

The Spanish National Bioinformatics Institute (INB/ELIXIR-ES)

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The Spanish National Bioinformatics Institute (INB) is the **ELIXIR Node in Spain (ELIXIR-ES)**.

The **INB** was founded in 2003 as a distributed network of nodes with a central coordination hub. At present, the INB consists of 27 research groups distributed across 15 institutions in Spain. Currently, the two main overarching objectives are: **1) to deepen its involvement and leadership within ELIXIR and broaden the resources provided as part of ELIXIR infrastructure to the Life Sciences community, 2) to increase its impact within the Spanish National Health System** regarding the secondary use of health-related data for research. At the national level, the INB/ELIXIR-ES leads the Translational Bioinformatics Network (TransBioNet) and coordinates IMPaCT-Data, the Data Science pillar of the Spanish National Infrastructure for Precision Medicine.

Active involvement in ELIXIR



- Co-leadership of **2 Science Priority Areas**: Cellular and Molecular Research (CMR), Human Data and Translational Research (HDTR).
- Co-leadership of the **Federated Human Data**, **Rare Diseases**, **Cancer Data** and **Biodiversity Communities**; and the **Pathogen Data Focus Group**.
- Participation in **13 Communities**: Federated Human Data, Human Copy Number Variation, Rare Diseases, Galaxy, Proteomics, 3D-BioInfo, Intrinsically Disordered Proteins, Toxicology, Plant Sciences, Single Cell Omics, Systems Biology, Biodiversity, and Research Data Management.
- Participation in **8 Focus Groups**: Machine Learning, Domestic Animals Genome and Phenome, Health Data, EOSC, Learning Paths, Professionalising careers in RI, and Environmental Impact; and including the co-leadership of the Pathogens Data Focus Group.
- Active role in the European Genomic Data Infrastructure (GDI) project, including Pillar III co-leadership, as well as the Genome of Europe (GoE) project.
- Co-leadership and participation in strategic projects with the ELIXIR Hub: B1MGPlus, EOSC4Cancer, HealthData@EU Pilot, the European Federation for Cancer Images (EUCAIM) and ELIXIR-STEERS.
- Co-leadership and active participation in the Global Alliance for Genomics and Health (GA4GH), which has a strategic partnership with ELIXIR. Additionally, an INB/ELIXIR-ES member has been appointed to the GA4GH Board of Directors



- Participation and task co-leadership in the **People Pulse CoS**. Special focus in Onboarding practices (WP2) and Specification/Establishment of the ELIXIR stakeholder roles (WP3).
- Co-leadership of the **ELIXIR Leadership And Diversity mentoring programme (ELEAD)** building on the experience of the **Bioinfo4Women programme**. ELEAD successfully completed its pilot phase in 2024 and proceeded with ELEAD 2.0.



- Maintenance of **Service Delivery Plan** that contains **40 resources** offered by 27 groups in 15 institutions, including 16 tools, 9 web services, 6 databases, 4 platforms, 3 workflows, and 2 data collections.
- Participation in **4 ELIXIR Platforms**: Tools, Data, Training, Interoperability.
- Co-leadership of the **ELIXIR Tools** and **Training platforms** and its corresponding Commissioned Services (CoS).
- Participation and task co-leadership in the **ELIXIR Interoperability Platform CoS**.
- Co-leadership of the **ELIXIR Beacon Network Infrastructure Service**.
- Secured controlled access to human data through the **European Genome-phenome Archive (EGA)**, jointly managed by EMBL-EBI and CRG with the technological support of BSC. EGA is part of the **ELIXIR Core Data Resources (CDR)** and the **ELIXIR Recommended Deposition Databases (EDD)**.
- **OpenEBench**, **FAIRCookbook**, **3DBIONOTES API** and **FAIRtracks** as **ELIXIR Recommended Interoperability Resources (RIR)**.
- Development of the ELIXIR platform for supporting technical monitoring and community-driven benchmarking efforts **OpenEBench**.
- Leadership of the **GA4GH Beacon** and **ELIXIR Beacon Network**, including recent extensions of the Beacon V2 standard, e.g. clinical, and medical imaging.



- Participation and task co-leadership in the **Node Support CoS (NSCS)**.
- Promotion of **FAIR data principles** and research software development best practices, and training. Organised and delivered a Software development good practices course for the **LongTREC Marie Curie Doctoral Network**.
- Participation in the activities of **3 ELIXIR transversal groups**: Impact, Innovation and Industry, and Communications.
- Hosting of ELIXIR-related events such as the EVERSE General Assembly Meeting, and the ELIXIR Biodiversity, Microbiome, and 3D BioInfo Communities meetings.

Translational Bioinformatics



An experts' open forum formed of +45 bioinformatics units in Healthcare settings across Spain, with direct impact on researchers working closely with clinicians

- Early access to latest developments and guidelines (ELIXIR, GA4GH)
- Access to computational infrastructures by INB/ELIXIR-ES and ELIXIR

Redes de Investigación 2024

- **Redes de Investigación (RED 2024)** is a funding mechanism that will serve as a catalyst to expand the INB/ELIXIR-ES and incorporate new groups from the Spanish Life Sciences community into the Node.
- It includes the incorporation of **TransBioNet** as a specialised cluster within the Node, paving the way for the inclusion of other expert communities and reinforcing Spain's role in strategic **international** initiatives such as ELIXIR, and GA4GH.

Precision Medicine



Assemble and deploy a **federated infrastructure** to standardise, integrate and analyse **clinical, omics and medical imaging data**

IMPaCT-Data is the Data Science pillar of the Spanish National Infrastructure for Precision Medicine associated with Science and Technology (IMPaCT), created by the Institute of Health Carlos III in 2021.

- A **Reference Implementation** was deployed, including several components such as Beacon and Beacon Network, Local EGA, Galaxy, openVRE, Beacon-cBioPortal, and other local and central services.
- The usefulness of these was assessed based on the user usability and the level of completeness, using the ELIXIR Software Management Wizard.
- The next phase involves the development and deployment of a digital platform built upon the components of the Reference Implementation. This platform will facilitate secure data storage and analysis within a Trusted Research Environment (TRE).

IMPaCT-Data is aligned with many European projects and initiatives and implements standards pushed forward by community-driven initiatives, e.g. ELIXIR, GA4GH, 1+MG/B1MG, EUCAIM and GDI.

Contact:

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