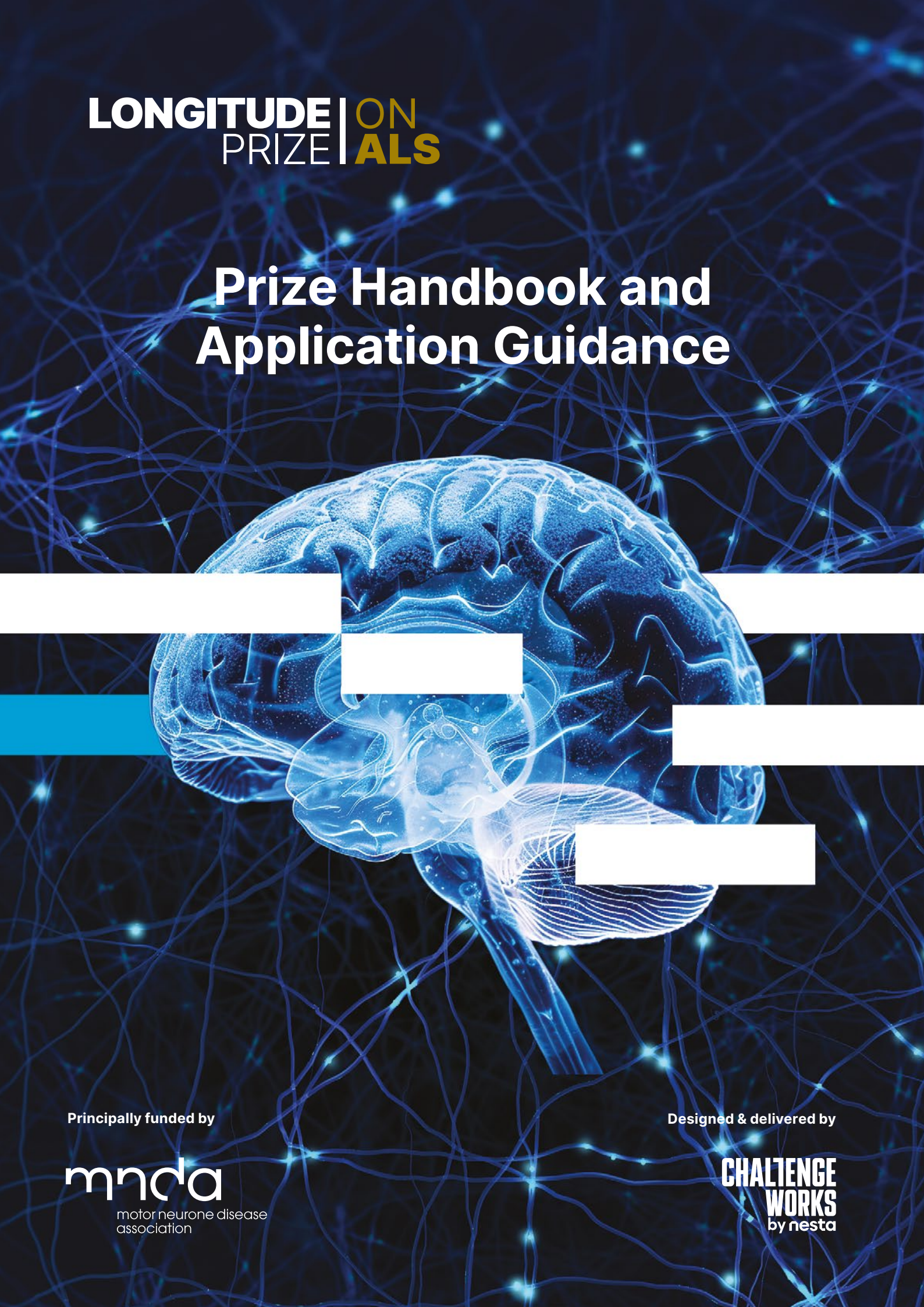
LONGITUDE PRIZE | ON ALS

Prize Handbook and Application Guidance



Principally funded by

mnda
motor neurone disease association

Designed & delivered by

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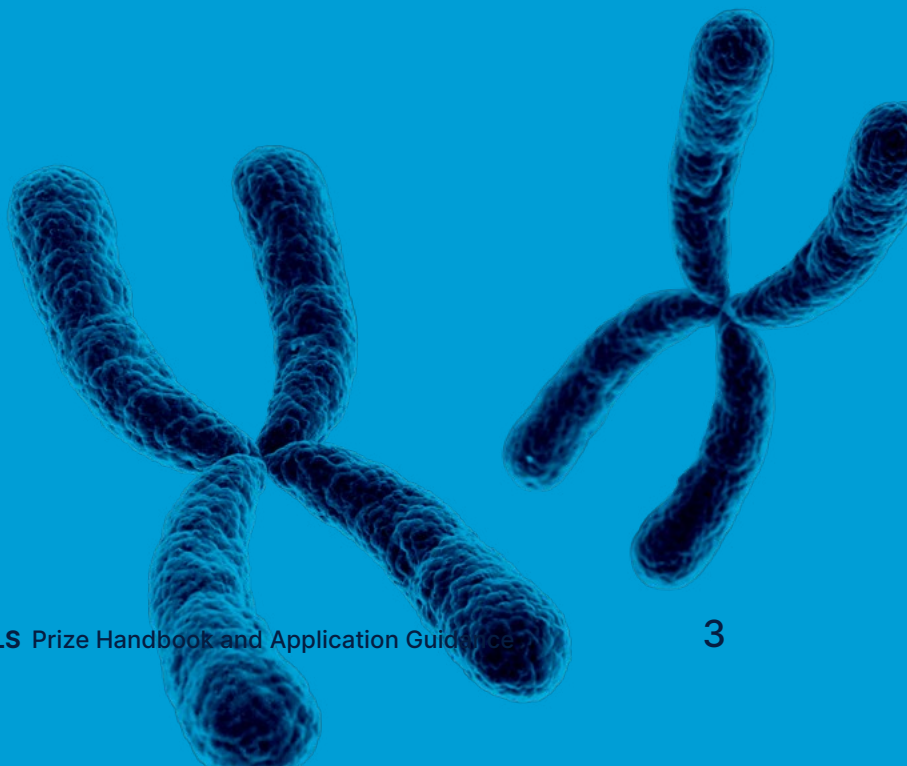


Section 1:
Introduction

Welcome to the Longitude Prize on ALS

The Longitude Prize on ALS is a £7.5m GBP [~$10m USD] international programme that seeks to incentivise the use of AI-based approaches to transform therapeutic discovery for the treatment of amyotrophic lateral sclerosis (ALS), the most common form of motor neurone disease (MND).

ALS is a serious and life-limiting disease with no cure. The complexity of the disease has meant that finding effective treatments for the majority of patients has been out of reach. However, with the advent of AI, we have seen promising new approaches to understanding complex diseases and faster therapy development across sectors. The Prize will bring these approaches to ALS, through you, our participating teams.

