**Longitudinal European Autism Project (AIMS-LEAP) External Data Access Information, Policy and Procedure Note**

**Version:** 1, 22nd November 2024.

**Overview of AIMS-LEAP**

The EU-AIMS/ AIMS-2-TRIALS Longitudinal European Autism Project (henceforth AIMS-LEAP) is a multi-centre, multi-disciplinary longitudinal observational study. LEAP includes over 800 participants – approximately 430 autistic participants, 300 with typical development or intellectual disabilities, and 100 twins concordant or discordant for autism (and one or both biological parents, where possible).

The overall study goals are to:

* Identify biological markers (“biomarkers”) that may help us to subdivide autistic people into clinically relevant biological subgroups.
* Map different aetiologies to their linked mechanisms and clinical features.
* Identify, validate, and use biomarkers to predict how different autistic people develop over time, or to predict which targeted support or interventions may be most beneficial for particular autistic people.

From 2014-2016, participants were enrolled in the study between the ages of 6 to 30 years. They were recruited at seven European study sites in the United Kingdom (King’s College London, University of Cambridge), the Netherlands (Radboud University Medical Centre Nijmegen, Utrecht University Medical Centre), Germany (Central Institute of Mental Health, Mannheim), Italy (University Campus Bio-Medico, Rome) and Sweden (Karolinska Institute, Stockholm).

During the wave 1 visit, in-depth information was collected about each participant, including assessment of clinical profile (core autism features and co-occurring mental health symptoms), functional outcomes, behavioural and cognitive profile (using cognitive measures and eye-tracking), brain development and function (using EEG, structural and functional MRI, DTI), biochemical markers, environmental factors, and genetics/genomics. Between 2016 and 2018, the majority of participants were tested again on the same measures, and, between 2021 and 2024 they were being invited back for a third assessment timepoint with a subset of the same measures and some that are novel (e.g., sensory psychophysics, MRS).

The measures and methodologies included in LEAP were selected in consultation with the European Medicines Agency (EMA). A summary of the study protocol and overview table of measures included in waves 1 and 2 can be found online (https://www.eu-aims.eu/press-and-publications/eu-aims-leap-study-protocol-sop/) and have also been published (please see Loth et al. 2017; Charman et al. 2017). A summary of the study protocol and measures from wave 3 is available here: [OSF | AIMS Longitudinal European Autism Project](https://osf.io/mxnf8/).

LEAP waves 1 and 2 were conducted under the auspices of EU-AIMS. Wave 3 was conducted as part of AIMS-2-TRIALS. Both EU-AIMS and AIMS-2-TRIALS are funded by the Innovative Medicines Initiative (IMI; now Innovative Health Initative, IHI); an EU public-private partnership funding health research and innovation.

**External data access policy**

AIMS LEAP data provide a rich resource to advance scientific knowledge, generate new hypotheses and test existing ones, apply novel analyses methods, and promote data pooling and replication. Unlike many other consortia or research initiatives of this scale, however, AIMS LEAP was designed and funded as a dedicated research project, rather than as a data exchange effort.

Each assessment wave involves substantial efforts by LEAP investigators (including junior researchers) to collect the data, carry out consent, data confidentiality and GDPR compliance checks, conduct quality control procedures, pre-processing, annotation of metadata, and preparation of accompanying documentation to generate high-quality data. Together, these procedures can take 12 to 24 months after data collection is completed.

Our external data access policy reflects our commitment to data sharing following the highest possible ethical standards. It also reflects the commitment by AIMS-LEAP investigators to share rich, high-quality data with the wider scientific community, while allowing a protected time for internal investigators (including junior scientists, PhD students, postdocs involved in data collection and/or preprocessing) to analyse data as part of their training, and/or test primary hypotheses related to the overall study goals. This is important, since early career investigators must have the opportunity to develop both data collection and analysis skills; and therefore, data sharing efforts need to provide ‘return on investment’ for those who spend time learning data collection skills. This provides a model for the broader scientific and autism research field in terms of growing the next generation of future leaders – part of the AIMS-2-TRIALS Early Career Researcher Autism Network sustainability strategy.

Therefore, pre-processed data will be made available for external access requests in the following stages:

* Wave 1 and 2 phenotypic data (including pre-processed clinical, behavioural, cognitive, eye-tracking, EEG, SNP/CNV, structural, functional MRI, and DTI data) will be released first from Q4 of 2024, alongside detailed documentation.
* Note that funding for genetic analyses was only secured during the lifetime of the project. Consequently, genomic data were only released to internal investigators in June 2020. Whole genome sequence data is not yet processed. Release date will be announced at a later date.
* Remaining AIMS-2-TRIALS data, including LEAP Wave 3 data that is currently undergoing internal quality control checks, will be released subsequently, and this is currently planned for Summer 2025.

