EBRC Engineering Biology Research Consortium

Response to OSTP's Request for Information on Accelerating the American Scientific Enterprise

The Engineering Biology Research Consortium (EBRC) is a nonprofit, public-private partnership that brings together scientists, engineers, and industry leaders to advance the field of engineering biology to address national and global needs. EBRC's members include experts from over 90 universities and research institutes, alongside leaders from more than 25 companies, philanthropies, and other organizations. Working closely with partners across the engineering biology ecosystem, EBRC focuses on four key areas: Research Roadmapping, Policy & International Engagement, Education, and Security.

Below we provide specific recommendations to the White House Office of Science and Technology Policy (OSTP), responding to each of its thirteen questions on how to Accelerate the American Scientific Enterprise (OSTP-TECH-2025-0100). We also reiterate the work of the National Security Commission on Emerging Biotechnology (NSCEB) and strongly encourage support and adoption of the NSCEB's recommendations to prioritize biotechnology as a key pillar of national and economic security. To accelerate the American scientific enterprise, the U.S. Government must transition from passive support of biotechnologies to an active coordinator. As the Commission enters its final year, passage of the National Biotechnology Initiative Act to establish the National Biotechnology Coordinating Office (NBCO) will be critical to sustain progress and protect the United States' status as the global leader in biotechnology.

(i) What policy changes to Federal funding mechanisms, procurement processes, or partnership authorities would enable stronger public-private collaboration and allow America to tap into its vast private sector to better drive use-inspired basic and early-stage applied research?

As emerging technologies shape industrial leadership and supply chains, biotechnology and biomanufacturing are central to America's national security and global competitiveness. To maintain American scientific leadership, OSTP should:

- Encourage funding agencies to develop end-to-end investment models for technologies and materials critical to national security. This model should include grants for early stage research with high potential for translation, scale up support to bridge the "valley of death", and "first-customer" guarantees from USG via advanced market commitments and direct procurement. Strategically deploying these programs for domestic biotechnology products that safeguard supply chains for essential medicines and materials would maintain U.S. competitiveness and leadership in biotechnology applications against subsidized foreign competition;
- Allow funding agencies, rather than SBA, to set strategic funding caps on SBIR and STTR awards in high-priority technology focus areas like biotechnology;

- Support the full $10 billion earmarked for the Regional Tech Hub program be included in the President's official budget request for FY27 to build resilient regional innovation hubs that facilitate economic productivity, growth, and job creation; and
- Encourage agencies to standardize IP terms, OTA agreements, data rights, and cost-sharing requirements. Model contract templates, clear procurement pathways for SBIR/STTR alumni, and built-in transitions from grants to procurement would strengthen public-private collaboration with existing appropriations and smooth the transition from use-inspired research into deployable capabilities.

(ii) How can the Federal government better support the translation of scientific discoveries from academia, national laboratories, and other research institutions into practical applications? Specifically, what changes to technology transfer policies, translational programs, or commercial incentives would accelerate the path from laboratory to market?

OSTP should establish an interagency working group to develop a national strategy that aligns technology transfer efforts, translational funding, and manufacturing readiness across agencies. To accelerate the path from lab to market, the strategy should:

- Incentivize technology transfer from universities to the private sector by reforming technology transfer guidance, promoting standardized licensing terms, increasing accessibility of regulatory experts to institutions, and implementing bio-preferred procurement programs;
- Direct funding agencies to prioritize programs that support technology translation and scale-up. This may include innovation-coupled subsidies, expanded proof-of-concept and gap funding programs, and awards for use-inspired research to transform academic incentives in critical R&D areas such as biotechnology, bioengineering, and biomanufacturing; and
- Promote investment in national biomanufacturing infrastructure and translational initiatives to support scale-up and commercialization.

(iii) What policies would encourage the formation and scaling of regional innovation ecosystems that connect local businesses, universities, educational institutions, and the local workforce—particularly in areas where the Federal government has existing research assets like national laboratories or federally-funded research centers?

OSTP should recommend policies that strengthen regional industrial and research capacity by integrating existing federal research assets with local institutions and industry, including efforts that:

- Support multi-year, regionally-governed innovation compacts that provide flexible operating funds to local consortia of labs, universities, and industry;
- Enable coordinated access to national laboratories and federally-funded research centers with specialized research infrastructure, high-performance computing capabilities, and advanced manufacturing tools. Co-located incubator and accelerator

facilities should be encouraged to foster more continuous interaction between researchers, startups, established companies, and the local workforce; and
- Incentivize national labs and research centers to function as regional technology transfer anchors with local startups, companies, and investors.

(iv) How can Federal policies strengthen the role played by small- and medium-sized businesses as both drivers of innovation and as early adopters of emerging technologies?

Small- and medium-sized businesses are essential both as innovation drivers and early adopters of emerging technologies. OSTP should coordinate with funding agencies to:
- Establish dedicated techno-economic analysis (TEA) and life cycle analysis (LCA) grant programs that evaluate technology and manufacturing readiness levels (TRLs and MRLs, respectively) of novel biotechnologies to demonstrate credibility and readiness to investors;
- Coordinate local and federal investment opportunities for small- and medium-sized business growth and expansion; and
- Reform technology transfer and intellectual property frameworks to reduce risk at early stages of commercialization.

