

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, INB counts with 27 research groups distributed across 15 institutions in Spain. Currently, the two main overarching objectives are: **1) deepen its involvement and leadership within ELIXIR and broaden the resources provided as part of ELIXIR infrastructure to the Life Sciences community, 2) 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

Science tier



- 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, Plants Sciences, Single Cell Omics, Systems Biology and Biodiversity, and the emerging Research Data Management community.
- Participation in **6 Focus Groups**: Environmental impact, EOSC, Health Data, Machine Learning, Professionalising careers in RI, Pathogen Data.
- Active role in the European Genomic Data Infrastructure (GDI) project, including Pillar III co-leadership.
- Co-leadership and participation in strategic projects with the ELIXIR Hub: 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.

Nodes tier



- Participation and task co-leadership in the **Node support CoS (NSCS)**.
- Promotion of **FAIR data principles** and research software development best practices, and training.
- Participate in the activities of **3 ELIXIR transversal groups**: Impact, Innovation and Industry, and Communications.
- Hosted ELIXIR-related events such as the BY-COVID and GDI General Assembly Meetings, and the ELIXIR Biodiversity, Microbiome/Marine Metagenomics and Federated Human Data Communities meetings.

Technology tier



- Service Delivery Plan** expanded to **40 resources** offered by 24 groups in 12 institutions, including 16 tools, 9 web services, 6 databases, 4 platforms, 3 workflows, and 2 data collections.
- Participation in **5 ELIXIR Platforms**: Tools, Data, Compute, 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** and **FAIRCookbook** as new **ELIXIR Recommended Interoperability Resource (RIR)**, joining two other ELIXIR-ES RIRs: **3DBIONOTES API** and **FAIRtracks**.
- 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, medical imaging.

People tier



- Participation and task co-leadership in the **People pulse CoS**.
- Co-leadership of the **ELIXIR Leadership And Diversity mentoring programme (ELEAD Pilot)** building on the experience of the **Bioinfo4Women programme**.
- CRG benefited from the **ELIXIR Staff Exchange Programme** to host the coordinator (EMBL-EBI), and to support the creation of the Portuguese and the Swiss FECA node, which enabled the exploration of collaborations between ELIXIR Switzerland and ELIXIR Spain nodes.

Translational Bioinformatics



An experts' open forum, with direct impact on researchers working closely to clinicians

- Creation and coordination of **TransBioNet**, Translational Bioinformatics Network, in order to Increase the INB translational impact
- +45 bioinformatics core facilities and support units at Health Research Institutions
- Share best practices and experiences
- Early access to standards, protocols and best practices developed by ELIXIR and GA4GH
- Access to the computational infrastructures provided by the INB and ELIXIR

Precision Medicine



Develop the **1st iteration of a Biomedical Cloud** to establish the mechanisms for **working in a distributed manner with genomics, clinical and medical imaging data for research purposes**

- 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.
- The project has delivered: 1) **two demonstrators** on how to build a federated ecosystem enabling distributed analysis via Galaxy and using GA4GH Passports and Visas technologies, 2) **recommendations and guidelines** regarding the standardization of biomedical data to facilitate its interoperability, access, and governance.
- The **reference implementation**, currently under development, will include several components as Beacon and Beacon network, Local EGA, Galaxy, openVRE, cBioPortal, and other central services.
- IMPACT-Data aligns with many European projects and initiatives and implements standards pushed forward by community-driven initiatives, e.g. ELIXIR, GA4GH, 1+MG/B1MG, EUCAIM.

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