



ELIXIR



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www.elixir-europe.org

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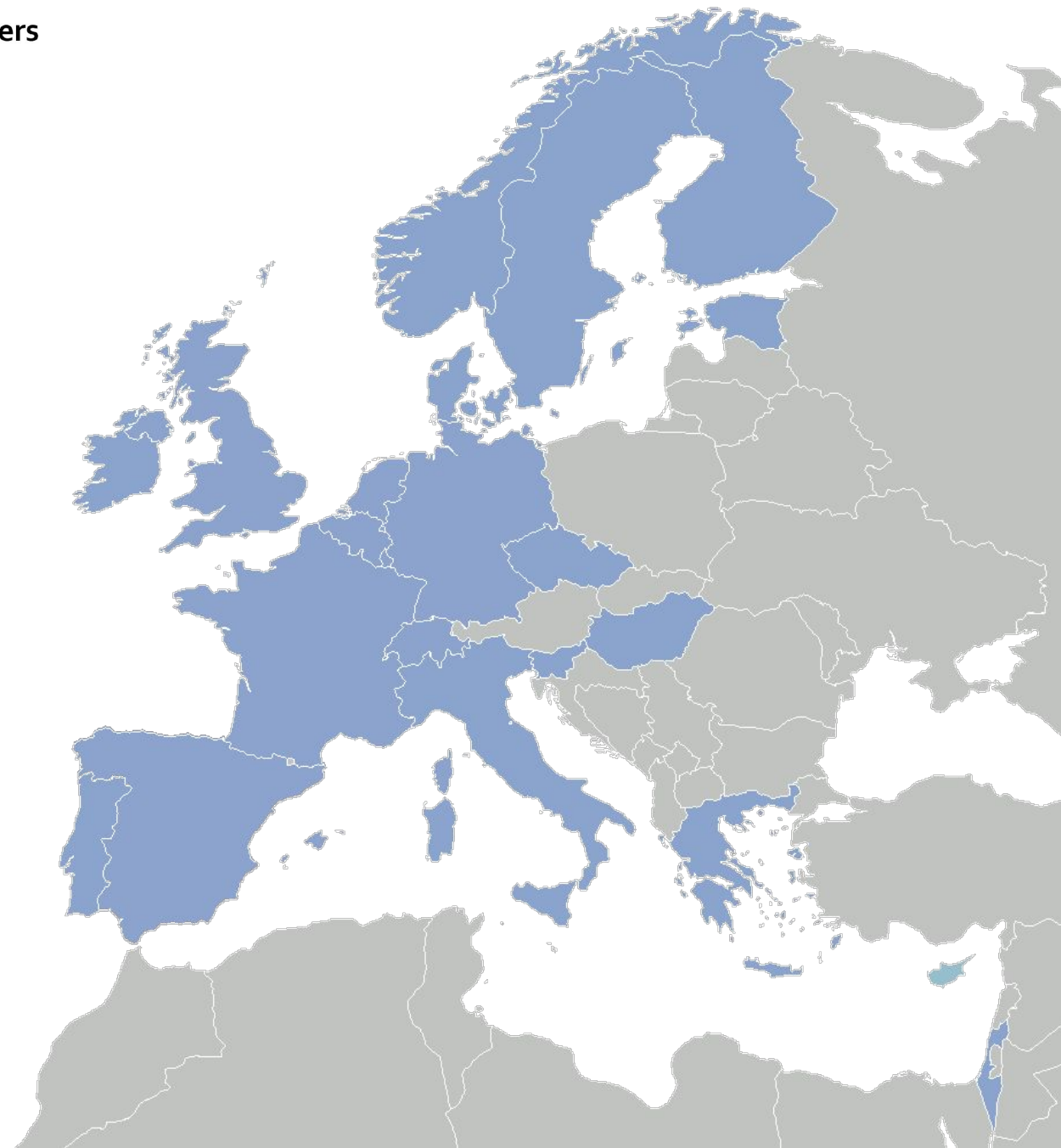


United Kingdom

ELIXIR Observers



Cyprus



Main focus of interest/operations

- ELIXIR unites Europe's leading life science organisations in managing and safeguarding the increasing volume of data being generated by publicly funded research
- It 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
- This infrastructure makes it easier for scientists to find and share data, exchange expertise, and agree on best practices