Our external data access procedures extend the commitment to curated access through project pre-registration; a procedure that has been used for all analysis projects by AIMS-LEAP internal investigators. Project pre-registration is necessary: 1) to ensure ethical standards are upheld; 2) to ensure that research responds to the perspectives and priorities of the autism community; 3) to avoid duplication of effort; and 4) to enable the identification of how different projects, datasets, and methodological standards may produce overlapping or differential findings and reduce false positives and negatives.

**Who can apply for external data access?**

To apply for external data access, investigators need to be affiliated to a University, research institute, or registered company (and/or a professional body with a robust code of ethical conduct) to ensure compliance with European data security, ethical and legal standards. You must provide your Institutional/organisational contact details (e.g., email address) for your application to be considered, not your personal contact details.

To initiate the application process, you must log in to the ELIXIR Luxembourg Data Catalog (<https://datacatalog.elixir-luxembourg.org/>), where you will find the AIMS-LEAP project proposal template. If your project proposal is approved, the Principal Investigator for your project and signing authority for your Institution/organisation will be required to sign the Data Use Agreement with ELIXIR Luxembourg. All researchers in your team will be required to read and acknowledge each point of the AIMS Data Access Policy.

**Is data access free?**

At this stage, there is no fee for AIMS-2-TRIALS data access. Please note that this point is under continued review, as supporting external data access was not included in the original AIMS grant funding and incurs costs linked to administrative costs for data extraction, database maintenance, and curation.

**How can I apply for external data access?**

1. Log in to the ELIXIR Luxembourg Data Catalog (<https://datacatalog.elixir-luxembourg.org/>).
2. Submit your project proposal to ELIXIR Luxembourg using the AIMS-LEAP project proposal template provided (based on Open Science Framework).

Our project proposal template includes sections for administrative information (e.g., project title, team, research questions), a lay summary of the project, ethical approval information, technical details (including hypotheses, sample, measures, statistical approaches), a streamlined data management plan, and information about engagement with the AIMS Consortium Principles (please see the AIMS LEAP Project Proposal Form).

1. Application review is performed by the AIMS LEAP Project Review Committee (PRC).
2. Notification of review outcome via ELIXIR (approved, not approved, more information required) is sent to the applicant(s) within 30 days (or 45 days if the application is submitted from a high-risk country where additional due diligence checks are mandatory for data security purposes).
3. If the application is approved, the Principal Investigator and signing authority for the Lead Institution(s) sign(s) the official Data Use Agreement with ELIXIR (GDPR compliant), which is a binding agreement between your research team’s Institution and UL/LCSB’s representatives acting both in its own name and on behalf of AIMS-LEAP. We reserve the right to revoke data access if any of the points in the Data Use Agreement and/or Data Access Policy are breached.

If your application includes (an) Institution(s) outside of the European Economic Area, to ensure compliance with local data protection regulations, the Data Use Agreement will be extended with Standard Contractual Clauses, as required.

If your project proposal includes investigators from different institutions who will access the data, the Principal Investigator and signing authority for each Institution must sign the Data Use Agreement, or a lead institution (‘Data Controller’; covering all investigators) has to be explicitly assigned.

Please note that, for investigators who change institution or leave academia during the course of the project, a new agreement has to be made with the new institution; in the interim the project will be put on a ‘wait list’ and data access rights may be revoked.

1. Every Investigator in the project team reads and acknowledges the AIMS Data Access Policy.
2. If access is granted, the requested data can be downloaded via the Data Catalog. Summary details of your project might be registered on the ELIXIR website, and on the AIMS-2-TRIALS website.
3. After completion of your project, we strongly encourage you to share processing/analytical code/metadata with the community (e.g., on OSF or Github).

As part of our Data Access Policy, we will ask you to acknowledge our publication policy and to report the date of the downloaded dataset used for analysis in any written/published work.

