National Coordination

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The French Institute of Bioinformatics (IFB) is ELIXIR-FR, the French Node of ELIXIR

IFB is a distributed French National Research Infrastructure

- 36 platforms and research teams spread all over France
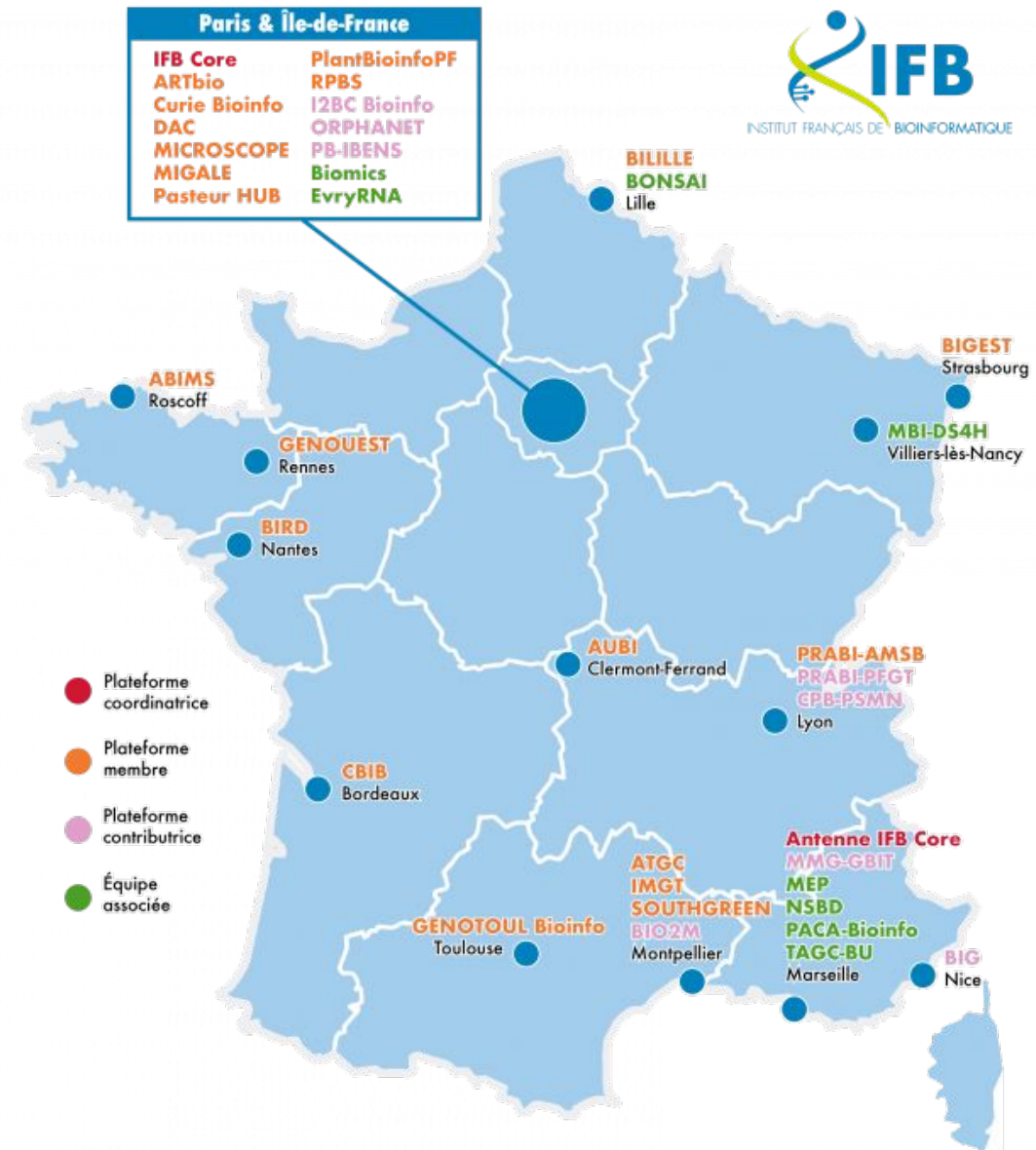
Coordination: IFB-core

- Multi-research organizations : CNRS, Inserm, INRAE, CEA

Common resources

- Supported by the French Ministry of Higher Education and Research since 2012

A large set of expertise in bioinformatics

- >400 experts (~200 FTE)

