Advanced Research + Invention Agency ARIA

AI Scientist Call

Call for research proposals for working with AI Scientist systems

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v2.0

Advanced Research + Invention Agency ARIA

Introduction

Launched in January 2023, ARIA is an R&D funding agency created to unlock scientific and technological breakthroughs that benefit everyone. This mission requires multiple shots on goals, a high tolerance for failure and an agile funding structure. AI Scientists represent a rare opportunity to tremendously scale our efforts on each of those fronts.

At ARIA, we believe the future will see far more AI scientists – AI tools that are designed to automate the core end-to-end process of science discovery – and that they will push the boundaries of human knowledge and progress. With our programmes and opportunity spaces already aimed at those objectives, we seek to understand how AI scientists could act as force multipliers across our current and emerging portfolio.

With this in mind, we're looking to fund ~5-6 projects (each with up to £500K) using AI Scientists to explore and understand what role AI Scientists may take in creating and performing research. This funding call is an exploratory call for us, where the outputs will help inform ARIA's work in this space. For example, it may result in future Activation Partners (Activation Partners are pioneers of new science innovation models, community builders, world-leading research labs, and deep-tech focused accelerators) related to AI Scientists. We may even learn that we should be creating new opportunity spaces, or research programmes, focused on the development of AI Scientist systems. More broadly, it will shape how ARIA can provide differentiated and catalytic support in this field to overcome current fundamental challenges, and expand its potential impact across diverse areas of science and technology.

Scope

To help guide and shape how ARIA thinks about AI Scientists, we are inviting proposals for a series of short exploratory projects, to be undertaken using AI Scientists. We are specifically looking for AI systems that are able to perform the full end-to-end workflow of scientific knowledge creation.

This includes:

- Ideation and hypothesis creation
- The design of experiments to test the hypothesis
- The ability to run experiments in (ideally fully automated) labs, and
- Interpretation of the results and the drawing of conclusions.

The AI system should be able to place the work in the context of related literature and knowledge, and produce a written report describing related work, the idea explored, experiments, results and conclusions. The report should also include clear and unambiguous acknowledgement of what roles or actions any human has performed in the process to assist.

Your proposal should clearly state how humans are expected to help in the process, the rough capabilities of the AI Scientist, and any supporting evidence that the AI system proposed will be able to perform the work.

Please note that this is **NOT** directly a call to fund the development of an AI Scientist system. You are expected to have an already functioning AI Scientist system which can be used (to attempt) to solve a research problem.

Who are you?

We don't have hard constraints on the type of organisation we will work with. We welcome proposals from across the R&D ecosystem: individuals (including those not affiliated with an organisation), universities (including proposals from students, postdocs and staff), research institutions, small, medium and large companies, charities and public sector research organisations, including those located outside of the UK. The only constraint is that we are looking for organisations who have an already working AI Scientist system that they feel would be able to participate.

We welcome proposals where the AI Scientist system has generated the proposal, but we will also accept proposals written by a human. However, please be clear in your proposal what roles and contributions a human made versus your AI Scientist.

Guidance on AI Scientist Proposals

This call will be backed by up to £3M and targets awards of up to £500K with a maximum duration of 9 months. We want to be led by your instincts and experience. As a nascent area, we recognise that AI Scientist systems are currently specialised, therefore a proposal must specify the research area and problem the AI Scientist will tackle. We also encourage applicants to look at our current opportunity spaces and propose related problems.

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Opportunity spaces are underexplored areas led by ARIA Programmes Directors that ARIA believes are likely to yield breakthroughs. Our current opportunity spaces can be found here. Please note proposals for problems outside of the existing ARIA opportunity spaces are also welcome.

To help spark your ideas, here are some example problems:

- **High-Throughput Mitochondrial Systems (within Bioenergetic Engineering Opportunity Space)**: Developing and optimising a cell-free system (synthetic or host-based) that effectively mimics or houses isolated mitochondria, enabling the rapid, high-throughput screening of small molecules for objectives like enhanced gene delivery into the mitochondrial matrix.
- **Therapeutics and Target Discovery**: Identification of a causal novel drug target for diseases in women's health, ideally with human genetic backing, with validation of the proposed mechanism of action in an appropriate human cell model.
- **Developing drugs targeting the innate immune system (within Sculpting Innate Immunity Opportunity Space)**: an agentic system that can interpret multi-omics data to identify targetable innate immune pathways, design candidates,and test on relevant cell models for efficacy and toxicity.
- **Materials and Chemical Design:** Automated discovery and optimization of the composition, structure, and deposition parameters for thin films to achieve enhanced functional properties (e.g., in electronics, solar cells, or sensors).
- **Solid-state material platforms for quantum many-body simulators**: Discovery and synthesis of materials with controlled defects to enable a programmable platform that can simulate several complex Hamiltonians.

