measurement techniques. They must clearly demonstrate that the proposed work is not otherwise available from the private sector.
- Demonstration of active plans to transition supporting or enabling technology from the FFRDC, UARC, or Government Entity to the prime contractor and commercial parties participating in the Protein Palace program. If an FFRDC is proposed as the prime performer, technology transition plans must target commercial parties under this program.
    - A letter of intent from the division director of the FFRDC, UARC, or Government Entity identifying the potential technologies and committing to transitioning the technology to the DoW stakeholders and/or industry is required at proposal submission. This may include an option for a non-exclusive license for any FFRDC, UARC, or Government Entity-developed technology or process steps required for successful Protein Palace technology.

- If the FFRDC, UARC, or Government Entity presents hurdles for technology transition, then they may be removed from the program at the Government's discretion.

These entities typically may only receive funding through existing awards they hold with their sponsoring agencies. If these entities are proposed as sub-awardees, their costs must be clearly segregable in cost proposals. Proposals should be structured such that these entities are not essential for the core commercial business model of the prime.

If scientifically merited, DARPA may fund work proposed by these entities with the following specific 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 program announcement, will not award separate contracts to FFRDCs but will instead leverage their existing sponsor's 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 primes or subawardees must include an OCI mitigation plan.
- **Government Entities**: Government Entities (e.g., Government/National laboratories, military educational institutions, etc.) are subject to applicable direct competition limitations. Government Entities must clearly demonstrate that the work is not otherwise available from the private sector and provide written documentation citing the specific statutory authority and contractual authority, if relevant, establishing their ability to propose to Government solicitations and compete with industry. This information is required for Government Entities proposing to be prime and/or sub-awardees.
- **Authority and Eligibility**: At the present time, DARPA does not consider 15 U.S.C. § 3710a to be sufficient legal authority to show eligibility. While 10 U.S.C.§ 4892 may be the appropriate statutory starting point for some entities, specific supporting regulatory guidance, together with evidence of agency approval, will still be required to fully establish eligibility. DARPA will consider FFRDC and Government Entity eligibility submissions on a case-by-case basis; however, the burden to prove eligibility for all team members rests solely with the proposer.

During the abstract evaluation phase, the Government may identify specific FFRDCs, UARCs, or Government Entities proposed as subcontractor teammates who possess unique capabilities, tools, or facilities critical to the broader program. To maximize the utility of these specialized capabilities, the Government reserves the right to fund these entities directly and designate them as Shared Government Resources supporting all selected Protein Palace performers. In such cases, the Government will instruct affected proposers to remove the designated entity from their performer team prior to full proposal submission, and the entity's capabilities will instead be provided to all performers as a Government-furnished service during program execution.

DARPA will not establish new contractual agreements for UARC, FFRDC, Government Entities, or National Laboratory participation. Accordingly, any proposal submitted directly by these entities in a prime contractor capacity may be deemed nonconforming 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.

ii. Organization Conflicts of Interest (OCI) – Strict Prohibitions on IV&V Teaming

The Government will utilize specialized Government Entities, FFRDCs, and National Laboratories to provide IV&V, testing, calibration, and evaluation support for the Protein Palace program.

To ensure absolute objectivity and prevent unmitigable OCIs (including impaired objectivity or unequal access to information), any entity serving as an IV&V partner, tester, or advisor to the Government for the Protein Palace program is strictly prohibited from participating as a prime contractor, subcontractor, partner, consultant, or team member on any proposal.

Internal firewalls, organizational separation, or OCI mitigation plans are not permitted and will not be accepted. Compliance with this restriction is a mandatory condition of award. Any proposal that includes a prohibited IV&V partner on its team will be deemed nonconforming and will be excluded from evaluation and award consideration without exception.

Safe Harbor Verification: FFRDCs, UARCs, and Government Entities interested in participating in the Protein Palace program in any capacity should first contact the Agency Point of Contact (POC) listed in the Overview section prior to the Abstract due date to verify eligibility and confirm they are not on the Government's prohibited IV&V list. Proposers are strongly encouraged to list all planned Government, National Lab, FFRDC, or UARC team members in their abstract submissions to receive early, informational feedback regarding potential OCI conflicts before submitting a full proposal.

C. CLASSIFICATION AND SECURITY INFORMATION

As of the time of publication of this announcement, all proposal submissions are anticipated to be unclassified.