Paris & Île-de-France

IFB Core	PlantBioinfoPF
ARTbio	RPBS
Curie Bioinfo	I2BC Bioinfo
DAC	ORPHANET
MICROSCOPE	PB-IBENS
MIGALE	Biomics
Pasteur HUB	EvryRNA

BILILLE
BONSAI
Lille

BIGEST
Strasbourg

MBI-DS4H
Villiers-lès-Nancy

ABIMS
Roscoff

GENOUEST
Rennes

BIRD
Nantes

AUBI
Clermont-Ferrand

PRABI-AMSB
PRABI-PFGT
CPB-PSMN
Lyon

CBIB
Bordeaux

ATGC
IMGT
SOUTHGREEN
BIO2M
Montpellier

GENOTOUL Bioinfo
Toulouse

Antenne IFB Core
MMG-GBIT
MEP
NSBD
PACA-Bioinfo
TAGC-BU
Marseille

BIG
Nice

● Plateforme coordinatrice
● Plateforme membre
● Plateforme contributrice
● Équipe associée

IFB/ELIXIR-FR has a large set of domain of applications

IFB's domains of application encompass the three scientific priorities of the 2024-2028 programme of ELIXIR

Enabling and responding to advances in cellular and molecular research will drive life science

Connect the latest developments and established data resources to realise the potential of cellular and molecular biology

Biodiversity, food security and pathogens are interrelated societal challenges
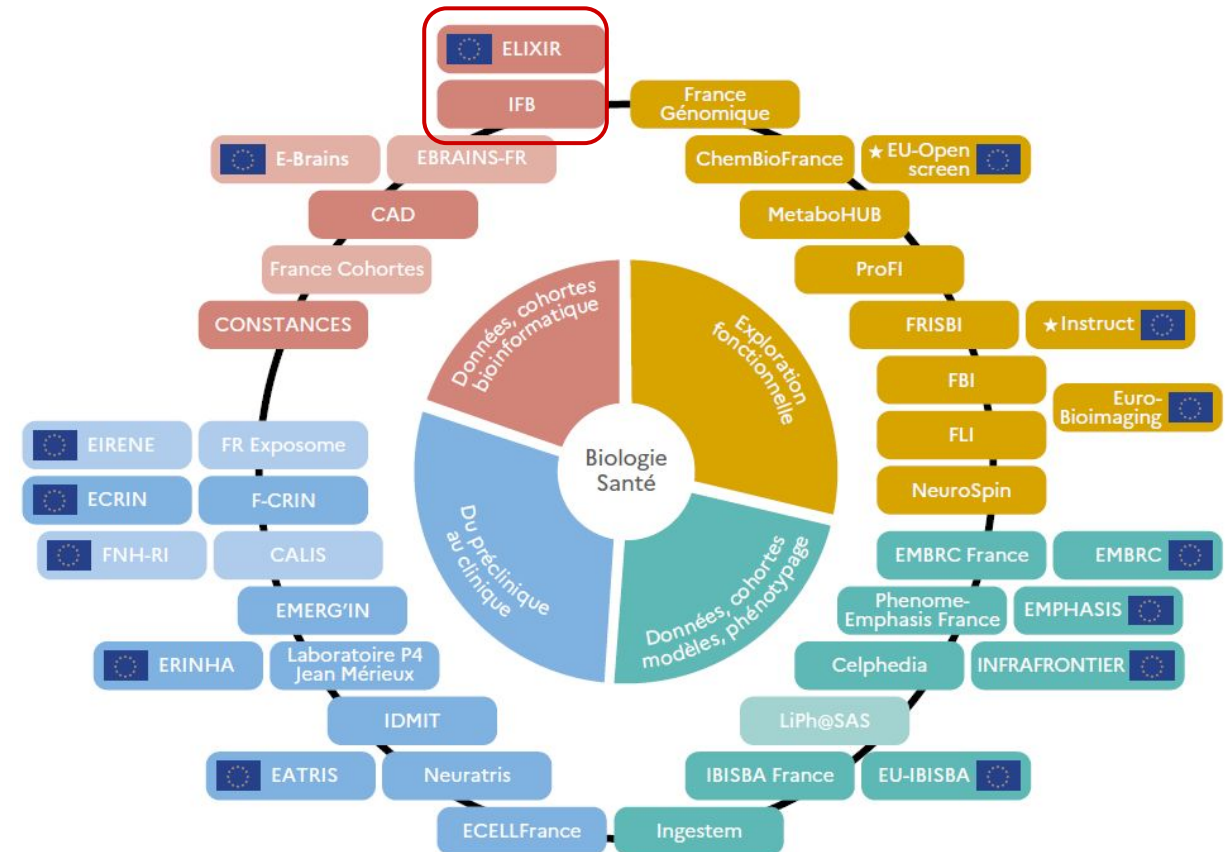
Mobilise and integrate molecular data to support transnational research programmes in biodiversity, food security and pathogens