(v) What empirically grounded findings from metascience research and progress studies could inform Federal grantmaking processes to maximize scientific productivity and increase total return on investment? Please provide specific examples of evidence-based reforms that could improve funding allocation, peer review, or grant evaluation.

Improving the efficiency, speed, and real-world impact of grantmaking is essential to maximize returns on taxpayer investment. OSTP should encourage more dynamic funding mechanisms and adoption of empirical findings from metascience research by working with funding agencies to:
- Incentivize alternative peer review models–such as distributed peer review–that reduce time and administrative burden in merit review and funding decisions.
- Develop new funding rubrics that deemphasize bibliometrics and institutional prestige in favor of indicators such as technology and manufacturing readiness levels, quality and reuse of data, reproducibility, cross-disciplinary collaboration, and evidence of translation or adoption;
- Deemphasize preliminary data in grant applications, which biases funding towards researchers and institutions that are well-resourced or proposing incremental projects;
- Develop flexible funding mechanisms, such as end-to-end investment models (see response i), quick-decision awards with rapid review windows for high-risk, high-reward seed funding and technology transfer, and unrestricted funding for early stage investigators who are in the most creative stage of their career; and
- Streamline grant administration and reporting requirements by eliminating duplicative budget justifications, reducing the frequency and length of progress reports, and identifying documentation that does not meaningfully contribute to assessing research quality or outcomes. Agencies should continue moving toward unified platforms for

funding announcements, application submission, and grant management to reduce overhead for both researchers and program staff.

(vi) What reforms will enable the American scientific enterprise to pursue more high-risk, high-reward research that could transform our scientific understanding and unlock new technologies, while sustaining the incremental science essential for cumulative production of knowledge?

OSTP should work with funding agencies to:

- Develop new funding rubrics that prioritize a wider range of deliverables, such as invention disclosures, tool or platform development, and patents. Funding decisions focused on these outcomes would increase the variance in projects funded and improve the likelihood of high-reward, translational research being funded;
- Expand the adoption of practices from Advanced Research Projects Agencies (ARPAs), such as i) allowing funding to be tied to non-publishing milestones and deliverables, ii) allocating a percentage of total agency funding to longer-term sustainable funding tied to research milestones that are monitored by a Program Manager, and iii) encouraging or facilitating funding recipients to communicate with regulators from the outset to support regulator capacity to adapt to new technologies and minimize a regulatory "valley of death"; and
- Develop new funding opportunities for early-career researchers pursuing high-risk research. These opportunities can model MIRA grants offered by NIH NIGMS and allow for grant renewal that explicitly accounts for exploratory failures and well-documented negative results to support highly talented and promising investigators seeking tenure.

(vii) How can the Federal government support novel institutional models for research that complement traditional university structures and enable projects that require vast resources, interdisciplinary coordination, or extended timelines?

Many of the most consequential challenges in biotechnology, biomanufacturing, and AI-enabled science require coordinated teams, shared infrastructure, and timelines that exceed conventional funding cycles. OSTP should direct funding agencies to:

- Expand and streamline funding programs that support cross-disciplinary and multi-institution collaboration such as NSF Ideas Labs; and
- Leverage and expand existing place-based programs, such as NSF EPSCoR, Regional Innovation Engines, and other regional competitiveness initiatives, as pathways to seed and scale new institutional models over long time horizons. These programs should explicitly support the evolution of regional research capabilities from early-stage capacity building through commercialization and manufacturing readiness.

(viii) How can the Federal government leverage and prepare for advances in AI systems that may transform scientific research—including automated hypothesis generation, experimental design, literature synthesis, and autonomous experimentation? What infrastructure investments, organizational models, and workforce development strategies are needed to realize these capabilities while maintaining scientific rigor and research integrity?

The federal research enterprise must ensure that U.S. researchers have the infrastructure, data, and standards needed to apply AI tools at scale. Accelerating the American Scientific Enterprise will require compressed research timelines and AI-enhanced discovery, with biotechnology among the first domains where autonomous experimentation, AI-driven design, and rapid scale-up will be deployed at national scale. To achieve this, OSTP should continue its leadership of the Genesis Mission and its whole-of-government approach to promote the American AI stack with particular emphasis for the scientific enterprise on:

- Expanding computational infrastructure within National Laboratories and access to new AI tools, centralized repositories of *high-quality federal datasets*, and high-throughput and autonomous research infrastructure;
- Developing standards and metrics that underpin rigorous, reproducible, and robust AI models. Such work should include standards for AI-ready data, AI model evaluation, and frameworks for performing risk assessments of AI model capabilities and mitigation strategies; and
- Directing funding agencies, such as the DoE and NSF, to expand training programs for cross-disciplinary expertise in AI, computational methods, and hands-on lab and engineering skills.

(ix) What specific Federal statutes, regulations, or policies create unnecessary barriers to scientific research or the deployment of research outcomes? Please describe the barrier, its impact on scientific progress, and potential remedies that would preserve legitimate policy objectives while enabling innovation.