This 5-year Prize will see global multidisciplinary teams compete in a three-phased programme to identify, prioritise and validate high-potential therapeutic targets for ALS. To drive discovery, the Prize is working with data holders worldwide to make previously limited patient data more widely available to both academic and industry participants in order to power these cutting-edge approaches. Aside from funding, the Prize will support multidisciplinary teams by providing a wide range of resources, including robust datasets, computational power, technical expertise, and partnership opportunities.

We are looking for fresh thinking and the brightest minds across ALS, neurodegeneration, AI, computational biology, biotechnology and the pharmaceutical industry.

Join us in bringing AI to the fight against ALS.

The Longitude Prize on ALS team.

Who's involved

The Prize is principally funded by the Motor Neurone Disease Association, and designed and delivered by Challenge Works, supported by Nesta. It is also supported by a set of additional funders: Nesta, the Alan Davidson Foundation, My Name'5 Doddie Foundation, LifeArc, FightMND, Answer ALS, The Packard Center at Johns Hopkins University and The 10,000 Brains Project.

The Prize is also working with a range of global data and technology partners, including Project MinE, ALS Compute, Answer ALS, New York Genome Centre, ALS Therapy Development Institute, Amazon Web Services (AWS) and DNAnexus. Please see the website for more information on the Prize partners.

MND Association

The Motor Neurone Disease Association is the leading charity in England, Wales and Northern Ireland focused on funding MND research, improving access to care and campaigning for people living with or affected by MND.

Challenge Works

Challenge Works is a global leader in design and delivery of open innovation challenges that mobilise diverse, innovative thinkers to solve pressing problems and unlock change.

Nesta

Nesta is the UK's innovation agency for social good. It designs, tests and scales new solutions to society's biggest problems, changing millions of lives for the better.

Alan Davidson Foundation

The Alan Davidson Foundation supports a wide range of causes, including a strong focus on ALS/MND research, care and initiatives that help support those with disabling neurological conditions. The Foundation also supports architecture initiatives and the arts.

My Name'5 Doddie

My Name'5 Doddie Foundation aims to fund research into effective treatments for MND, investigate potential cures, and provide grants to help individuals with MND live as fulfilled a life as possible.

FightMND

FightMND is an Australia-based charity with a vision of a world free from MND. It works to raise awareness and fund vital research to improve the quality of life and find treatments and, one day, a cure for those living with MND.

LifeArc

LifeArc fund, collaborate and provide scientific expertise across some of the most under-served conditions: motor neurone disease, chronic respiratory infection, global health, rare disease, and childhood cancer.

Answer ALS

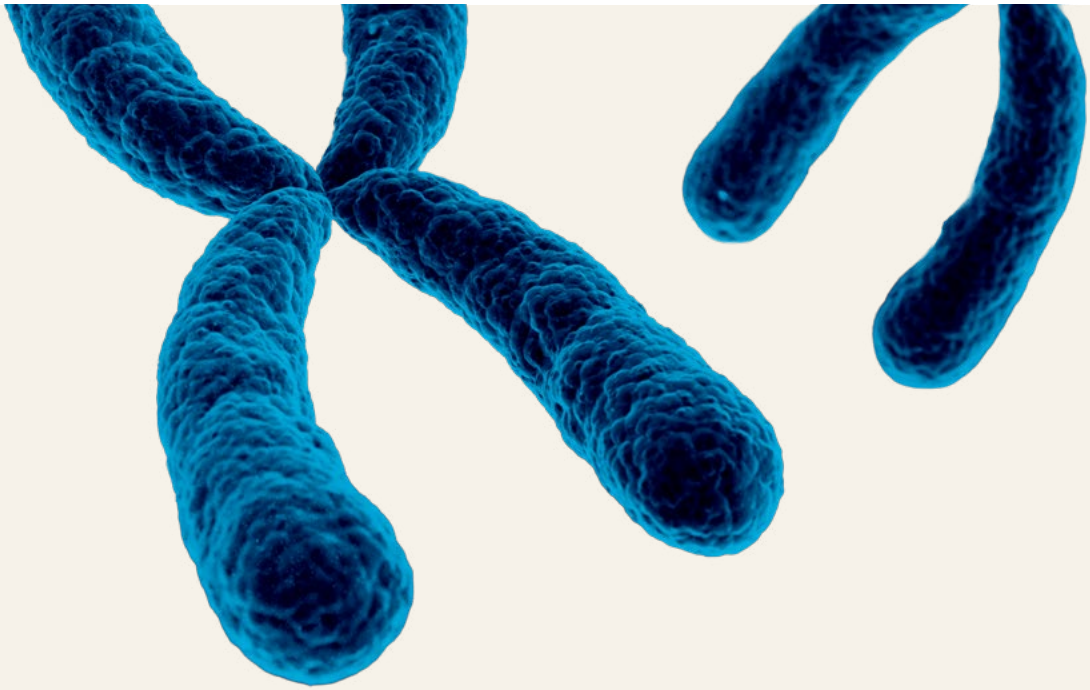
Answer ALS is a global nonprofit organisation committed to halting ALS/MND through driving innovation in research, science, technology, and education.

The Packard Center

The Packard Center, a research institute based at Johns Hopkins University, aims to empower collaborative and breakthrough research that advances our fundamental understanding of ALS by engaging and supporting the global research community.

The 10,000 Brains Project

The 10,000 Brains Project is a US-based nonprofit that is driving positive change by working across neurodegenerative diseases and harnessing the full potential of innovative tools and technologies to accelerate breakthroughs in earlier detection, better treatments, and more personalized care.



How to use this Handbook

This Handbook, along with the Frequently Asked Questions (FAQs), the Stage 1 Application Form and the Prize's Terms and Conditions (T&Cs), will provide you with all the information you need to enter the Prize, including:

- Background and objectives of the Prize;
- Prize structure and timeline;
- Who can apply to participate in the Prize;
- What is required at each stage of the Prize.

We strongly encourage all interested applicants to read the entire Handbook along with the full T&Cs before entering the Prize. If you have read the Handbook and the T&Cs and have further questions, please contact the team at als@challengeworks.org.

Section 2:
About the Longitude Prize on ALS

What is a Longitude Prize?

Longitude Prizes are a unique series of prizes that set the highest bar in incentivising world-changing innovation. The Longitude Prize for ALS is the third modern Longitude Prize, after the Longitude Prize on Antimicrobial Resistance (AMR) (awarded in June 2024), and the current Longitude Prize on Dementia (to be awarded in May 2026).

More information on the Prize series and the history of the original Longitude Prize (first established in 1714) can be found here.

Why are we running a prize on ALS and AI?

ALS (amyotrophic lateral sclerosis) is a fatal neurodegenerative disease with an average life expectancy post-diagnosis of just two to five years. It is the most common form of motor neurone disease (MND), in which messages from the motor neurones gradually stop reaching the muscles. This leads the muscles to weaken, stiffen and waste, which can affect how individuals walk, talk, eat, drink and breathe. Some people also get changes to their thinking and behaviour, but the disease affects everyone differently. Not all symptoms will affect everyone, nor in the same order. Symptoms also progress at varying speeds, which makes the course of the disease difficult to predict. There is no cure.

