FASEB
Federation of American Societies for Experimental Biology

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March 14, 2025

AI Action Plan
Attention: Faisal D'Souza, NCO
National Science Foundation
2415 Eisenhower Avenue
Alexandria, VA 22314

Transmitted electronically to ostp-ai-rfi@nitrd.gov

Dear Mr. D'Souza,

The Federation of American Societies for Experimental Biology (FASEB) appreciates the opportunity to provide feedback on the Networking and Information Technology Research and Development National Coordination Office and National Science Foundation (NSF) Request for Information on the Development of an Artificial Intelligence (AI) Action Plan as published in the Federal Register on February 6, 2025. We applaud the Office of Science and Technology Policy's and NSF's commitment to seek input on the highest priority actions that should be included in the new AI Action Plan.

In December 2024, FASEB released a report titled *"Recommendations for Generative AI in the Biological and Biomedical Sciences."* This report provides comprehensive recommendations on the responsible integration of Gen AI into biological and biomedical research and is intended to help federal agencies, policymakers, institutions, individual researchers, and other stakeholders navigate the rapidly evolving landscape of Generative AI (Gen AI) in scientific research.

FASEB's recommendations also address the broader category of AI in some cases, with Gen AI as a subset of AI in many policies and regulations. FASEB's feedback on this RFI takes the approach of enabling proper use case applications of AI and Gen AI, ensuring research integrity, fostering stakeholder trust while respecting individual rights, and addressing comprehensive end-to-end workforce needs. Where feasible, we encourage agencies to take consistent approaches with respective policies and regulations of funding agencies around the globe to reduce confusion for practicing researchers. Multi-stakeholder and international approaches also allow more rapid building of capacity and shared resources, requiring fewer overall duplicative efforts. We provide below four categories of feedback focused on new or revised policies, regulations, and guidelines, scientific integrity and intellectual property, data protection, privacy, and security, and workforce impact and training that should be included in the new AI Action Plan to best position America as the global leader in AI and Gen AI.

1. **Policy, Regulations, and Guidelines**
   - ***Federal agencies should develop and adopt guidelines for the ethical use of AI and Gen AI in research in the biological and biomedical sciences that support scientific integrity.*** The National Academies of Sciences, Engineering, and Medicine (NASEM) draft set of ethical guidelines, *Artificial Intelligence in Health, Health Care, and*

Biomedical Science: An AI Code of Conduct Principles and Commitments Discussion Draft provides a valuable starting resource and FASEB endorses the NASEM AI Code of Conduct's ten principles and six proposed commitments. FASEB encourages agencies to weigh the impacts of high energy use of AI and Gen AI against the potential benefits and to ensure a human remains in the loop. Agencies are encouraged to develop comprehensive standards for how data sets and software should be managed in AI and Gen AI-assisted research, with protocols to ensure rigor and reproducibility.

- ***Federal agencies should develop and adopt overarching and cohesive guidelines for the transparent reporting of the use of AI and Gen AI in federally funded research.*** Such an effort might be coordinated by the newly formed National Artificial Intelligence Advisory Committee (NAIAC) or OSTP. These guidelines should address 1) transparency in reporting AI and Gen AI-assisted research and use in grant applications and research outputs with appropriate attribution and authorship (see also broadly adopted guidelines by the Committee on Publication Ethics (COPE) and consistent citation styles (MLA and APA)); and 2) identifying where disclosing use is important and where it is less important to provide much-needed guidance to the research community.

- ***FASEB encourages federal agencies to develop and implement appropriate guidelines and processes for the use of AI and Gen AI in review processes for federal grants.*** The use of or limitations on use of AI and Gen AI in review or decisioning (e.g., by reviewers, program officers, and other stakeholders with access to confidentially submitted research proposals) should be addressed. Additionally, agencies may wish to develop new checks in the review process specifically designed for AI and Gen AI issues, including sufficiently detailed disclosure, validation of Gen AI generated content or findings, reviews of tools to determine purpose or fit, and paths for identifying and interrupting potential biases. Further, considerations such as the valuation of privacy and consent issues, particularly for sensitive data, checks against intellectual property issues, and ensuring proper recognition of software developers, tools, and individual researchers may prove valuable for consideration. Agencies might adopt the approach "first do no harm."

2. **Scientific Integrity and Intellectual Property**
   - ***Federal agencies should develop uniform coordinated standards for verifying AI and Gen AI-generated data and research findings, create resources regarding misconduct evaluation, and offer resources to support the development of tools and platforms for AI and Gen AI reproducibility.*** FASEB recommends agencies develop uniform standards and processes for verifying Gen AI-generated data and research findings and keep appropriate records. Resources that support stakeholders in evaluating AI and Gen AI misconduct would provide infrastructure that builds trust in

research efforts using these tools. Agencies can also provide resources to support the development of open-source tools and platforms specifically designed to enhance the reproducibility of AI and Gen AI-assisted research that may include 1) Solutions for creating reproducible AI and Gen AI environments (computational); 2) Platforms for sharing and reproducing, testing AI and Gen AI-assisted research findings; and 3) Paths to track the provenance of AI and Gen AI-generated data and research findings. Federal agencies, either via National Institutes of Standards and Technology (NIST) or through another interagency effort led by OSTP, could develop and establish these coordinated standards and resources.

