Future Program Announcement
Special Notice DARPA-SN-27-15

Laguna
Defense Advanced Research Projects Agency (DARPA)
Biological Technologies Office (BTO)

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BACKGROUND: The purpose of this Special Notice (SN) is to provide public notification of additional research areas of interest to the Defense Advanced Research Projects Agency (DARPA) Biological Technologies Office (BTO), specifically for the forthcoming Laguna program. When released, the solicitation will be made available at https://www.sam.gov and will take precedence over any information contained in this Special Notice. Additionally, this SN may be amended with a draft solicitation when available.

PROGRAM GOALS: The Department of War (DoW) depends on specialty chemical products to sustain the performance, maintainability, and readiness of defense systems. Many of the fine-chemical intermediates and formulated specialty chemical products required for these applications depend on vulnerable foreign supply chains.

The goal of the Laguna program is to develop and demonstrate integrated manufacturing approaches that directly convert abundant domestic feedstocks into application-ready specialty chemical formulations, while minimizing intermediate separations, processing steps, or downstream reformulation. Target areas include advanced protective and functional coatings for aircraft, ground vehicles, maritime systems, and infrastructure; composite resins and adhesives for lightweight structural assemblies, repair, and bonding applications; high-performance polymeric materials and molded structural components; and non-fluorinated replacements for fluorinated polymers used in chemically resistant, thermally stable, low-friction, barrier, dielectric, and water- or oil-repellent applications. Resulting products must meet or exceed the critical performance requirements of incumbent military materials while providing economically viable domestic alternatives to import-dependent supply chains. Domestic feedstocks include biological and petrochemical bulk products, such as, sugars, ethylene, BTX (benzene, toluene, and xylenes), and other suitable inputs produced entirely in the U.S. Laguna seeks to bypass conventional, multi-step fine-chemical supply chains by integrating synthesis, processing, formulation, and validation into manufacturing approaches that deliver application-ready products with reduced waste and minimal—or no—intermediate chemical isolation and purification.

The program will pursue its objective through two Technical Areas (TAs). Laguna is anticipated to be a 36-month effort.

Under **TA1 – Make & Formulate**, performers will develop and demonstrate fully formulated, defense-relevant specialty products from U.S.-produced raw materials. Approaches will be evaluated through comprehensive technoeconomic analysis, life cycle assessment, and commercialization strategy plans.

Under **TA2 – Model**, Government partners, federally funded research and development centers (FFRDCs), National Labs, and university affiliated research centers will develop models to predict and optimize relationships among feedstocks, synthesis, formulation, processing, cost, and final product properties and performance. Government TA2 teams will work with TA1 teams to develop tools to accurately predict material properties across a range of DoW relevant use cases.

DARPACONNECT: For those new to DARPA or national security, DARPA makes available a free, comprehensive resource via DARPAConnect on how to do business with the agency. In addition to DARPA 101 materials, relevant preparatory modules include "Making the Most of a Proposers Day" and "Understanding DARPA Broad Agency Announcements." Registration and access are free at www.darpaconnect.us.

ADMINISTRATIVE: This Special Notice does not constitute a formal solicitation for proposals. This notice is issued solely for information and program planning purposes and is not a Request for Information (RFI). Since this is not an RFI, DARPA will not accept any submissions against this notice. Interested parties to this notice are cautioned that nothing herein obligates DARPA to issue a solicitation. NO CLASSIFIED INFORMATION SHOULD BE INCLUDED IN ANY COMMUNICATIONS IN RESPONSE TO THIS SPECIAL NOTICE.

Please e-mail Laguna@darpa.mil if you wish to be added to our blast list for future program updates (i.e., Industry Day announcement, Program Solicitation publication, etc.).