Although often described as a rare disease, incidence is not uncommon – according to the MND Association, a person's lifetime risk of developing MND is up to 1 in 300. For most patients, treatment is currently limited to one approved drug, Riluzole, which extends life by a matter of months.

In recent years, there have been significant advances in understanding the biology of ALS, including the discovery of new biomarkers and treatment pathways. Yet for the vast majority of those diagnosed, ALS remains an extremely life-limiting disease. Progress towards a treatment is slow – **the push for new treatments must continue at pace.**

Recent breakthroughs have shown promise, but the drug development process takes a long time (12-15 years), is expensive (on average costing $1-2 billion US dollars), and pharmaceutical companies are hesitant to invest as **there are still very few high-potential validated therapeutic targets.**

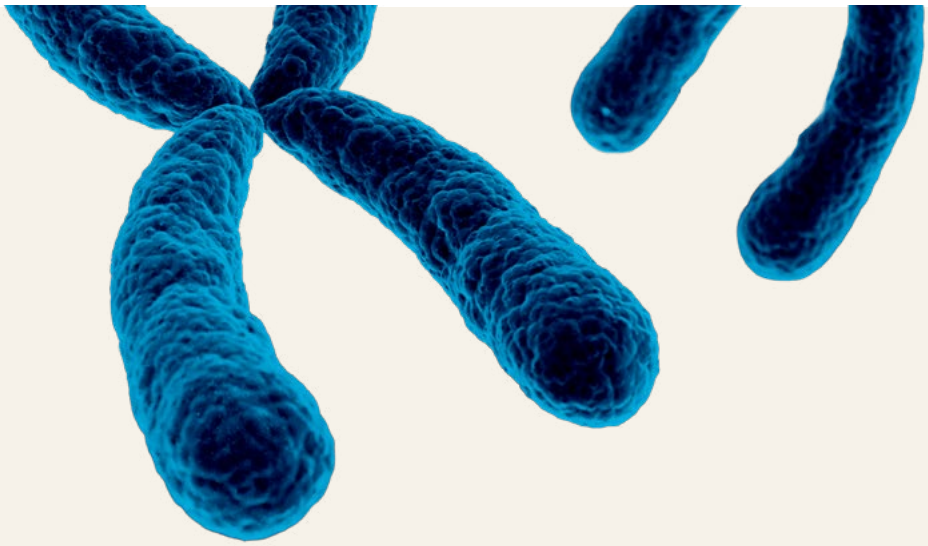
ALS is a hugely complex disease, but it is this complexity that lends the disease to AI-based target and therapeutic discovery, which could be much more impactful than traditional research methods in identifying and validating possible therapeutic targets for complex diseases.

AI has the potential to materially alter the economics of innovation for ALS, by finding and validating high-potential therapeutic targets at speed, reducing programme risk and attracting investment from industry. In other diseases, AI has successfully been used to de-risk drug programmes and attract investment from industry, but use of AI within ALS is currently very limited. Investment in AI for pharmaceutical development in oncology (27%) is more than twice that of neurological conditions (11%), highlighting a significant disparity in focus across therapeutic areas[1]. A major reason for this disparity is the **relative difference in data availability between disease areas.**

As the global ALS research portfolio has grown, more and more datasets have been created with a plethora of different data types. Many of these datasets remain out of reach to commercial entities, particularly in Europe, but analysis of such data may hold the key to truly understanding the disease and identifying promising new treatments.

To maximise the potential for AI-driven target discovery in ALS, the Prize will offer participants access to a unique dataset on an easy-to-use platform offering a powerful opportunity to discover and validate new therapeutic targets in this particularly challenging disease.

[1] Liu, X., Henaff, M., Meyer, M., Liu, B., & Sholz, A. (2023). *AI in Pharma for Personalized Sequential Decision-Making: Methods, Applications and Opportunities.* arXiv preprint arXiv:2311.18725. https://arxiv.org/abs/2311.18725



What are the aims of the Longitude Prize on ALS?

The Longitude Prize on ALS aims to open up data and harness the power of AI to accelerate the discovery and validation of promising therapeutic targets – paving the way for transformative new treatments for people living with ALS.

Specifically, the Prize aims to:

- **Deliver and validate new, high-potential therapeutic drug targets** through the use of cutting-edge AI (or provide new evidence for known but unvalidated targets).
- **Curate the largest datasets in ALS** and provide access to these data to all Prize participants, with compute power and technical support.
- **Build international, multi-disciplinary collaborations** across AI-focused biotechs, computational biologists and ALS/neurodegenerative disease researchers.
- **Raise awareness of ALS globally** and campaign for better use of patient data.
- **Build a deeper understanding of ALS biology** to the benefit of the scientific and patient community.
- **Raise investor interest** in the therapeutic potential of discoveries from the Prize.

Who are we looking for?

The Prize will award applicants from across medical research, biotechnology, computational biology and AI with bold ideas on how to harness the power of AI to identify and validate high-potential therapeutic targets for the discovery of transformative ALS therapeutics.

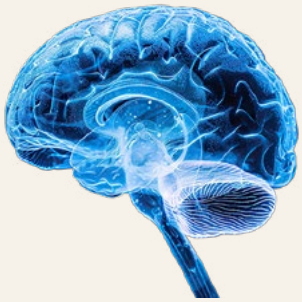
We are looking for:

- AI experts,
- Computational biologists and bioinformaticians,
- Neurodegenerative disease researchers and ALS researchers,
- Biotechnology, techbio and pharmaceutical companies,
- Data scientists and engineers,
- Clinical experts and medical researchers.

For your application to be successful, your team must demonstrate deep expertise across disciplines, including advanced computational biology and a robust understanding of ALS pathophysiology.

Please consult the eligibility criteria for Stage 1 in Section 3: Prize eligibility criteria, and refer to our FAQ for more information about the required expertise.

We encourage you to search for partners to complement your organisation's skillset and strengthen your application. The Prize can support you to connect with potential partners. For more information, read Section 5 and visit our website.



How is the Prize structured?

In this section, we provide an overview of the the Longitude Prize on ALS structure and what you can expect in the different stages, highlighting the key milestones and timelines you should consider as you plan your participation in the Prize.

Prize timeline and key dates

25th June 2025 — **Prize Launches**

3rd Dec. 2025, 3:00 pm GMT — **Stage 1 Applications Close**

Dec. 2025 - Mar. 2026 — **Assessment and Judging**

Apr. 2026 - Dec. 2026

Stage 1: Discover

20 teams will receive £100,000 to identify new high potential therapeutic targets.

Dec. 2026 — **Stage 2 Applications Close**

Jan. 2027 - Apr. 2027 — **Assessment and Judging**

May 2027 - Apr. 2028

Stage 2: Prioritise

10 teams will receive a further £200,000 to build the evidence base for their proposed therapeutic targets in silico and in the lab.

Apr. 2028 — **Stage 3 Applications Close**

May 2028 - Aug. 2028 — **Assessment and Judging**

Sept. 2028 - Aug. 2030

Stage 3: Validate

Five teams will receive £500,000 to undertake validation of the highest potential identified targets in the wet lab.