Over 200 institutes
in 22 countries,
over 700 individual
experts



12 Core Data
Resources
18 Recommended
deposition archives

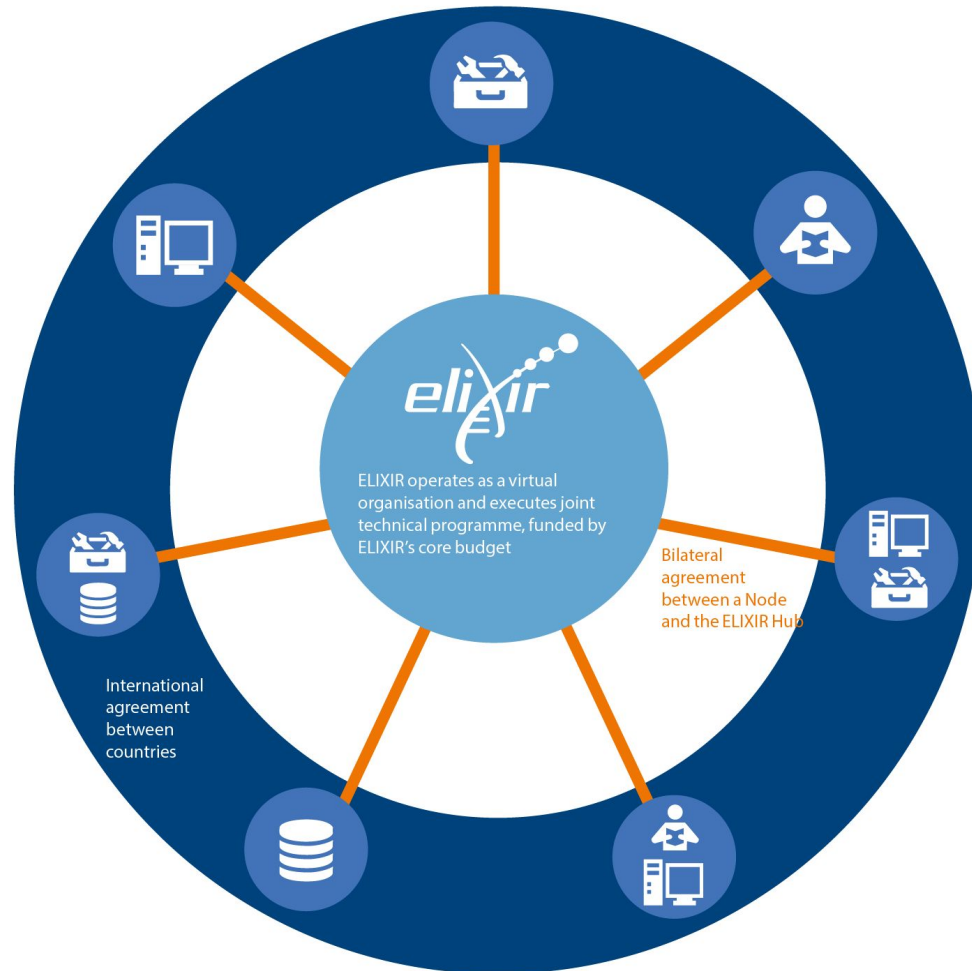


Support to research
communities in 7
scientific domains



A distributed infrastructure of data-related services

Distributed infrastructure with joined-up services



Databases

Deposition, knowledge-bases, data management support



Bioinformatics tools:

Bio.tools, software development



Compute:

Secure data transfer, cloud computing, AAI



Interoperability:

Standards, Identifiers, FAIR, Ontologies



Training:

Training registry, face to face courses, eLearning



Industry:

Staff exchange, Innovation and SME Forum, Bioinformatics Suppliers Forum



ELIXIR's Communities

- Bring together ELIXIR's experts in a particular domain, data type or technology
- Ensure that the Platforms develop services that are fit for purpose
- Connect ELIXIR experts with external users including industry

Communities

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.



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.



Galaxy

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

<https://www.elixir-europe.org/communities>



The biggest challenges you have identified in initiating/supporting/carrying out/analyse academic clinical studies

ELIXIR indirectly supports academic clinical studies - infrastructure for finding and sharing human data to enable international research

Challenges:

- Data can often not move outside of an institute or country creating challenges for access and analysis
 - Federated data with Cloud and Authorization and Authentication Infrastructure required
 - Deposition databases to drive data research use e.g. European Genome phenome Archive
- Long term access to FAIR (Findable, Accessible, Interoperable and Reuseable) data to enable exploratory research - biomarker and translational data
 - IMI OncoTrack data to be managed by ELIXIR Luxembourg
 - IMI FAIRplus project to make EFPIA/IMI data FAIR
- Standardisation
- GDPR - uncertainty of what it means



Experience in the interaction with regulatory authorities (at national and EU level)

Working with EMA to consider big data and standards



What ELIXIR offers to academic centres and regulatory authorities to advance Regulatory Science

ELIXIR **services** offered by each ELIXIR Node e.g. Translational Medicine Data Catalog (TMDC) - ELIXIR Lux

Core Data Resources e.g. European Genome phenome Archive (EGA)

Deposition Databases e.g. Biosamples

ELIXIR Core Data Resource list

Core Data Resource
ArrayExpress
BRENDA
CATH
ChEBI
ChEMBL
EGA

ELIXIR Deposition Database list

Deposition Database	Data type	International collaboration framework ¹
ArrayExpress	Functional genomics data. Stores data from high-throughput functional genomics experiments.	
BioModels	Computational models of biological processes.	
BioSamples	BioSamples stores and supplies descriptions and metadata about biological samples used in research and development by academia and industry.	NCBI BioSamples database
BioStudies	Descriptions of biological studies, links to data from these studies in other databases, as well as data that do not fit in the structured archives.	

Name▲
AAI - REMS
ArrayExpress
arrayMap
Atomic Charge Calculator
Authentication and Authorizati
BEGDB
Bgee
bio.tools

What ELIXIR offers to academic centres and regulatory authorities to advance Regulatory Science

Data stewardship

- Discovery via ELIXIR Beacon - making variants within genomic cohorts discoverable
- Long term storage e.g. EGA
- Controlled access based on level of permission (Authentication and Authorisation Infrastructure service)
- Annotation services - interoperability e.g. FAIRsharing, identifiers

Cloud services offered by Nodes

- Federated data need very large storage (cloud) and processing (high performance computing) e.g. eTRANSAFE HIPAA/National certified cloud environment (ELIXIR helped to identify partners)

Standards

- ELIXIR National Nodes collaborate with GA4GH to develop, establish and disseminate standards



Keep in touch:

- Twitter: [@ELIXIREurope](https://twitter.com/ELIXIREurope)
- LinkedIn: [/company/elixir-Europe](https://company.elixir-Europe)
- ELIXIR F1000 channel:
<http://f1000research.com/channels/elixir>



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Life science data challenges

Open biological data drives research and the bio-economy

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

