Collaborating organisations

FIMM: Institute for Molecular Medicine Finland.

The ELIXIR node in Finland, Biomedinfra.fi, provides compute cloud and storage resources for life sciences with integrated computational access to very large biological data resources. Services are for biomedical organisations and evolved with the development of the European e-infrastructure (GEANT for research network, EGI.eu and PRACE for computing and EUDAT for data). It is a flexible infrastructure component for bioinformatics service providers and can be used to host tools and build topical data services and software environments. It provides support to BBMRI and EATRIS, for example a secure virtualised platform for sensitive Finnish biobank data.

The Finnish biomedical data resources are collections and registries from the Finnish population that are being organised and digitised by the Institute for Molecular Medicine Finland (FIMM) and the National Institute for Health and Welfare (THL) and will become available via BBMRI.fi. National biomedical data interoperation and interpretation with the reference data of ELIXIR provides a use case for molecular level genetic diagnostics of, for example, heart diseases, cancer and obesity.

Legal, ethical and privacy requirements for enabling research on biomedical data require solutions for researcher authentication and authorisation. The Resource Entitlement Management System (REMS) enables coordination of resource access rights in collaboration between the data service providers and data access granting bodies. For user authentication, REMS relies on the technology and policies for data protection provided by the GEANT eduGAIN inter- federation service.

The ELIXIR node is operated by the Finnish data centre provider CSC–IT Center for Science under Biomedinfra.fi consortium agreement with FIMM and THL. It provides opportunities, for example, to build reference genetic data resources and analyse large human genome sequence variation for translational medical research.

The ICT hardware is hosted by CSC and connected via Finnish research and university network (Funet) using dedicated optical links when necessary. The node organizes training events.

The Nordic ELIXIR nodes (Denmark, Finland, Norway, Sweden) coordinate their development in collaboration with Nordforsk.

University of Helsinki: Biomedicum Imaging Unit.

The Biomedicum Imaging Unit of University of Helsinki is a core facility providing DNA sequencing service and it performs research projects on several topics ranging from bioinformatics to de novo genome sequencing of entire genomes.

Aalto University: Department of Information and Computer Science.

The focus of the research and teaching activity at the Information and Computer Science department is on advanced computational methods for modelling, analysing, and solving complex tasks in technology and science.

University of Helsinki and Folkhälsan Research Center:

Canine genetic studies. The aim of canine genetic research is to identify genetic abnormalities leading to different hereditary diseases, as well as other breed-specific traits, to develop genetic tests for purposes of breeding, and to use the gained knowledge in the study of human diseases.

Turku Centre for Biotechnology: Cell Imaging Core.

The Cell Imaging Core provides state-of-the-art light microscopy instrumentation and flow cytometry services to scientists in the greater region of Turku.

University of Helsinki: Biomedical Imaging Unit.

Biomedical Imaging Unit is a core facility that provides expertise and state-of-the-art equipment for modern multidimensional biomedical imaging applications.

Institute of Biomedicine has two micro-computed tomography (micro-CT) scanners for both in-vivo and ex-vivo use. Main interests are biomedical and clinical applications.

Åbo Akademi: Structural Bioinformatics Laboratory.

The emphasis is on multidisciplinary research aiming to solve complex biological problems related to protein structure and function, molecular interactions, and gene/protein evolution.

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University of Helsinki: DNA sequencing and Genomics laboratory. Laboratory is a core facility providing DNA sequencing service and it performs research projects on several topics ranging from bioinformatics to de novo genome sequencing of entire genomes.

FUGU: Biomedicum Functional Genomics Unit.

FUGU offers genome profiling services by next-generation sequencing as well as by three different microarray platforms. The services include copy number profiling, transcriptomics analysis including mRNA and exon specific expression, DNA-protein interaction and epigenome analyses.

University of Helsinki: The Light Microscopy Unit of Institute of Biotechnology.

The staff provides training, consultation, support and equipment management services. Larger projects, for example setting up new imaging and analysis methods, can be provided as scientific collaboration.