Aug. 2030 — **Winner Applications Close**

Sept. 2030 - Dec. 2030 — **Assessment and Judging**

2031

Winner Announcement

One winning team will be announced, winning £1,000,000 for finding the target with the strongest evidence of therapeutic potential.

**Please note these dates are indicative and subject to change.*

Prize stages

Stage 1: Discover

- Number of teams: 20
- Development time: 9 months
- Award per team: £100,000

The Prize will fund twenty interdisciplinary teams to identify novel therapeutic targets for ALS, or provide new evidence for known but unvalidated targets.

During a 9-month development period, teams will use AI-based methods to analyse datasets provided by the Prize and/or their own data sources. To ensure robustness and reproducibility, teams will be expected to replicate their findings. This stage will be entirely computational and supported through access to high-quality datasets, technical training, and a secure cloud platform with dedicated compute credits provided. Please see Section 4 for more information on the data and the support offered by the Prize for this Stage.

Towards the end of Stage 1, teams will be invited to submit an application for consideration in Stage 2. As part of this process, teams must shortlist and prioritise up to 10 therapeutic targets, compiling supporting evidence for each into a Therapeutic Target Pitch Deck, which will follow a standardised template. This template will correspond directly to the sections of the Therapeutic Target Development Objectives outlined under the "Development of Therapeutic Targets" criterion outlined in Appendix 1. Application guidance for the next stage – including the format of the Pitch Deck – will be provided ahead of time.

Please consult the eligibility criteria for Stage 1 in Section 3: Prize eligibility criteria. Please refer to our FAQ for information about the required AI expertise and what to do if you have already identified therapeutic targets for ALS.

Stage 2: Prioritise

- Number of teams: 10
- Development time: 12 months
- Award per team: £200,000

The Prize will fund 10 multidisciplinary teams of computational and wet lab scientists to apply mixed-method approaches that strengthen confidence in, and expand the evidence base for, the proposed therapeutic targets. This stage will involve both computational and wet lab analysis. Teams may continue to develop up to 10 targets submitted from Stage 1 and will further narrow this list based on emerging evidence. It is expected that most teams will choose to focus on one or a very small number of targets for progression to Stage 3.

At the conclusion of this stage, teams will need to submit another application to progress to Stage 3, submitting updated Pitch Decks with the latest data and rationale for which targets should move to full wet lab validation. Application guidance for this stage will be provided ahead of time.

Stage 3: Validate

- Number of teams: 5
- Development time: 24 months
- Award per team: £500,000

The Prize will fund five teams to carry out comprehensive wet lab validation of the most promising therapeutic target(s). While teams may choose to validate more than one target, they must ensure sufficient resources and scientific rigour to conduct effective studies. This stage is predominantly lab-based and aims to generate high-confidence data that can move targets closer to clinical application.

Throughout this stage, teams will be required to continue updating their Pitch Decks, integrating all new data and evidence generated from validation studies, to ensure a complete and compelling case for clinical advancement. Application guidance for the Winner Award will be provided ahead of time.

Winner Award

- Number of teams: 1
- Final Award: £1,000,000

The Prize will award one winning team who has demonstrated exceptional progress in validating therapeutic target(s) with the highest potential impact on ALS treatment.

Section 3:
Participating in the Longitude Prize on ALS

Prize eligibility criteria

The eligibility criteria explains who can enter the Prize.

- The prize is open to organisations worldwide including academic groups, companies or non-profits, as well as partnerships between these.
- Entries must be in English.
- Applicants must comply with the Prize Terms and Conditions.

Assessment and judging process

Who will assess my application?

All applications for Stage 1 of the Prize, as well as for subsequent stages, will be assessed against the set Judging Criteria by a pool of independent **Technical Assessors** and by the Prize's multidisciplinary **Judging Panel**, who will make decisions on which applications should move forward in the Prize.

The Technical Assessors

The pool of Technical Assessors will be composed of experts who will support the Judging Panel's decision-making throughout the Prize by conducting an initial assessment of applications and offering insights on the applicants' potential.

The Judging Panel

The Judging Panel will be composed of international experts who can collectively speak to the judging criteria of the Prize. This includes individuals with experience in the fields of ALS clinical research; broader neurodegenerative disease research; AI and biotechnology; pharmaceuticals; and drug discovery investment. The Judging Panel will make decisions on which applications should receive an Award and advance through the Prize.

The Longitude Committee

The Longitude Committee features experts from across the scientific and industrial world. The Committee is responsible for awarding the Winner Award for all Longitude Prizes, including the Longitude Prize on ALS. Please see more information about the Longitude Committee here.

How will my application be assessed?

The Prize's Judging Criteria

The Judging Criteria for the Longitude Prize on ALS are designed to measure progress towards the Prize's overarching aims. The Prize's Technical Assessors and multidisciplinary Judging Panel will evaluate all eligible applications against the judging criteria for each stage. **Throughout the Prize stages, the criteria will evolve** to reflect the increasing ambition and rigour required of competing teams.

Judging Criteria for Stage 1

Eligible applicants interested in entering Stage 1 of the Prize must demonstrate their ability to leverage advanced computational techniques to identify high-potential therapeutic target candidates (or provide new evidence for known but unvalidated targets for ALS) and show a strong commitment to pursuing their validation. At Stage 1, successful applications will excel at fulfilling the Judging Criteria outlined below. Please note that the different criteria will be weighted according to the percentage highlighted.

	Judging Criteria Stage 1	Weighting
1.	**Use of Innovative Computational Methods** The proposed approach should harness cutting-edge AI or computational biology techniques to uncover novel therapeutic targets – or groups of targets – for ALS (or provide new evidence for known but unvalidated targets for ALS).	30%
2.	**Multidisciplinary Expertise** Teams must demonstrate deep expertise across disciplines, including advanced computational biology and a robust understanding of ALS pathophysiology, to enable effective target discovery.	20%
3.	**Robust Scientific Rationale and Milestones** Applications should present a compelling, evidence-based rationale for the proposed approach, supported by a clear, milestone-driven plan that outlines how it will lead to novel target identification.	20%
4.	**Replication and Data Robustness** Applications must include strategies for validating target associations across alternative datasets to ensure the robustness, reliability, and translational potential of findings.	10%
5.	**Accelerated Pathway to Clinical Impact** Applications should prioritise translational potential, including opportunities for drug discovery or repurposing, with a focus on accelerating progress towards treatment for ALS.	10%
6.	**Leveraging Resources** Applications should demonstrate strong value for money and a clear plan for making effective use of all available resources and data, including core Prize support and any additional inputs such as external funding, unique datasets, or in-kind contributions.	10%

Judging Criteria for Stages 2, 3 and Winner Stage

In **subsequent stages**, the criteria will shift to focus on tangible progress through the therapeutic target discovery pipeline – specifically, the identification, prioritisation, and validation of therapeutic targets (see Judging Criteria Stages 2, 3 and Winner Award in Appendix 1). The level of detail required in applications will increase accordingly. Teams will be assessed on both the scientific merit and translational potential of their work. They will be required to clearly and persuasively document their progress and supporting evidence in an evolving Therapeutic Target Pitch Deck, which will follow a standardised template. This template will correspond directly to the sections of the Therapeutic Target Development Objectives outlined under the "Development of Therapeutic Targets" criterion outlined in Appendix 1. Detailed application guidance – including the format for the Therapeutic Target Pitch Decks – will be provided ahead of each application deadline.