Each proposal should present two distinct problems: a **base problem** that the teams are confident their AI Scientist system can solve, and a more challenging **extension problem** that the system may struggle to solve.

We expect that your AI Scientist system should be able to explore a space, create hypotheses and design experiments to prove or disprove them, (ideally) execute the experiment on physical hardware (e.g. an automated or semi-automated labs), process the raw results and infer conclusions about the hypotheses, and finally create a report.

Deliverables

We are interested not only in the scientific breakthroughs made, but also in understanding the process of your work. This will enable us to understand how to incorporate AI Scientist systems as Activation Partners or Creators in future programmes and opportunity spaces. As such we are looking for the following deliverables (these can be refined during negotiation):

1. Hypothesis and initial experiment(s) proposed and prepared.
2. Experiments run, and early data processed and interpreted.
3. Report generated and project complete.

We would like all AI Scientist system projects to start in January 2026. While these and the timelines can be refined during negotiations, the final report must be generated no later than 9 months from the start date.

Project management

We want to empower you to move at speed. The ARIA CTO along with other members of the ARIA team will meet with project teams on a bi-monthly basis to discuss progress and exchange insights. While these meetings will typically be virtual, we'll schedule one in-person meeting at your site to allow verification that the AI Scientist system is performing the work.

Budget

We're looking to fund project teams with up to £500,000 each (inclusive of taxes and all other costs), for a maximum length of 9 months.

We'll fund your costs (see our eligible cost guidance for more details) on a firm/fixed price basis. Payment will be within 30 days upon completion of all deliverables. We are open to discussing payments per deliverable.

Terms

The contract will be placed on mutually agreed terms and conditions proposed by the applicant. Any proposed T&Cs must reflect the key terms identified below:

- Either party shall have the right to terminate the contract or part of the contract for convenience upon ninety days' prior notice.
- ARIA shall have the right to terminate the contract or part of the contract where the supplier fails to provide the service contracted with a notice period of thirty days.
- The supplier will provide ARIA with a perpetual, irrevocable, royalty-free licence to use the Deliverables for internal non-commercial purposes. For the purpose of this clause, internal use shall mean use by ARIA, its agents and contractors and government departments.
- ARIA shall have the right to publish a summary of the awarded contract and the outcomes achieved in any medium (having redacted both parties' confidential information).
- The supplier shall indemnify ARIA, its agents, contractors and employees against the supplier's infringement of third party Intellectual Property Rights.
- All information shared with the supplier shall be subject to confidentiality terms.

The Application

Interested organisations should submit a two page proposal. Organisations shortlisted based on their initial proposals may be invited to meet with ARIA to discuss and refine their approach. Proposal should outline:

- Your background and motivation for taking part in this call.
- A description of the research challenge, and why you think your AI Scientist system will be able to make contributions in that space.
- A high level breakdown of how much funding you need/what your expected cost would be using the table provided in the application portal.
- How long you would need to carry out the proposed activities (a high level timeline estimate no longer than 9 months).

How we'll choose the projects

We'll select applicants against the following criteria:

- AI Scientist System Capability & Automation: Evidence of the AI system's ability to perform the proposed work and the extent of end-to-end automation of the scientific workflow without human intervention.

- Ambition, Clarity, and Suitability of the Research Problem: The extent to which the proposed research problem is novel, ambitious, and potentially impactful, as well as how clearly it is defined and how well it aligns with the capabilities and intended purpose of the applicant's AI Scientist system.
- Value for ARIA's Learning and Future Strategy: The proposal's potential to generate valuable insights that will help ARIA understand the role AI Scientists may take in creating and performing research
- Cost: The costs proposed are reasonable/realistic and demonstrate value for the tax-payer, through a transparent pricing breakdown with no hidden costs and a proven ability to offer cost-effective solutions without compromising quality.

Timelines

This call for proposals will be open for applications as follows (we may update timelines based on the volume of responses we receive):

Applications open	14 October 2025
Clarification Questions deadline	7 November 2025
Application deadline	14 November 2025 (14:00 GMT)
As part of our review we may invite applicants to meet with the CTO or another team member to discuss any questions prior to final selection — this discussion can happen virtually or we may seek clarification on certain aspects of your proposal via email.	
Successful/Unsuccessful applicants notified	28 November 2025
At this stage you will be notified if you have or have not been selected for an award subject to due diligence. Please note, for those applicants not selected for shortlisting or award we will not automatically provide feedback.	