- ***FASEB recommends federal agencies adopt policies and regulations requiring AI and Gen AI software developers provide full transparency***. Details such as how an AI or Gen AI tool is created, how it works, the underlying sources**,** with references to all underlying data and publications used to create the tool, and clearly developed and noted versioning should be provided by software developers for each tool. This is particularly important for Gen AI given the continuous ongoing evolution of the tools and capabilities. Without greater transparency, the scientific enterprise will face tremendous challenges to scientific integrity and be unable to reproduce experiments.

- ***Intellectual property rights and the data of individuals, researchers, and AI and Gen AI software developers should be understood and respected by all stakeholders.*** The intersection of AI and Gen AI and intellectual property is complex for US policy makers, funding agencies, and all organizations to navigate. AI and Gen AI software developers create new intellectual property in the software; however, they do not do so in isolation or without the benefit of the intellectual property of others. AI and Gen AI software is developed by utilizing vast stores of intellectual property rights belonging to others, including individuals and researchers. In this process, there must be understanding of and respect for individual rights and researcher intellectual property rights. AI and Gen AI software developers should cite sources, recognize and respect the intellectual property and other rights of researchers and individuals, and ensure they are properly obtaining the permissions and rights to use the information for the purpose of use. To support this, AI and Gen AI software developers should also provide 1) clear and simple terms of use so that end-users easily understand how the queries and information they input into the tool will be used; and 2) one-click easy paths for end-users to turn off access.

3. **Data Protection, Privacy, and Security**
   - ***Data protection, privacy, and security should become an integral part of regulations and become the default for individuals and researchers in the US.*** FASEB encourages U.S. policy makers to create new regulations to ensure data protection, privacy, and security are the default for all individuals and researchers in the U.S. AI and Gen AI software developers should be required to secure individual permissions and respect individual decisions. FASEB also recommends that only the data strictly

necessary for the required functionality be collected by tools or during development, individuals be protected from unchecked surveillance, and there is no burden for individuals to change data privacy and security settings (with brief, plain descriptive language with context describing the collection, use, and reuse of data). Individuals should also have access to reporting to confirm that their data privacy and security decisions are respected by organizations.

- ***Federal agencies should identify use cases of AI and Gen AI where misinterpreting and reusing data has elevated levels of potential harm and provide an enhanced level of privacy and security***. ***Agencies should also develop and routinely update data management and security protocols for AI and Gen AI-generated data, including robust data governance plans, and should keep current data management and sharing plans***. AI and Gen AI tools provide an easy path for potential harm to individuals through the accidental inclusion of personally identifiable data, notable examples in the healthcare and education fields. In medical practices, the informed consent process is well-established and serves to protect individuals. At institutions, an institutional review board develops procedures to ensure appropriate steps are taken to protect the rights and welfare of humans participating as subjects in research. Similar approaches could prove useful for agencies to adopt for high potential harm use cases and in the initial stages of new tool exploration. At agencies, data security, governance, and data management and sharing plans should be kept current with AI and Gen AI developments.

4. **Workforce Impact and Training**
   - ***Federal agencies should develop, provide resources for, and implement multi-tiered Gen AI training programs and toolkits to address the diverse needs of researchers at different career stages and roles.*** Funding agencies and institutions, in partnership with other stakeholders, should rapidly develop and map out a plan to implement AI and Gen AI training and educational programs. The need extends beyond the traditional K-12 or undergraduate educational training, and must include researchers at all career stages, who present differing needs. Developing the skillset of the U.S. biological and biomedical sciences workforce is a priority for the workforce and economy to thrive. Agencies are encouraged to consider approaches that do not add to the existing workloads of impacted stakeholders. The full FASEB recommendations provide guidance for program structures (Appendix 2, page 44), key principles for educational frameworks (Appendix 3, page 45), and a basic toolkit for the biological and biomedical sciences (Appendix 4, page 46).

   - ***Policy makers and funding agencies should create federal training grants for all stakeholders focused on the ethical and effective use of AI and Gen AI***. Given the broad anticipated impact, particularly on the biological and biomedical sciences,

policy makers and funding agencies should create training grants for stakeholders that focus on the ethical and effective use of AI and Gen AI.

- ***FASEB encourages federal agencies to ensure adequate training of agency staff and program officers on the appropriate use of AI and Gen AI, monitoring use, understanding bias, and their oversight role***. Federal agencies have a particular role to play in oversight of federal funding for research and educational programs. Implementing training for staff and program officers across the breadth of issues related to AI and Gen AI will better position agencies to successfully lead and address recent developments.

- ***Funding agencies should create and/or fund the creation of Gen AI educational resources and allocate resources to support continuing educational efforts designed to both improve the workforce and reduce inequities through Gen AI***. For many scientists, self-directed learning may be the fastest path forward. To facilitate, FASEB recommends federal agencies fund the creation of specific educational resources and ensure the agencies allocate resources to support educational efforts. Additionally, in their leading role, federal agencies could develop a centralized repository of educational resources on Gen AI in biological and biomedical sciences (Appendix 5, page 47 for resources).

Thank you for providing the research community with the opportunity to comment on the development of the AI Action plan.

Sincerely,

Beth A. Garvy, PhD
FASEB President