The portfolio approach

Throughout all stages, the Prize will adopt a portfolio approach, aiming to strike a balance between advancing targets based on well-established research and pursuing high-risk candidates across the globe driven by innovative techniques and emerging discoveries.

While final scores will play a key role in guiding the Judging Panel, the ultimate decision regarding the portfolio composition, including the selection of teams and targets advancing to subsequent stages, will rest with the Judging Panel.

This approach ensures a diverse range of therapeutic targets with varying levels of novelty and development potential. Additionally, if multiple participants submit target shortlists with significant overlap, the Judging Panel may decide to select only the most promising candidate (or propose the teams to merge) to minimise duplication and maximise the potential for success. Minor overlaps involving one or two targets are unlikely to trigger this decision.

How will the Winner Award be awarded?

A £1m Prize will be awarded to the top-performing team at the conclusion of Stage 3 as determined by the Judging Panel. This team will have demonstrated exceptional progress in validating therapeutic target(s) with the highest potential impact on ALS treatment (as outlined in Appendix 1).

Overview of assessment and judging

Overview of Stage 1 Assessment Process

Submission of Applications

In Stage 1, Applicants will be evaluated based on their potential to harness AI to identify and prioritise up to 10 drug targets.

Applicants submit applications covering:

Their Team

Their Proposed Approach

Eligibility Screening

Non-technical Assessors do the initial screening against Eligibility Criteria and T&Cs.

Technical Assessment

In Stage 1, Technical Assessors will consider the potential of the described approach to support Judging Panel in their decision.

Judging Panel

Select 20 applications to become the Stage 1 cohort.

Overview of Assessment Process Stages 2, 3 and Winner Award

Submission of Applications

From Stage 2 onward, Applicants will be evaluated based on the work they have done to identify, prioritise and validate potential drug targets. Applicants must submit a new application to be considered for the next stages.

From Stage 2 onwards, Applicants will attach Pitch Decks for each of their drug targets and/or combination of targets containing the scientific evidence gathered to date.

Pitch Decks will be updated from Stage to Stage as new evidence comes to light.

Eligibility Screening

Non-technical Assessors do the initial screening against Eligibility Criteria and T&Cs.

Technical Assessment

From Stage 2, Technical Assessors will assess materials in two waves.

The first wave will assess the scientific evidence in the Pitch Decks in isolation and produce:

Colour-coded scorecards for each Pitch Deck.

The second wave will assess the Applications, including the Team, the Work, and the Plan to provide:

Team scores and recommendations.

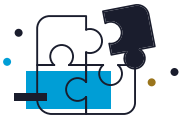
Figure 2: Cont.

Judging Panel

From Stage 2, Judges will also evaluate entries in two waves.

The first wave will evaluate the scientific evidence in the Pitch Decks to prioritise drug targets.

The second wave will focus on the Teams and their potential to carry out the next phase of the development.



Judges will apply a portfolio approach to selecting targets, spreading funds among different pathways, stage of development and risk profiles.

Only one team will be awarded the **£1 million pound final prize** to continue its advancement towards drug discovery and clinical application.

Intellectual property and dissemination of knowledge

The Prize believes in the importance of sharing research data, outcomes and findings, to ensure sufficient public benefit in line with the objectives of the Prize and the charitable objectives of Challenge Works, Nesta and the Prize funders. The Prize entrusts its participants with the financial support, data access, and other support provided through the Prize on the expectation that participants will apply these resources in a manner that maximises the ultimate benefits to the public and the scientific community. The Prize also acknowledges that eventual translation of results generated by prize winners to future interventions or products can be done successfully via commercialisation, which often requires protecting some intellectual property and results.

You will retain the ownership of any intellectual property in the work you generate during the Prize.

Positive results

You are strongly encouraged to publicly share positive data, outcomes and findings ("**positive results**"), but we respect your right not to do so to enable possible commercialisation in the future.

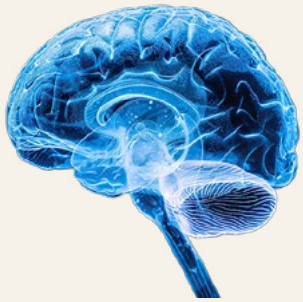
For teams awarded at Stage 3 and beyond, you may be required to grant a non-exclusive license to Challenge Works, Nesta or its nominee to use, develop and exploit the intellectual property rights associated with your positive results in the event such results have not been developed or exploited (or effective steps taken to do so) within five (5) years after the conclusion of the Prize.

We will also ask you to make best efforts to attend future events hosted by Challenge Works, Nesta or Prize funders and partners that intend to bring the Prize cohort together after the end of the Prize, to share knowledge and findings to contribute to the field.

Unpursued results and learnings

You will also be required to share negative data that you intend not to pursue in the future, general findings or outcomes, as well as any lessons learned ("**unpursued results and learnings**") from your participation in the Prize, with Challenge Works, Nesta within six months of the completion of the Prize. This will be done via a non-exclusive and sub-licensable license to enable Challenge Works, Nesta to share the information with others who can help disseminate and learn from your unpursued results and learnings.

You are strongly encouraged to broadly and publicly share unpursued results and learnings yourself and to do so at the earliest possible opportunity that is consistent with the T&Cs of the Prize.



Section 4:
What is on offer for Prize participants?

Financial support

Successful teams will be awarded funding at each stage of the Prize. The grant awards will be awarded to the institution of the lead applicant.

Stage	Grant Award
Stage 1: Discovery	£100,000
Stage 2: Prioritise	£200,000
Stage 3: Validate	£500,000
Winner Award	£1,000,000

Data offer for participants

Participants in the Longitude Prize on ALS will gain access to a wealth of high-quality, multi-dimensional datasets and robust technical support to drive innovative research and discovery. Below is a detailed description of what will be on offer to all participants in the Prize:

1. Whole Genome Sequence (WGS) data

Participants will have access to harmonised WGS datasets containing more than **9,000 ALS cases** and over **3,500 controls**, sourced from leading ALS research initiatives, including **Project MinE, ALS Compute, New York Genome Center (NYGC), Answer ALS and ALS Therapy development Institute**. These datasets will be harmonised and securely shared via a cloud platform, ensuring seamless access to high-quality genomic information.

2. Other multi-omics data

Beyond genome sequencing, participants will have access to comprehensive multi-omics data, which includes **epigenomics, transcriptomics, and proteomics data** for over **2000 cases**. These datasets will enable participants to explore novel molecular insights into ALS mechanisms, paving the way for deeper understanding and innovative target discovery.

3. Clinical data

Clinical information will accompany the genomic datasets, offering critical context for the biological data. This integration will empower participants to make meaningful correlations between genetic, molecular, and phenotypic data.

4. Openly available datasets

The Prize will also provide detailed descriptions and guidance on how to access additional publicly available datasets, such as data from **TargetALS, ProAct** and the **Gene Expression Omnibus (GEO)**. Participants will receive support on leveraging these datasets to complement their research efforts.