The promise of genomics research to improve health and disease outcomes

Provide the infrastructure to support the discovery, access, sharing and analysis of human genomics data and linked data on a massive scale

IFB-ELIXIR-FR is part of the French network of national Research Infrastructures in Life Sciences

- **Contribution to transversal activities addressing common challenges**

  - Multi-research organizations governance

  - FAIR data management and data interoperability

- **Partnership in large national projects**

- **Enhance partnerships in ELIXIR activities and in European projects**

IFB-ELIXIR-FR is contributing to ELIXIR's activities

- **Liaising and networking** with all platforms and most of the communities and contributing to their activities
- **Co-coordinating and contributing to the strategic planning** of some of them => 🇫🇷
- Contributing to **European projects**: 9 since 2020

Communities

🌱 Science

Platforms

Technology

ELIXIR Platforms bring together experts from Nodes to develop ELIXIR's technical vision and coordinate activities in defined technical areas. There are five Platforms: Data, Tools, Interoperability, Compute and Training.

Data Platform
Aims to identify key data resources across Europe and support the linkages between data and literature.

Tools Platform 🇫🇷
Helps researchers find the best software tools to analyse their data.

Compute Platform
Develops services to make it easier to store, share and analyse large datasets.

Interoperability Platform
Develops and encourages the adoption of standards to describe life science data.

Training Platform
Helps scientists and developers find the training they need, and also provides that training.

3D-Bioinfo

Biodiversity

Food and nutrition

Galaxy

Intrinsically Disordered Proteins

Marine Metagenomics 🇫🇷

Metabolomics

Microbial Biotechnology

Plant Sciences   litate crop and

Proteomics **R**

Single-Cell Omics

Systems Biology

Toxicology 🇫🇷

R

Human Data Communities

Federated Human Data

Human Copy Number Variation 🇫🇷

Rare diseases

Cancer Data (focus group) 🇫🇷

IFB-ELIXIR-FR's 2022-2025 road map and organisation in transversal Task Forces

Infrastructure
- National Network of Computing Resources (**NNCR**)
- Two modalities: **cluster** + **cloud**
- Compliance to law (**GDPR**)

Tools
- **Development** of dedicated tools
- **Packaging** (conda)
- **Virtualisation** (appliances, containers)
- **Software development practices**
- **Collaborative development, open code**

Support to users
- One stop portal and contact address
- Co-development of the bioinformatic/statistical part of the project
- **DMP**
- Development of **workflows**
- **Data Science**

Task Forces

Knowledge bases
- Development of data and knowledge bases
- Quality and data standards
- Technical support to developers
- Deployment of databases developed up in France

Training
- **Thematic schools** (NGS, multi-omics, phylogeny, biostat, programming, workflows...)
- **Bring Your Own Data** (BYOD) trainings
- Webinars, MOOC
- **FAIR-data et FAIR-bioinfo training and capacity building**

Prospective and innovation
- Identification of emerging needs in bioinformatics
- Funding of Pilot-projects

Open Science & Interoperability
- Data Management
- Data Standards, Ontologies, semantics
- Data brockering
- Machine actionable DMP
- Contribution to the network of RIs

Develop with the task forces a strategy that integrates national and ELIXIR's activities for node's benefice

Virtual and reproducible environments of analysis: example of synergy

National activities

- **Software development task force**
  - Sharing good practices for development
  - Sharing recipes for deployment

- **Deployment of environments for analysis**
  - E.g. Usegalaxy.fr (metabolomics, proteomics, covid19, …)

