



Science Advancement & Outreach  
A DIVISION OF PETA

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**Request for Information (RFI): Inviting Comments on the Future of the National Library of Medicine Biomedical and Data Science Extramural Research Programs  
(NOT-LM-25-002)**

Submitted [online](#) on July 14, 2025

1. Please provide a response on areas of future investment that NLM should consider.

An important area for future extramural research investment that NLM should consider is the application of AI and biomedical informatics tools to conduct systematic reviews evaluating the efficacy of animal models in specific areas of human disease research. As reported by the NIH, approximately 95% of novel drugs fail in human trials despite being deemed safe and effective in preclinical animal studies. (1) Yet, much of NIH's research funding continues to support these experiments. This disconnect suggests a critical unmet need to rigorously assess the translational relevance of animal models—an effort well-suited to the capabilities of modern data science. Leveraging machine learning, natural language processing, and automated review tools, NLM-funded extramural scientists could generate high-throughput, reproducible syntheses of existing evidence across disease areas where the predictive value of animal experiments is in question. Such reviews would provide a critical evidence base to guide future extramural investments. Specifically, they could help identify where next-generation data infrastructure and AI-driven discovery platforms are most needed—particularly in areas of urgent public health concern where advanced informatics approaches can accelerate progress and improve outcomes. A range of established and emerging resources—such as automated review software, risk-of-bias assessment tools, reporting standards, and educational workshops—are already available to support this work. (2) Some of these available resources are already provided by the NIH. (3, 4) Investing in this area would position NLM at the forefront of evidence-based, cross-domain innovation, while simultaneously supporting NIH-wide goals of increasing research efficiency and impact.

1. National Center for Advancing Translational Sciences. New Therapeutic Uses. November 5, 2024. Accessed December 16, 2024. <https://ncats.nih.gov/research/research-activities/ntu>
2. Cochrane. Our products and services. Cochrane.org. 2024. Accessed November 13, 2024. <https://www.cochrane.org/about-us/our-products-and-services>
3. NIH Library. Systematic Review Standards & Organizations. NIH.gov. Accessed November 13, 2024. <https://www.nihlibrary.nih.gov/services/systematic-review-service/systematic-review-standards-organizations>

4. NIH Library. Tools & Resources. NIH.gov. Accessed November 13, 2024. <https://www.nihlibrary.nih.gov/services/systematic-review-service/tools-resources>

2. Please provide a response on strategic focus areas that NLM should consider.

A strategic focus area for future extramural research that the NLM should prioritize is the development of an automated, AI-powered biomedical knowledgebase dedicated to non-animal, human-relevant biomedical research models. Such a resource would systematically mine and structure data from the published literature to identify and categorize human biology-based models used across disease areas and research domains. This knowledgebase could be designed with user-driven filters—such as disease category, anatomical focus, model type (e.g., organoids, microphysiological systems, in silico tools), keywords, author affiliations, or even specific reagents or cell lines. By enabling customizable search parameters, the database would serve as a powerful tool to support both discovery and translational research. To maximize impact, the platform should be openly accessible to the broader scientific community or made available via a low-barrier subscription model. The European Union’s Biomedical Models Hub, a project aimed at cataloging non-animal research methods using automation and AI, offers a useful precedent and could inform best practices. (1) With NIH’s recent announcement prioritizing the development and use of human-based research technologies, this initiative would align with and help implement that strategic vision. It would fill a clear infrastructure gap in the current data ecosystem—making it easier for researchers, funders, and policymakers to find, evaluate, and invest in modern, human-relevant research tools.

1. European Commission. Joint Research Centre. *Non-Animal Methods in Science and Regulation: EURL ECVAM Status Report 2024*. Publications Office; 2025. Accessed June 11, 2025. <https://data.europa.eu/doi/10.2760/9648771>