5. Bring your own data

Participants are welcome to bring their own datasets to the Prize, adding new perspectives to the research. They are encouraged – but not required – to share these datasets with other participants, fostering a spirit of collaboration while respecting individual preferences.

6. Technical training and support

The Prize will offer technical training and support in collaboration with our data partners. This includes guidance on navigating, analysing, and integrating datasets, tutorials and workshops on leveraging cloud-based platforms for Whole Genome Sequence (WGS) data analysis, direct support for troubleshooting and data interpretation.

7. Secure cloud platform

All harmonised datasets will be accessible through a secure cloud platform, ensuring compliance with data privacy regulations while enabling seamless analysis and collaboration. To support participants in making full use of these resources, the Prize will also provide cloud computing credits to help offset storage and compute costs, ensuring that financial limitations do not hinder meaningful research.

This combination of comprehensive data access, support, and flexible collaboration options will ensure participants have the tools and freedom needed to push boundaries in ALS research.

How to access the data

To ensure participant access to high-quality datasets while maintaining data security and ethical standards, all data provided through the Longitude Prize on ALS will be made available via a Trusted Research Environment (TRE), i.e. a secure, cloud-based platform that enables analysis without requiring data downloads or transfers. Participants will be required to obtain access to datasets either by:

- **Signing standardised data sharing agreements** with the relevant partner data holders and Challenge Works, or
- **Submitting formal access requests** through established data repositories (e.g., dbGaP for ALS Compute).

To streamline this process, the Prize team will provide:

- Templates and guidance for required agreements;
- Standardised documentation to ensure consistency across applications;
- Step-by-step instructions for requesting access to each dataset, and
- Pre-distributed agreements, where possible so your team can prepare ahead of time.

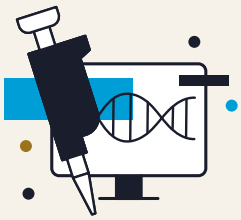
Dedicated support will be available throughout the process to assist with access logistics and troubleshooting.

Other participant support

Team profile building

Challenge prizes offer a plethora of communications opportunities to showcase your work and your organisation. Participants in the Prize will be given ample opportunities to take part in a range of media-facing and outreach events, e.g. conferences, talks and published writing.

Validation support



Stage 3 of the Prize requires wet lab expertise. To support participants without such expertise, the Prize will help to build partnerships between computational teams and those with wet lab expertise. In addition, the Prize aims to offer validation partners at Stage 3 to support the validation phase. More details will be released closer to the time.

Partnership building

The Prize aims to support teams with the onward development of their projects into drug discovery and beyond. To enable this translation, we will offer participating teams partnership and showcase opportunities with industry and investors further into the Prize lifecycle. More details will be released closer to the time.

Section 5:
How to apply?

1. Prepare for your application

Register on our website

Register to be a competing team, here. You will be asked to complete a simple form that captures key details about your team's expertise, helping us connect you with potential partners if you're seeking collaboration opportunities. It only takes a few minutes to complete. This registration is not mandatory, but we encourage you to complete it as it will help us engage with your team ahead of applications.

Attend our events

We also encourage all interested applicants to attend one or more of a range of events over the entry period in support of your application. These include:

- **Welcome webinars:** Members of the Prize management team will introduce the Prize, its aims and the application process. Two online sessions will run on the following dates:
  - **9th July, 2025 - 9:00 am BST (British Summer Time)**
  - **10th July, 2025 - 5:00 pm BST (British Summer Time)**

  Please consult further details here. These sessions will be recorded and uploaded to the Prize website.

- **Meet the team behind the Prize:** Over the course of the application period, the Prize delivery team will attend a range of relevant conferences and events. You can browse our events itinerary here. We would be delighted to meet and connect with you and your team before you submit your application.

- **Ask Us Anything webinars:** For applicants with specific questions, a number of online Q&A sessions on the Prize and how to enter will run closer to the deadline for applications. Please visit our events calendar for the latest updates on Ask Us Anything webinars.

- **Matchmaking events (online/in-person):** Aside from facilitating matchmaking through our website, the Prize aims to organise networking events to allow you to meet others interested in applying to the Prize and explore potential partnerships. Please visit our events calendar for the latest updates on matchmaking events.

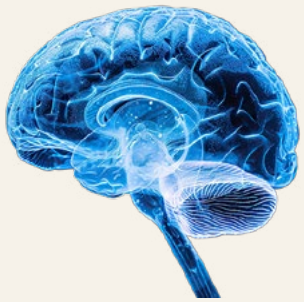
Explore the data landscape

Interested applicants will also be introduced to the Prize's data landscape through showcase events and workshops, providing valuable insights into the scope and structure of what will be available during the Prize.

Data Showcase webinar

Data holders and leading voices in ALS will come together to showcase the datasets and tools on offer through the Prize.

- Join our Data Showcase webinar (date TBC). Please visit our events calendar for updates.
- This session will be recorded and posted on the Prize's website.



Access data during the application window

Your team is also encouraged to explore openly available datasets to support early-stage discovery, ideation, and team formation. The following resources are accessible prior to formal selection, and provide real-world data and tools to begin exploring ALS biology.

1. Answer ALS data via NeuroMine and ADDI platform

Applicants can access rich clinical, multi-omics, and iPSC-derived datasets from over 1,000 ALS patients via the NeuroMine Data Portal, developed by Answer ALS. To support analysis, this data can be used on the ADDI (Alzheimer's Disease Data Initiative) Workbench, which provides free cloud-based computational workspaces.

A step-by-step access guide and required templates will be available on our website here.

2. ALS Compute data via dbGaP and Terra

The ALS Compute project provides access to harmonised WGS data from nearly 10,000 ALS patients, hosted via dbGaP and available for analysis through the AnVIL platform and Terra, a secure, cloud-based platform for biomedical data sharing and analysis.

Full access guides, application templates, and eligibility criteria for credits will be provided on our website here.

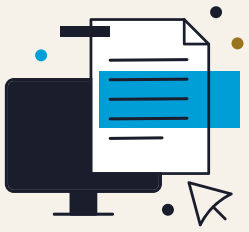
Explore the data

To support your application process, the Prize will also organise activities to enable your team to do a hands-on and collaborative exploration of some of the available Prize datasets and computational tools.

- Please visit our events calendar for the latest updates on upcoming data-exploration events.

2. Submit your application

All entries for 'Stage 1: Discover' must be submitted by **3rd December 2025 at 15:00 GMT (Greenwich Mean Time)**, using the application form available on the online portal Submittable. The lead applicants from the organisation leading any partnership or consortium will need to submit this form. Late applications will not be accepted.