Tools development and deployment	2021	2022
New tools	19	16
Number of unique users of the platforms web tools	573 244	352 644
Number of uploads of the tools developed by the platforms	16 912	24 307

Vincent Lefort

Hervé Ménager
ELIXIR Tools PF coord
EDAM steering committee

Anthony Bretaudeau
Elixir Galaxy community

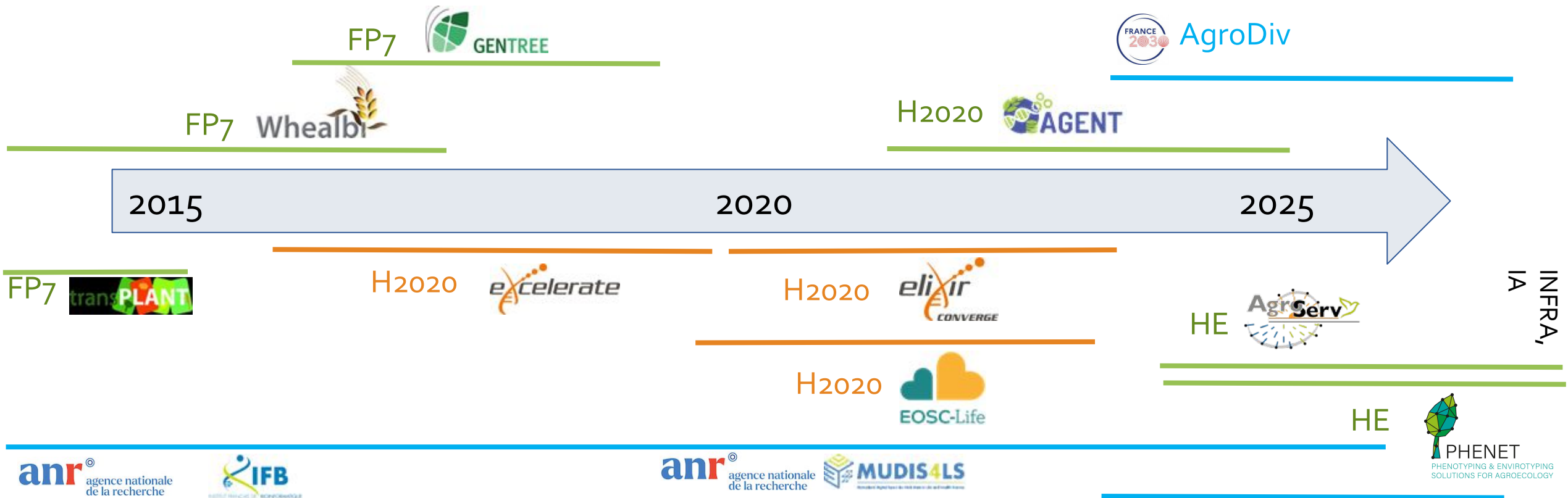**Olivier Sallou**
Elixir Tech Coord

International/ELIXIR activities

- **Service Delivery Plan ELIXIR-FR:** labelling of French **services**

- **Involvement in the coordination of the ELIXIR Tools Platform** (Hervé Ménager): contribution to the strategic planning, coordination of activities, outreach, good practices

- **Involvement in strategic projects for the ELIXIR Tools platform: BioContainers** (Olivier Sallou) Dynamic deployment of virtual environments

- Involvement in the **ELIXIR Galaxy community** (Anthony Bretaudeau): contribution to usegalaxy.eu

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Data management in the Plant Science community: another example of synergy

IFB/ELIXIR-FR in the national « ecosystem » supporting Open Science

- 2022: the French Ministry of Research and Higher Education launches Recherche Data Gouv
- IFB/ELIXIR-FR is mandated to organize a « thematic reference center » for Life Science data :
  - Development and dissemination of data standards
  - Support to data management and data curation
  - Data brokering
  - Harvesting data for the national data catalog

Recherche Data Gouv at a glance

Modules to support research teams on all issues linked to data:
- Data management clustres
- Thematic reference centres
- Resources centres
- Institutional reference centers

Modules to deposit, publish and disseminate data:
- A repository to deposit and disseminate data
- A registry to search for data published in the repository itself or other external repositories

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Liberté
Égalité
Fraternité

recherche.**data**.**gouv**.*fr*

elixir