Latest Award Date	22 December 2025

Please note, contracts must be signed on, or before, this date for the project to be funded by ARIA, the offer of funding may be withdrawn if contracts cannot be signed by this date.

Still have questions?

If you still have questions you can send them to clarifications@aria.org.uk by 7 November 2025. Any questions received after this date will not be reviewed. Any questions or responses containing information that is of relevance to all potential applicants that are not considered confidential will be provided to everyone that has started a submission. Answers will also be posted regularly on the ARIA website.

Submission details

Format	Up to two sides of A4 pages (PDF) (including diagrams, excluding references).
Deadline for proposals	14th November 2025 (14:00 GMT).
Responses to	Before submitting an application, please read this call for proposals in full. Please read the portal instructions and create your account before the application deadline.

APPLY HERE

If you are disabled or have a long-term health condition, we can offer support to help you engage with ARIA, navigate our funding application process, or carry out your project, you can find more information here.

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Clarification Questions and Responses

This section will be updated during the RFP process with clarification questions and responses that contain information that is of relevance to all bidders.

Category	Question	Answer
Eligibility	Would an international team be eligible to apply?	Yes, international teams are eligible to apply.
	Is there any limit on the number of applications each pi/consortium/organisation can submit?	There is no limit, however if multiple applications from the same PI/organisation were selected for funding then you would need to discuss with us how you would manage your time and what would be realistic
	As a non-profit entity, we co-design AI scientist workflows in partnership with research labs that have self-driving labs for material science. Is it possible to apply jointly with one of these labs, or include a partnering lab as part of our application?	We are open to different entity types and collaborations - we would need a lead entity to be chosen to hold the contract with and all other entities would then be subcontractors.
	Non-UK collaborators: would they be eligible to join as co-PIs or they have to be subcontractors?	We need a lead organisation that we will contract with, any other collaborators will be subcontractors to that agreement. For this call they do not have to be UK based.
Terms	When I read the AI Scientist application resources, I saw a part about intellectual property (IP) rights. It says that applicants should give ARIA a royalty-free right to use the outputs made by using the AI Scientist system. I would like to confirm if my understanding is correct: this IP condition only applies to the research results produced by the AI Scientist system, and not to the AI Scientist system itself, since developing that system is not part of this project. Could you please confirm this?	You are correct, the license is for the Deliverables not the system itself.

	For the question "Please link/upload your terms", what kind of document should be provided?	The contract will be placed on mutually agreed service terms proposed by the bidder that must include the key points that are in the solicitation document (pg 5 and 6 under "Terms"). In the application portal you can upload the terms you are proposing via a link or a document
	I presume the terms may be negotiated if chosen for an award, but the terms are not used for selection of the award, correct?	The terms of shortlisted proposals will be reviewed to ensure they are suitable and they must contain the key points listed in pg 5&6 of the call document but they are not one of the scored evaluation criteria.
Scope	Is it expected that the "extension problem" builds on the "base problem"? Or, alternatively, can the extension problem be a separate/more generic/harder problem to solve than the base problem?	We would like to give the applicant flexibility on how to define the base problem and extension problem. In general, it is likely that the extension problems would be more a generic / harder development upon the base problem.
	May the system's AI-generated scientific report include human-verified policy interpretations while still being considered AI-led under the call's requirements?	It is important the report is predominantly generated by the AI scientist system and you must be clear what roles you use humans for in the process
	What level of human involvement is acceptable while still meeting the "end-to-end automation" requirement? Will proposals be considered in scope if Human-AI Scientist collaborations are a feature of the proposed scientific experiments?	Yes, the proposal will be considered. But it is important the document is predominantly generated by the AI scientist system and you must be clear what roles you use humans for in the process
	Would ARIA consider projects where the AI Scientist conducts end-to-end computational experiments (e.g. automated hypothesis generation, model training, and interpretation using medical imaging datasets) to be within scope, provided that the system can optionally integrate with wet-lab partners for future validation?	We need the AI Scientist to engage with a lab.
	Does "end-to-end" mean the AI must independently generate and test scientific	Yes, we expect the system to generate and test the scientific hypotheses. Chaining modular