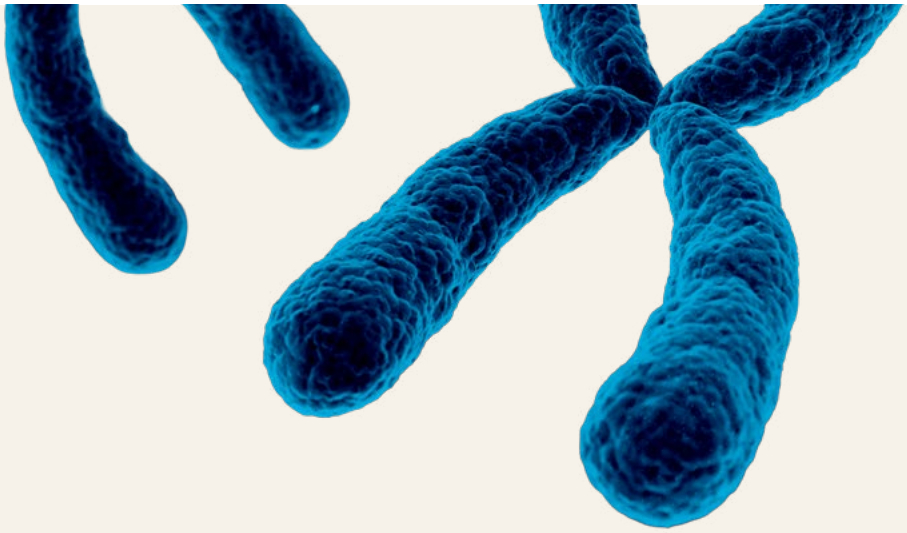
Click here for the application form

See Appendix 2 to consult core application questions (Part B) offline

Before submitting your entry, please ensure that:

- You have read and understood the Prize T&Cs and Privacy Notice;
- Your application is aligned with the aims of the Prize, guidance and the judging criteria;
- Your application meets the eligibility criteria to enter.

We are aiming to make sure the application process is as accessible, efficient and practical as possible. If you have any challenges with the application process or there are any reasonable adjustments that would support you to enter, catering for any additional needs you have, please contact us at als@challengeworks.org.



What's expected of me

Successful applicants will be expected to:

- Comply with the T&Cs of the Prize,
- Obtain – ahead of time – all authorisations and permissions necessary for receiving the grant award and conducting the proposed project plan,
- Sign a grant agreement at each Prize stage and commit to use the grant award to advance the proposed project across each Prize stage,
- Sign standardised data sharing agreements with the relevant partner data holders and Challenge Works, or submit formal access requests when required to access the data sets,
- Engage with key mandatory engagement sessions throughout the development period as laid out in the grant agreement,
- Engage with communication opportunities to promote their participation in the Prize, the Prize itself and its partners and funders,
- Provide reporting against their award as laid out in their grant agreement with the Prize,
- Undergo due diligence processes as required by the Prize.

Appendix

Appendix 1. Judging Criteria at Stages 2, 3 and Winner Award

In Stages 2, 3 and for the Winner Award, the Prize criteria will shift to focus on tangible progress through the therapeutic target discovery pipeline – specifically, the identification, prioritisation, and validation of therapeutic targets. The level of detail required in applications will increase accordingly. Teams will be assessed on both the scientific merit and translational potential of their work. They will be required to clearly and persuasively document their progress and supporting evidence in an evolving Therapeutic Target Pitch Deck, which will follow a standardised template. This template will correspond directly to the sections of the Therapeutic Target Development Objectives outlined under the "Development of Therapeutic Targets" criterion below. Detailed application guidance – including the format for the Therapeutic Target Pitch Decks – will be provided ahead of each application deadline.

The Judging Criteria will be based on the following: 1) Development of Therapeutic Targets; 2) Feasibility of Approach; and 3) Capacity to Deliver. Please find more details below:

1. Development of Therapeutic Targets

Applications should demonstrate meaningful progress in the identification, prioritisation, and validation of therapeutic targets for ALS. Successful applicants will integrate diverse and innovative forms of evidence to establish both the biological relevance of the targets and their potential for therapeutic development, in line with the Therapeutic Target Development Objectives outlined below.

Order of addressing objectives and collecting evidence

Participating teams are expected to progressively gather evidence and meet the outlined objectives. This process begins with AI-based identification and characterisation during the early stages and advances to wet lab experimentation by Stage 3 to strengthen the evidence base. Participants have the flexibility to determine the order in which these objectives are addressed and their respective evidence generated. They are also encouraged to propose alternative or innovative evidence to the Judging Panel that may improve current best practice or serve as equivalent to the outlined objectives.

Relevance and availability of information

Not all objectives will be relevant for every therapeutic target. For highly novel ALS targets, information in certain categories may be limited or unavailable. As such, participants are not expected to fulfil all objectives comprehensively – or in some cases, at all.

The Judging Panel will assess the quality of evidence presented for each Therapeutic Target Development Objective. Evaluation will not be based on the number of objectives addressed, but rather on the overall strength, relevance, and clarity of the evidence included in the Therapeutic Target Pitch Deck.

1.1 Computational Biology

- **Innovative in silico methods**
  - Develop and deploy state-of-the-art AI methods such as machine learning and data mining to advance the identification, prioritisation and validation of therapeutic targets.
- **Systems approach**
  - Integrate diverse scientific and clinical datasets to identify complex patterns that establish novel associations with possible therapeutic targets.
- **Molecular approach**
  - Use advanced models to predict and/or optimise the mechanistic and functional understanding of potential therapeutic target interactions and its modulation.

- **Drug repurposing**
  - Utilise computational models to identify existing drugs with potential for repurposing by analysing target binding profiles, disease pathways, and pharmacological networks.

1.2. Target association with ALS

- **Genetic association**
  - Identify if the target is linked to ALS-associated genetic mutations (e.g., C9orf72, SOD1).
  - Utilise large-scale methods such as genome-wide association studies (GWAS) or phenome-wide association studies (PHEWAS), next-generation sequencing (NGS), or other genomic approaches to establish links between the target and ALS.
  - Specify variant types (e.g., SNPs, insertions, deletions) associated with the target.
  - Assess the robustness of statistical correlations (e.g., p-values, confidence intervals).
  - Determine sample sizes and diversity of datasets to improve representation.

- **Biological relevance**
  - Establish the target's role in pathways implicated in ALS, such as oxidative stress, neuroinflammation, or mitochondrial dysfunction.
  - Validate differential expression or post-translational modifications of the target in ALS tissues (e.g., motor neurones, glial cells).

- **Epidemiological evidence**
  - Where possible, explore epidemiological data linking environmental or lifestyle factors to target modulation and ALS incidence.

1.3. Expression and localisation of the target

- **Cell type specificity**
  - Confirm expression of the target in motor neurones and supportive cells (e.g., astrocytes, microglia).
  - Use spatial localisation techniques (e.g., in situ hybridisation, immunohistochemistry, spatial transcriptomics).

- **Expression levels**
  - Assess RNA and protein-level expression in ALS versus healthy controls (e.g., via single-cell RNA sequencing, Western blotting, etc).
  - Evaluate expression dynamics throughout disease progression or under ALS-relevant stress conditions (e.g., oxidative stress).

- **Subcellular localisation**
  - Determine cellular compartmentalisation (e.g., nucleus, mitochondria) relevant to the target's function.

1.4. Mechanistic and functional evidence

- **Mechanism of action in ALS**
  - Formulate hypotheses on how the target contributes to ALS pathophysiology, such as mislocalisation, protein aggregation, or excitotoxicity.