This program is subject to **Attachment J: Protein Palace Controlled Unclassified Information (CUI) Guide**. 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*.

i. U.S. Permanent Resident and Foreign National Participation in DARPA Programs and Related Events

Definitions

Foreign National (FN): A person who is not a citizen or national of the country in which they are living or visiting.

U.S. Permanent Resident (USPR): A non-U.S. citizen who has official legal authorization to live and work in the United States permanently.

Official Foreign National Visitor: An individual serving as an official military or civilian representative of their nation's government conducting government, diplomatic, or other official business. These are official military or civilian representatives of their respective nations' government. (Note – these individuals are exempt from this process and must instead obtain a Visit Request through the U.S. State Department's

Foreign Visit System. For an official visit to DARPA, contact DARPA International Cooperation to facilitate the visit.)

Requirements

All non-official FNs and USPRs working on DARPA programs are subject to screening requirements established under this solicitation, including the Principal Investigator (PI). If selected for award negotiation, the Notification Letter will provide instructions and a link for FNs and USPRs to register through DARPA. In addition to the PI and Senior Personnel, the requirements apply to employees, research assistants, postdoctoral researchers, graduate students, and undergraduate students who will directly support the Protein Palace program. The requirements must flow down to all subcontractors and apply to any other individuals ("affiliated personnel") who will perform work under the award.

The PI will:

1. Ensure all FNs and USPRs supporting the program use the link provided in the Notification Letter to register.
2. Maintain current records identifying all FNs and USPRs supporting the program, including affiliated personnel, and make such records available upon a written request from the Contracting Officer or Agreements Officer.
    a. Monthly reports identifying the current status of all FNs and USPRs supporting the program must be delivered in conjunction with the performer's regular monthly status report as required by the agreement or contract awarded.
3. Notify the DARPA Program Manager, Contracting Officer or Agreements Officer, and the DARPA Program Security Representative, in writing, within five (5) business days of any of the following events:
    - A USPR or FN (official or otherwise) joins or departs the program;
    - The residency or citizenship status of a USPR or FN (official or otherwise) changes; or
    - Information previously submitted during a registration for a USPR, or non-official FN materially changes.

The information submitted through the pre-award registration process will establish the initial baseline for identifying USPR or FN personnel supporting the program. This baseline will be used to track and report subsequent personnel additions, departures, and material changes during program performance.

D. NON-FUNDAMENTAL RESEARCH

As of the date of publication of this announcement, the Government expects that program goals as described herein either cannot be met by proposers intending to perform fundamental research or the proposed research is anticipated to present a high likelihood of disclosing manufacturing technologies that are unique and critical to defense. Therefore, the Government anticipates restrictions on the resultant research that will require the awardee to seek DARPA permission before publishing any information or results relative to the program.

Throughout the program performers are encouraged to publish findings, however, all publications, external engagements, and investor discussions must be coordinated with DARPA and the Program Security Officer (PSO) to ensure compliance with CUI guidelines and export control regulations. Additionally, all publications must be submitted to DARPA's Public Release Center (DISTAR) for review and approval prior to public dissemination.

E. ADDITIONAL RESOURCES

- The APEX Accelerators program, formerly known as the Procurement Technical Assistance Program (PTAP), focuses on building a strong, sustainable, and resilient U.S. supply chains by assisting a wide range of businesses that pursue and perform under contracts with the DoW, other federal agencies, state and local governments and with government prime contractors. See https://www.apexaccelerators.us/ for more information. APEX Accelerators helps businesses:
    - Complete registration with a wide range of databases necessary for them to participate in the government marketplace (e.g., SAM)
    - Identify which agencies and offices may need their products or services and how connect with buying agencies and offices
    - Determine whether they are ready for government opportunities and how to position themselves to succeed
    - Navigate solicitations and potential funding opportunities
    - 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 DoW 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, as well as knowledge-based services sectors of the industrial base. Project Spectrum will leverage strategic partnerships within and outside of the DoW 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.

- Subscribe to DARPA MXO's newsletter for timely updates on research opportunities, upcoming events, ways to work with us, and more.

- 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 https://www.darpaconnect.us to leverage on-demand learning and networking resources.

- DARPA has streamlined our Program Announcements and is interested in your feedback on this new format. Please send any comments to DARPAsolicitations@darpa.mil.