hypotheses, or would a modular system (e.g., our existing model plus a reasoning/reporting layer) meet this definition?	components together for this is okay.
Would it be a weakness if our AI scientist will be an agnostic framework covering different areas of research rather than only become functional for a limited areas or only ARIA's research focus?	It would not be a weakness but we are looking for AI Scientists that operate broadly across biology, physical science and chemistry. You can suggest any research problem that lies within or outside of our current opportunity spaces.
You have listed "2. Experiments run, and early data processed and interpreted" as a deliverable. Are you referring to lab experiment by pointing out to 'experiments run' or it can be still a simulation to model a scientific scenario?	Yes we are referring to lab experimentation and this is an important part of what we are looking for.
We haven't partnered with a physical lab yet but potentially the computational model can be utilized by physical wet labs and running wet lab experiments. Does the AI scientist system have to have physical apparatus connections?	We expect teams to demonstrate the experimental loop(s) over the 9-month period, even if parts of the experiments are carried out by humans. If you think your application would be able to demonstrate that, we encourage you to apply at this stage.
How is "hypothesis generation" defined within the call — should the AI autonomously propose testable questions based on available data, or can it work from pre-specified research objectives provided by humans?	We expect that testable hypotheses are predominantly generated by the AI scientist system. The initial research direction might be provided by humans, and this must be clearly identified, but subsequent sub-experiments must be suggested and designed by the AI.
Does the AI Scientist system need to be fully operational at the time of proposal submission, or would ARIA consider proposals that offer thought leadership, conceptual frameworks, or strategic insights into the development and deployment of such systems, even if the system itself is not yet functional?	We expect the AI system to be fully operational in that this is not a funding call to develop an AI system but we do accept there may be some optimisation of the existing system to solve the extended research problem.
What Technology Readiness Level (TRL) is expected or acceptable for this call?	You are expected to have an already functioning AI Scientist system which can be used (to attempt) to

		solve a research problem. Where there are any gaps in your proposal we encourage you to highlight these
	Are you interested in a system that is an all-purpose experimental aid that supports scientists through a number of customisable tools including design of experiments, sensor placement, simulation and experimental modelling and verification and guided learning, rather than one which is targeted to a specific application?	We expect applicants to propose two foccused problems that could demonstrate the capabilities of their system over the 9 months.
	Can the “already functioning AI Scientist system” be based on an open-source framework or model (e.g., a modular orchestration layer built on top of existing large language models such as GPT-4, Claude, or similar open-weight architectures)?	Yes it can be.
	Would it be acceptable to integrate third-party AI tools (not developed exclusively by us) for narrowly defined tasks like accessing and extracting information from specific journal databases and research repositories, while our core agent handles all design and scientific reasoning?	Yes, this would be acceptable,
Proposal	Are there any restrictions regarding font type, size, margin dimensions, or other formatting guidelines? I also understand the 2 pages should include diagrams but exclude references. Can annexes with additional information (e.g., letters of support, quotes, etc.) also be submitted?	We have not stipulated a font size/margin size but we would expect a reasonable size to be chosen in line with this being a light touch proposal. There should not be any annexes.
	How much do you care about showcasing the foundational capability versus the novelty/suitability of the research challenge?	We will be evaluating your proposal based on the selection criteria in the call document - please see "How we'll choose the projects" section for more information.
	What constitutes adequate "supporting	Supporting evidence should consist of information

evidence" that our AI system can perform the proposed work?	that demonstrates your existing AI Scientist system's capability and past performance in executing the end-to-end scientific workflow. This can include for example brief case studies, summaries of past successes as evidenced by publications or reports.
Will ARIA provide access to any shared lab infrastructure or datasets, or must all resources be sourced by the applicant?	We expect all resources to be sourced by the applicant.
How much commercial and technical detail are you expecting to see at this stage? We're more familiar with InnovateUK grants where this makes up most of the proposal. In a similar vein, what sort of balance would like to see between technical feasibility and potential impact? We've framed aims that align with our objectives, but should also reveal how effective our AI scientist is across a range of chemical endpoints.	This is designed to be a 2 page light touch proposal covering the points in the call document with a cost template to fill out in the application portal. We expect the base problem proposed by applicants to be technically feasible and impactful / important. The extension problem must be technically ambitious and with much higher relative impact to the base problem.
Will the base problem and extension problem be weighted equally in the assessment process, or will one component be prioritized over the other?	Please see pg 6 and 7 of the call document under "How we'll choose the projects" for the evaluation criteria - weightings will not be applied. We take a criteria-led approach to selection: all proposals will be evaluated against consistent criteria. ● We expect proposals to spike against criteria, and demonstrate different strengths and weaknesses). ● Proposals will be evaluated against the criteria outlined in the solicitation. ● Reviewers will score each criterion and each proposal as a whole. Final scores are not numerical sums or averages, but an indication of their overall view of the proposal.
In other funding applications I've been a party to, there's often an expectation that the proposal will talk about the research team's fit to the project and their track record. Based on	As this is a short exploratory project to achieve deliverables and we envisage the majority of the work being done by the AI Scientist system, there is not the same emphasis on the team as there may be