- **Cellular models**
  - Use ALS-relevant models (e.g., iPSC-derived motor neurones) to modulate the target and measure effects on key phenotypes (e.g., survival, neurite outgrowth).

- **Animal models**
  - Employ ALS models (e.g., SOD1-G93A mice) to test target modulation impact on disease progression, motor function, and potential biomarkers (e.g., neuroinflammation, axonal degeneration).

- **Dose-response relationship**
  - Quantify therapeutic effects across a range of modulation intensities, defining the minimal effective and toxic doses with regard to therapeutic index.

- **Relevance to other neurological diseases**
  - Identify target involvement in other neurodegenerative conditions to explore potential cross-disease applications and mechanistic overlap.

1.5. Feasibility of druggability and tractability

- **Therapeutic modality**
  - Assess which modalities (e.g., small molecules, antibodies, antisense oligonucleotides) are best suited for target modulation and any considerations for therapeutic delivery and pharmacology.

- **Structural information**
  - Utilise structural biology (e.g., cryo-EM, AlphaFold, crystal structures) to identify binding sites and guide drug design.

- **Target accessibility**
  - Determine whether the target can be accessed in vivo, considering barriers such as the blood-brain barrier or intracellular compartmentalisation.

- **Existing modulators**
  - Identify available tool compounds, inhibitors, or agonists for proof-of-concept studies.

- **Drug repurposing**
  - Evaluate whether approved therapeutics or late-stage candidates for other diseases can modulate the target.
  - Assess the safety and efficacy of repurposed drugs using existing preclinical or clinical data.
  - Where possible, consider repurposing opportunities if the target mechanism overlaps with known pharmacological actions of existing therapeutics.

- **Safety**
  - Evaluate potential side effects from modulating the target, based on physiological roles or known toxicities.

1.6. Clinical and population relevance

- **Relevant patient populations**
  - Identify subgroups of ALS patients (e.g., familial vs. sporadic) most likely to benefit from target-based therapy.
  - Investigate potential biomarkers for monitoring and stratifying patients based on target expression or activity.

- **Relevance to broad ALS mechanisms**

  - Where possible, consider targets with roles in universal ALS mechanisms (e.g., neuroinflammation, proteostasis) to maximise therapeutic reach.

1.7. Strategic assessment and competitive landscape

- **Intellectual property (IP)**
  - Assess IP constraints or freedom-to-operate issues, including existing patents on similar molecules or techniques.
  - In the case of repurposing opportunities, is an agreement needed with the originating IP owner if that asset is still under patent.

- **Differentiation from clinical pipeline**
  - How would a therapeutic for this target differentiate from other candidates in development for ALS? This is especially relevant in cases where advanced candidates are thought to modulate the same pathway/mechanism.

- **Innovative potential**
  - Explore novel or less-studied targets that might offer unique therapeutic avenues, even if initial evidence is less robust.

2. Feasibility of approach

Projects must be underpinned by a clear and realistic plan, with well-defined objectives, expected outcomes, and execution steps. Strong applications will anticipate potential risks and outline appropriate mitigation strategies across all stages of the development roadmap.

3. Capability to deliver

Teams should show a strong understanding of the multidisciplinary expertise and resources required to deliver impact – from computational discovery to biological validation and translational development. Applications should reflect both the current capability of the team and a plan to evolve or expand it as needed through the project lifecycle.

Appendix 2. Stage 1 Application form (Part B)

Please consult full application form for Stage 1 in Submittable. Part B of the application form has been included below to facilitate offline review of core application questions. Please note that Part A (Applicant Details); Part C (Additional Information) and Part D (Declaration) have not been included below.

Part B: Your Application

We will use this information to assess your application against the Judging Criteria outlined in the Handbook.

Guidance on attachments: The form will indicate the sections where you are allowed to attach supporting documents. Please follow guidelines; documents that do not meet the criteria will not be considered.

*Guidance on referencing: T*he form will indicate sections where you will need to include references to substantiate key assertions and claims. Please use direct citation format with numbered references immediately following the relevant text (e.g. "Lorem ipsum dolor sit amet [1]"). Do not use author-date citations like "(Smith, 2023)" as these count toward your word limit.

Please compile all references into a single, comprehensive list. Include this complete reference list in the Supporting Documents section of your application, numbering your references consecutively [1], [2], [3] in order of appearance. We recommend using Harvard referencing style.

B.1 Summary

#	Question	Word Limit
1	Project title	10 words
2	Explain your proposed project in a few sentences	100 words

B.2 Judging Criteria (Stage 1)

#	Question	Word Limit
	Criterion 1: Use of Innovative Computational Methods	
1.1	Describe the AI or computational biology methods your team will use. How are these approaches novel or state-of-the-art in the context of therapeutic target discovery for ALS? Please include evidence for AI/ML model validation and benchmarking, as well as robust scientific evidence and peer-reviewed references to substantiate key assertions and claims	**500**
	Criterion 2: Multidisciplinary Expertise	
2.1	Provide an overview of your team's expertise across ALS biology, target identification, computational biology and Artificial Intelligence. How does your team combine multidisciplinary knowledge in the relevant fields to achieve your project's outcomes? Provide a one-page CV for each key team member from both the lead organisation and partner organisation(s).	**500**
2.1	Please address any gaps in expertise you envisage and how you plan to overcome them.	**200**
	Criterion 3: Robust Scientific Rationale and Milestones	
3.1	What is your hypothesis for this project, and what data or evidence-based rationale underpins it? Include robust scientific evidence and peer-reviewed references to substantiate your key assertions and claims.	**500**
3.2	Provide an overview of key milestones, outlining how you expect your work to lead to the identification of novel ALS targets.	**300**
	Criterion 4: Replication and Data Robustness	
4.1	Describe your strategy for testing the reliability of your results. How will you replicate target associations using alternative datasets or methods to ensure robustness and reliability? Please include robust scientific evidence and peer-reviewed references to substantiate key assertions and claims.	**500**

#	Question	Word Limit
	Criterion 5: Accelerated Pathway to Clinical Impact	
5.1	Describe the potential of your work to inform treatment development. How could your approach accelerate therapeutic discovery, including any opportunities for drug repurposing? Please include robust scientific evidence and peer-reviewed references to substantiate key assertions and claims.	**500**
	Criterion 6: Leveraging Resources	
6.1	Describe how you plan to use the core support provided by the Prize (e.g. funding, data access). How will you ensure these resources are used effectively and efficiently to deliver progress towards your therapeutic target(s)? Describe any additional resources or support you envision requiring in addition to the funds and support the prize will provide.	**500**
6.2	Will you draw on any additional resources to support your work (e.g. other funding, proprietary or unique datasets, in-kind contributions such as lab time, equipment, or personnel)? If so, please describe these resources and how they will strengthen your proposed approach.	**300**
	Supporting documents	
	Include complete reference list, numbering your references consecutively [1], [2], [3] in order of appearance. We recommend using Harvard referencing style.	List of references
	You can attach up to one document with figures to support your application.	Up to 4 (A4) pages maximum, font size no smaller than 12pt

LONGITUDE PRIZE | ON ALS

Principally funded by

mnda
motor neurone disease association

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