***Who reviews the application?***

Project proposals will be reviewed by the AIMS-LEAP Project Review Committee (PRC). The PRC currently comprises the following members (which may change from time to time):

Autism Community Representatives

Prof Declan Murphy (Director AIMS-2-TRIALS)

Dr Julian Tillmann (EFPIA Lead, AIMS-2-TRIALS)

Prof Jan Buitelaar (Lead LEAP, Site PI, Radboud University Nijmegen Medical Centre)

Prof Eva Loth (Deputy Director, AIMS-2-TRIALS, Co-Lead LEAP)

Prof Simon Baron-Cohen (Site PI, University of Cambridge)

Prof Sarah Durston (Site PI, University Medical Center Utrecht)

Prof Tobias Banaschewski (Site PI, Central Institute of Mental Health, Mannheim)

Prof Antonio Persico (Site PI, University Campus Bio-Medico, Rome)

Prof Sven Bölte (Site PI, Karolinska Institute)

Prof Emily Jones (Birkbeck College, Ethics Management)

Depending on the data types/ methods requested, requests will also be reviewed by one or more of the following Core Analysis leaders and their teams:

Prof Tony Charman (Analysis Lead, clinical characterisation)

Prof Jan Buitelaar, Dr Bethany Oakley (Analysis Lead, co-occurring conditions)

Prof Christian Beckmann (Analysis Lead, resting-state fMRI)

Prof Christine Ecker (Analysis Lead, structural MRI)

Prof Andreas Meyer Lindenberg, Prof Heike Tost (Analysis Lead, task-related fMRI)

Prof Mark Johnson, Prof Emily Jones, Dr Luke Mason (Analysis Lead, EEG)

Prof Mark Johnson, Prof Emily Jones, Dr Luke Mason: (Analysis Lead, eye-tracking)

Prof Thomas Bourgeron: (Analysis Lead, Genetics/ Genomics)

Prof Eva Loth (Analysis Lead, cognition)

Dr Charlotte Tye (Analysis Lead, TSC2)

Dr Jonathan O’Muirchearthaigh (Analysis Lead, epilepsy)

For specific queries regarding the LEAP dataset, you may contact the relevant Core Analysis lead (listed above), who will pass on your query to a nominated researcher with expertise in the dataset. If your query is substantial, you may be invited to form part of an official collaboration with AIMS-2-TRIALS researchers.

***What are the data access request review criteria?***

The data access request review process is not intended as a comprehensive scientific review of the scientific merit of the project proposal. Our specific review criteria include:

* The data will be used for a project that is in compliance with the original ethics consent language provided by participants and with our Consortium Principles (please see AIMS LEAP Project Proposal Form). Please be aware that you are responsible for securing and complying with relevant local ethics approvals/code of conduct and you must submit proof of ethics approval/code of conduct for your proposed analyses in the project proposal form.
* The project will address one or more specific scientific aims, and project description includes sufficient details of the planned analysis methods to address those aims – similar to the level of information provided in an abstract for a scientific journal – and using the template provided. The scope of the project should be similar to one typical scientific publication, as opposed to a research programme. The request for access to AIMS-LEAP data will only be approved for the indicated use of the data (i.e., if you wish to substantively alter your proposed approaches, you must resubmit/update your project proposal).
* The described project does not duplicate an existing project (as identified in the summary details of existing/ongoing projects using LEAP data, available on ELIXIR-LU/AIMS-2-TRIALS websites), except if the proposal addresses computational reproducibility (“multiverse analyses”). The purpose of this is to ensure that both AIMS internal and external investigators (including junior scientists, such as PhD students, postdocs) will be able to complete and publish their project without duplication of efforts. However, there may be instances where different/complementary analysis approaches to the same or similar research question are valuable.
* Evidence that downloaded AIMS-LEAP data will be stored securely (assessed through review of the Data Management Plan within Section 3 of the LEAP Project Proposal template).

**AIMS LEAP Data Access Policy**

For approved data access requests, each member of the project team must acknowledge that they have read and understood each point of the AIMS-LEAP Data Access Policy, as follows:

