Program Proposal for CF Support – Continuing Program

TITLE: Bridge2AI (Stage 2)

BACKGROUND: Bridge2AI Stage 2 (Years 5-9) addresses the need to accelerate health research through the development of trusted AI-enabled discovery and solutions. Stage 1 of Bridge2AI created unique, large-scale, multimodal, and accessible AI-ready datasets and best practices for scientific discovery. These products are in demand, with growing requests for data reuse (e.g., 700+ from one dataset alone.) Stage 2 will deliver rigorous, responsibly developed, trustworthy solutions to improve human health.

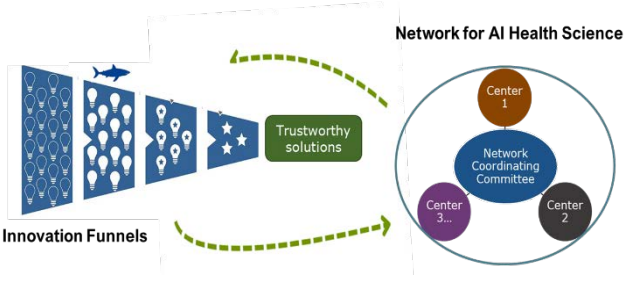
PROGRAM GOAL: The overarching goal of Stage 2 is to deliver AI-based solutions for biomedical Grand Challenges via trustworthy AI-enabled solutions and scientific methods for AI-enabled discovery. Beyond fulfilling the value of Stage 1 AI-ready data, Stage 2 will also create solutions with tangible impact on patient care and wellbeing and enable readiness for laboratories of the future. Given the cross-disciplinary nature of the Grand Challenges and the broad spectrum of envisioned outputs (from basic scientific insights to translational and clinical applications), a coordinated, cross-NIH effort is warranted. This effort aligns strongly with NIH and HHS priorities for sustaining US AI leadership globally.

PROPOSED INITIATIVES:

Innovation Funnels for safe, rigorously developed AI-enabled solutions: Leverage Bridge2AI datasets to generate new scientific tools, reveal new mechanistic insights, and develop AI-enabled devices to improve health. This initiative will de-risk projects towards clinical translation, identify knowledge gaps related to Grand Challenge topics, and ultimately lead to deployable AI-enabled products that will attract continued investment for commercialization. A rigorous and nimble innovation funnel approach will incubate the most promising concepts with an entrepreneurial mindset and regulatory expertise, accelerating development of the most promising solutions to improve health.

Network for AI Health Science: Engage with the wider scientific community to develop the necessary metrics and guardrails for trustworthy AI to advance and support the science of science for trustworthy AI-enabled biomedical research. This effort, implemented via a Research Network, addresses the national need to rapidly and richly incorporate best practices and principles for trustworthy AI, building a multidisciplinary community that bridges to the lab of the future in which AI agents may have autonomy in the research arena.

DELIVERABLES: The Innovation Funnels are expected to deliver at least 40 solutions (8/year) on topics relevant to Bridge2AI Grand Challenges (with an expected assessment of 100+ other solutions which may be developed beyond the scope of these awards). The Research Network is anticipated to bring together interdisciplinary researchers in dialogue with the community, delivering: best practices in AI model-building principles from federated data resources; best practices for evaluating and assessing AI methods and models for replicability, reproducibility, and transparency; guiding principles for agentic AI-based autonomous labs of the future; best practice guidelines to achieve community adoption, and creating multidisciplinary cross-training programs to strengthen the American AI Workforce. Together, the Innovation Funnels and Research Network will generate an ecosystem (see figure) of responsible development of AI-enabled solutions to Grand Challenges in health, improving public trust in AI.



BUDGET: $90M over 5 years

TABLE 1 - BUDGET SUMMARY.

TABLE 1

	Lead IC	FY27	FY28	FY29	FY30	FY31	Total
Initiative 1 – Innovation Funnels	NIBIB	$8.75M	$9.25M	$9.25M	$9.75M	$9.75M	$46.75M
Initiative 2 – Research Network	NICCIH	$7M	$7M	$7M	$7M	$7M	$35M
Data Sustainability	OSC	$1.5M	$1M	$1M	$500K	$500K	$4.5M
RMS – for NIH staff salary and travel; NIH-organized workshops	OSC	$750k	$750k	$750k	$750k	$750k	$3.75M
TOTAL		$18M	$18M	$18M	$18M	$18M	**$90M**