	the AI Scientist call, it seems like we shouldn't spend much, if any, space on talking about our team – is that correct?	for other calls. However you should still include your background and motivation for taking part in this call.
	We are weighing the pros and cons of including a Gantt chart in our proposal, but it will take a non-negligible amount of the two pages we have to work with. Do you recommend including a Gantt figure or similar timeline detail?	We only need a high level timeline estimate restricted to 9 months so we would recommend using the space to explain your research challenge and AI Scientist system in detail.
Ethics	If the AI Scientist uses existing open-source or institutional medical-imaging datasets that are fully anonymised, does ARIA require separate ethical review documentation, or will evidence of data provenance and governance suffice?	We would generally not expect separate ethical approvals in respect of anonymised datasets, but reserve the right to require additional approvals or safeguards in discussions with successful applicants when specific and detailed information concerning the datasets and their provenance are available
Reporting	Are the deliverables based on "success" or rather a fair reporting of the work done which should be commensurate in quantity of quality to the funding received?	The deliverables will be refined in the contract negotiation but it would be on fair reporting - we would need to see evidence of the work that has been done even if the experiment has failed.
	Beyond the automation of workflow, are there preferred metrics or evaluation frameworks ARIA would like us to report (e.g. reproducibility, time-to-insight, model interpretability, or human-AI collaboration quality)?	The following additional metrics would be of interest, teams can choose which one(s) to report: time to insight, number of AI-lab interfaces as measured by instruments AI is able to communicate and coordinate with, planning extent - how many experimental steps is the system accurately able to plan over, trace of sources considered. We will need to understand what the AI did and what humans did in the process.
Costs	Would we be able to fund research interns working on the project in addition to the core team?	We do not have set restrictions on who/how many people are in your project team only that the overall project budget cannot exceed £500k (including VAT/any local taxes if non-UK based) One of the selection criteria is Cost so we will need to make sure there is value for money - but please include what you will need to best achieve the

	project in the cost table within the application portal.
Can services be budgeted for start-ups operating in this area? Can a start-up act as the lead organisation in a bid?	We are open to many different entity types including start ups so yes a start up can be the lead organisation in the bid. However we are unable to pay for incorporation costs and any other costs relating to the setup of a new entity. This includes but is not limited to company registration fees, legal and professional fees relating to incorporation, company formation services, VAT registration costs, bank account setup costs and domain name and website costs as well as branding and marketing costs.
My interest is in financial reporting, whether an external audit will be necessary, as I will need to include this in the budget.	As this will be on service contract terms there is no requirement for an external audit.
How much money could be allocated in the budget for outsourcing, subcontracting in the UK and/or overseas?	Yes for this call you can subcontract in the UK or overseas and there is no set restrictions around how much budget can be allocated for this. The costs proposed must be reasonable/realistic and demonstrate value for the tax-payer, through a transparent pricing breakdown with no hidden costs and a proven ability to offer cost-effective solutions without compromising quality.
We would be grateful if you could clarify the VAT treatment for this call.	Unfortunately we are unable to provide specific VAT/tax advice and we encourage you to obtain your own VAT/tax advice. We have applications from many different entity types and locations so any VAT or other local taxes that are applicable to the applying entity must be included within the £500k. ARIA is not registered for VAT and is not able to recover VAT, so your overall project value should include VAT if it is applicable.
Would you accept an initial application from me under my organisational affiliation instead as I do not have a spin out company	We would need as accurate costings as possible as one of the selection criteria is Cost so we need to ensure there is value for money. However we can

	registered yet, with my approximate costings that I can estimate fairly well at this stage - with a view to checking these costs at the short listing stage if the science case is short listed?	accept some refinement in the negotiation phase as long as it remains under the £500k cap. Please note that as per the call document all contracts must be signed within 3 weeks of the notification of selection or funding may be withdrawn so please choose the entity route that will best allow you to achieve this.
Timelines	The guidance states projects must start by Jan 26. There is confusion if this needs to be the 1st January, or can the start dates be pushed into late January? Some PIs are concerned about recruitment and contracting if it's the 1st Jan	It does not need to be the 1st January but we would like all AI Scientist system projects to start in January 2026. The timelines can be refined during negotiations, the final report must be generated no later than 9 months from the start date. As this is a service contract for an existing AI System rather than a grant to develop a system, there should not be significant recruitment involved so we hope to get these projects started as soon as possible.