Regulatory uncertainty is a major barrier to new biotechnology products in the United States. Unclear regulatory pathways increase cost, delay deployment, and push innovation overseas. Regulatory clarity and alternative paths to approval such as regulatory sandboxes would reduce business risks associated with commercializing research outcomes. To remove these barriers, OSTP could:

- Support the establishment of the National Biotechnology Coordination Office (NBCO)–as proposed in the National Biotechnology Initiative Act–with authorization and authority to align agency actions, reduce duplication, and develop efficient pathways for commercial biotechnologies;
- Encourage reform of the Coordinated Framework for the Regulation of Biotechnology by tasking an interagency working group with representatives from USDA, EPA, and FDA to develop regulatory policies that prepare for the emergence of novel product categories and streamline regulations for established biotechnology products; and

- Lead a coordinated interagency effort to align the Coordinated Framework around a unified, product- and risk-based regulatory paradigm. This should begin with a renewed rulemaking effort for the SECURE Act–which was recently vacated in court due to alleged arbitrariness of exemption criteria–to provide the statutory and scientific clarity needed to withstand judicial scrutiny. A broader effort should replace the current outdated process-based approach with a technology-agnostic, product-based approach that is coordinated through OSTP or the proposed NBCO.

(x) How can Federal programs better identify and develop scientific talent across the country, particularly leveraging digital tools and distributed research models to engage researchers outside traditional academic centers?

OSTP should coordinate with federal programs to establish a workforce effort that aligns emerging technology needs with talent nationwide by:

- Conducting targeted outreach beyond traditional academic centers to community colleges, technical/vocational schools, certificate and credentialing programs, community science institutions (e.g., community biolabs/makerspaces, zoos, libraries, scientific societies), open-source science projects, and citizen science platforms to capture scientific potential wherever it may exist;
- Hosting White House convenings to forge partnerships and gather input from the private sector and academia on gaps in domestic talent for critical and emerging technologies; and
- Developing standardized talent assessments through interagency working groups to evaluate applied experience and skills, community contributions, and interdisciplinary collaborations beyond traditional metrics, such as tenure status, publication counts, and institutional affiliation, to recognize diverse forms of expertise and scientific potential.

(xi) How can the Federal government foster closer collaboration among scientists, engineers, and skilled technical workers, and better integrate training pathways, recognizing that breakthrough research often requires deep collaboration between theoretical and applied expertise?

OSTP should coordinate with funding agencies, such as NIH and NSF, to:

- Reemphasize the role of land-grant universities as regional anchors by supporting applied research, technology transfer, extension activities, and industry-aligned workforce training that bridges research, applied engineering, and production; and
- Support interdisciplinary education experiences for undergraduates, for example through semester- or year-long partnerships or exchanges with research groups or industry partners outside their primary field, including non-technical fields.

(xii) What policy mechanisms would ensure that the benefits of federally-funded research—including access to resulting technologies, economic opportunities, and improved quality of life—reach all Americans?

Federal resources for education, training, and support of an expansive, skilled workforce is key to developing future generations of leaders who will advance biotechnology and biomanufacturing. OSTP should work with funding agencies to:

- Identify regions where targeted funding in education and workforce development could support regional biotech innovation systems and bring knowledge and skills to communities;
- Develop legal frameworks that discourage offshoring of critical bioeconomic development and create region-specific incentives such as designated biotechnology corridors that spur investment in American communities;
- Identify the needs and values of communities that are best served by biotechnology innovations and foster awareness and curiosity for new biotechnologies that take advantage of unique local conditions, skills, or materials such as feedstocks; and
- Consider holistic economic development as a key feature of building the bioeconomy and better understand how broader social programs and educational efforts can contribute to the bioeconomic talent pipeline. For example, ensuring that revenues generated via biotechnological development are fed back into social programs that promote education and workforce development (e.g., community colleges) could help secure and sustain a reliable talent pipeline for the emerging bioeconomy.

(xiii) How can the Federal government strengthen research security to protect sensitive technologies and dual-use research while minimizing compliance burdens on researchers?

To safeguard national interests while preserving the speed that underpins American innovation, OSTP should coordinate with federal agencies to deploy a research framework that:

- Establishes a Web of Biological Data–as proposed by the NSCEB–to house a managed access, federally-funded research platform in which qualified users can access sensitive data;
- Encourages funding agencies to conduct regular horizon scanning of critical and emerging technologies, for example through roundtable events; and
- Is updated at least every five years to ensure governance responsive to technical advances.

Conclusion

At a moment of intensifying global competition in science and technology, the structure and governance of the U.S. scientific enterprise is itself a strategic asset. Biotechnology sits at the intersection of innovation, manufacturing, security, and societal benefit, and demands policies that are commensurate with that role. EBRC appreciates the opportunity to contribute to this RFI and supports OSTP's efforts to modernize federal science policy so that American research remains both globally competitive and domestically impactful, and welcomes continued engagement as OSTP translates these priorities into actionable policy and coordination mechanisms.