NCP-Net 2.0 Health Research Infrastructures
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www.elixir-europe.org
Content

- ELIXIR Overview
- ELIXIR Services for LS Users
- How to Engage with ELIXIR (EC & IMI)
“Coordinates, integrates and sustains bioinformatics resources across its member states and enables users in academia and industry to access services that are vital for their research.”
The changing landscape of life science research

- Refining the landscape for secure data sharing
- Access to FAIR data enabling reuse
- Describing rich biological data at all scales
- Genomes linked to phenotypes for large populations
- Translating open data through bioinformatics for the bioeconomy

https://www.elixir-europe.org/about-us/what-we-do/elixir-programme
ELIXIR Assets

- ELIXIR has reached critical mass:
  - Distributed International infrastructure through **23 Nodes**
    - Reaching **over 200 institutes**
  - Joint scientific direction through 23 national node directors (**HoN committee**)
  - Fully distributed infrastructure coordinated by **ELIXIR Platforms ExCos**.
  - Validation and uptake of ELIXIR infrastructure services by **ELIXIR Communities**

- Strong implementation mechanisms:
  - Legal framework for coordinated transnational actions
    - ELIXIR Technical Programme (Implementation Studies)
  - Experience operating large infrastructure grant consortia
ELIXIR Technical programme. Implementation Studies

Transnational services to support the needs of LS Scientist

ELIXIR Technical Infrastructure

ELIXIR Communities

ELIXIR Technical Programme

Data
Compute
Training and Skills
Interoperability
Tools
Content

• ELIXIR Overview

• ELIXIR Services for LS Users

• How to Engage with ELIXIR (EC & IMI)
ELIXIR Services

Currently 149 high-quality life science services providing a wide coverage of life scientist needs

Sustained by ELIXIR Nodes

https://www.elixir-europe.org/services
European data resources that are of fundamental importance to research in the life sciences and are committed to the long-term preservation of data.

- ArrayExpress
- BRENDA
- CATH
- ChEBI
- ChEMBL
- EGA
- ENA
- Ensembl
- Ensembl Genomes
- Europe PMC
- Human Protein Atlas
- InAct
- Mint
- InterPro
- PDBe
- PRIDE
- SILVA
- STRING-db
- UniProt

https://www.elixir-europe.org/platforms/data/core-data-resources
Data Platform.
ELIXIR Deposition Databases

Repositories recommended for the deposition of life sciences experimental data.

- ArrayExpress
- BioModels
- BioSamples
- BioStudies
- EGA
- EMDB
- ENA
- EVA
- IntAct
- MetaboLights
- PDBe
- PRIDE

https://www.elixir-europe.org/platforms/data/elixir-deposition-databases
EGA Example for Transnational Access

- Currently working on ‘Local EGA’
- Centralised metadata model
- Distributed raw controlled access data

5 main types of API:
- Permission
- Data Transfer
- Submission

https://www.elixir-europe.org/communities/human-data
Interoperability.
Recommended Interoperability Resources

Building a suitable FAIR infrastructure for finding, exchanging, comparing, aggregating and interlinking biological information across Europe

https://www.elixir-europe.org/platforms/interoperability/rirs

FAIRsharing

g:Profiler

Identifiers.org

Intermine

ISA Framework

Ontology Lookup Service (OLS)

3DBIONOTES API*

BridgeDb

DisGeNET API*

MOLGENIS
The main objective of the ELIXIR Tools Platform is to improve the discovery, quality and sustainability of software resources.

- **bio.tools**: search the registry of software tools and data resources for life sciences.
- **Biocontainers**: LS software you can run on any operating system
- **OpenEBench**: browse tools for benchmarking and monitoring software.

https://www.elixir-europe.org/platforms/tools
Compute

The main Objective of the ELIXIR Tools Platform is to improve the discovery, quality and sustainability of software resources.

- **Authentication and authorisation Infrastructure**: To provide a centralised user identity and access management service.
- **Storage and data transfer**: To provide an easy way to move, store and synchronise large datasets across ELIXIR and other e-Infrastructures.
- **Cloud and computing resources**: To integrate cloud and compute services across Europe so they can be used in a seamless workflow.
- **Infrastructure services registry**: To create a registry of ELIXIR infrastructure services, with metadata like who can access the service and how much capacity it has.

https://www.elixir-europe.org/platforms/tools
TeSS, the training registry for the ELIXIR community

TeSS provides a one-stop shop for trainers and trainees to discover online information and content, including training materials, events and interactive tutorials.

For trainers, the portal offers an environment for sharing materials and event information.

For trainees, it offers a gateway to find relevant training events and resources, and to perform specific, guided analysis tasks via customised training workflows.

For ELIXIR Nodes, TeSS provides opportunities to promote training events

https://www.elixir-europe.org/platforms/training
Content

• ELIXIR Overview

• What is available

• How to Engage with ELIXIR (EC & IMI)
ELIXIR Communities bring together experts across Europe to develop standards, services and training within specific life science domains. The Communities also provide feedback on the Platform services, which helps ensure these services are practical and useful.

**Human Data**
Develops long-term strategies for managing and accessing sensitive human data.

**Rare Diseases**
Supports the development of new therapies for rare diseases.

**Galaxy**
Fosters a Galaxy community in Europe, together with Galaxy resources and training.

**Marine Metagenomics**
Develops a sustainable metagenomics infrastructure to nurture research and innovation in the marine domain.

**Plant Sciences**
Develops an infrastructure to facilitate genotype-phenotype analysis for crop and tree species.

**Metabolomics**
Provides the resources, analysis tools and infrastructure to help metabolite identification.

**Proteomics**
Develops and maintains sustainable proteomics tools and data resources.
Specific support

As the ESFRI Research Infrastructure for life science data, ELIXIR Nodes provide a range of services that can be used by researchers and consortia on Horizon 2020 and nationally-funded Personalised Medicine projects.

General services

- Projects can store their data in the databases run by ELIXIR Nodes. We encourage researchers to deposit their data in the following relevant deposition databases.
- Projects can find genetic mutation data from ELIXIR Nodes (and other organisations) via the Beacons network.
- Projects can find information on rare diseases and orphan drugs from Orphanet.
- Consortia can find training courses and online training materials from the ELIXIR Training portal.
- Consortia can find software and analysis tools from the ELIXIR tools registry.
- Projects can find the relevant standards in life sciences from FAIRsharing.
- Projects can find relevant biomedical ontologies from the Ontology Lookup Service.
- Projects can access the compute facilities run by ELIXIR Nodes.

Local support for data management

In addition to the general services above, ELIXIR Nodes provide local, bespoke support and expertise to research consortia. ELIXIR Nodes can be included as partners on grant proposals to deliver and support the Data Management Work Package of the grant. To discuss further, contact the ELIXIR personalised medicine expert in your country below. If you are in a country where there is currently no ELIXIR Node, please contact info@elixir-europe.org with ‘Personalised Medicine support’ in the title and we will get back.

ELIXIR expertise in Personalised Medicine

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ELIXIR Support

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Thanks

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