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|  | Initial to acknowledge |
| 1. I will receive access to de-identified data and will not attempt to establish the identity of, or to contact, any LEAP study participants, nor make direct contact with LEAP PIs/staff concerning results of individual participants. |  |
| 2. I will accurately provide all information requested in the project proposal, including all planned analyses and persons who will use the data. |  |
| 3. I will promptly submit an amendment should there be any substantial changes in the scope, methods, or goals of the original project description. I understand that these changes will require review and approval by the AIMS-LEAP PRC before proceeding with analyses. |  |
| 4. I will promptly inform ELIXIR of any change(s) to investigators, including new/additional investigators, and changes in the affiliation(s) of investigators. Any new/additional investigators will need to acknowledge this Data Access Policy before proceeding. I will not share the requested dataset, in whole or in part, with anyone, including other researchers inside or outside my institution, except those named in the Data Access Request. |  |
| 5. I will carefully consider the ethical implications of my research project and comply with any rules and regulations imposed by my institution and its institutional review board in requesting these data. I understand that I am responsible for securing and complying with relevant local ethics approvals and must submit proof of ethics approval/code of conduct for all proposed data analyses on application for data access. AIMS-LEAP will not be liable for my (nor my research teams’) use of the requested dataset. |  |
| 6. I will acknowledge AIMS-LEAP as the source of data, the AIMS funding sources, and the role of ELIXIR Luxembourg as follows:  “*Collection of the data reported in this manuscript was supported by EU-AIMS (European Autism Interventions), which received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement no. 115300, the resources of which are composed of financial contributions from the European Union’s Seventh Framework Programme (grant FP7/2007-2013), from the European Federation of Pharmaceutical Industries and Associations companies’ in-kind contributions, and from Autism Speaks; as well as AIMS-2-TRIALS which received support from the Innovative Medicines Initiative 2 Joint Undertaking under grant agreement No 777394. This joint undertaking receives support from the European Union's Horizon 2020 research and innovation programme and EFPIA and AUTISM SPEAKS, Autistica, SFARI. The views expressed are those of the author(s) and not necessarily those of the IMI JU-2. Data presented in this article were derived from a dataset obtained from ELIXIR Luxembourg Data Catalog (https://datacatalog.elixir-luxembourg.org/)."* |  |
| 7. Acknowledgement of AIMS-LEAP will not be cited in the authorship line. If I publish manuscripts using AIMS-LEAP data, on the by-line of the manuscript, after the named authors, I will include the phrase:  “*AIMS-LEAP data were used in preparation of this article. As such, the investigators within the AIMS-LEAP Group contributed to the design and implementation of LEAP and/or provided data but did not participate in analysis or writing of this report.”* |  |
| 8. As the database will be periodically updated, I will note the version of the data I download in any outputs. I will also include language similar to the following in the methods section of my manuscript(s):  “*Data used in the preparation of this article were obtained from EU-AIMS/AIMS-2-TRIALS LEAP via the ELIXIR Luxembourg Data Catalog (https://datacatalog.elixir-luxembourg.org/). LEAP is multi-centre multi-disciplinary longitudinal study. The primary goal of LEAP is to identify biological markers (“biomarkers”) that may help us to subdivide autistic people into clinically relevant biological subgroups to predict how different autistic people develop over time, or to predict which targeted support or interventions may be most beneficial for particular autistic people. For up-to-date information, see https://www.aims-2-trials.eu/.”* |  |
| 9. I will use autism respectful language, as developed by the AIMS-2-TRIALS Communications Team [[Language](https://www.aims-2-trials.eu/language/)]. |  |
| 10. I will follow all of the terms, including data handling/security, set out in the Data Use Agreement (and the national legislation of my own country) and ensure that appropriate administrative, physical, and technical safeguards are implemented to prevent use or disclosure of the data other than as provided for by the Data Use Agreement. |  |
| 11. I will report any use or disclosure of the data not provided for by the Data Use Agreement within 15 days of becoming aware of such use or disclosure. Reports of data breaches shall be made to the ELIXIR Luxembourg through <https://databreachreport.lcsb.uni.lu> and I will fully cooperate with any requests to remedy the issue as soon as reasonably practicable. |  |
| 12. In the case that I am contacted by ELIXIR Luxembourg about a participant consent withdrawal, I will remove that individual from my dataset for any analyses not yet completed. |  |
| 13. I will securely destroy any datasets when my approved project ends, and the Data Use Agreement terminates. |  |
| 14. The methods used in the generation of derived data deposited on this database are expected to evolve over the forthcoming years. Therefore, I understand that any processed data that I download might be preliminary and that results may change as new methods of analysis are implemented. I will familiarise myself with the processing/analysis methods, so that I am aware of the limitations of these data prior to using them for scientific purposes. |  |
| 15. I understand that me/my team(s) are strongly encouraged to share processing/analytical code/metadata with the community (e.g., OSF/Github). |  |
| 16. I agree that information about my project will be published on the ELIXIR Luxembourg and AIMS-2-TRIALS websites. |  |
| 17. I understand that failure to abide by these guidelines will result in termination of my privileges (including future requests by me/my research team(s)) to access AIMS-LEAP data and/or datasets in the ELIXIR Luxembourg platform. |  |
| 18. Any commercialisation of any Generated IP shall be subject to prior written consent of the Data Provider and, if deemed required, an appropriate revenue-sharing agreement will be negotiated between the parties on fair and reasonable terms. Data Users must contact and inform the Data Provider before they intend to commercialise any Generated IP. |  |