

## Biocenter Finland Vision Plan 2022-2026

### Biocenter Finland in brief

- The foundation of Finland's Life Sciences sector that **supports cutting-edge research and innovation** from ecology to food safety, microbiology, biotechnology and biomedicine.
- Services and training are provided highly experience staff in **17 national, open-access technology platforms** that consist of 93 core facilities available to almost 20 000 academic, health care and industry researchers across Finland and also to international customers.
- Nationally coordinated technology platforms provide the basis to address pressing challenges in **health and green transition** through leading research and data-driven solutions.
- Technology platforms have central role in **translation** of research findings and expertise in health care with COVID-19 as a concrete example, spin-off companies and national and international industry cooperation.
- Provides a voice to Finland's Life Sciences research community whilst **implementing the strategies of its host universities**.

### Vision

The ongoing technological and digital revolution will transform Life Sciences research and provides new ways to support health and well-being and biodiversity. This development places increasing demands for state-of-the-art infrastructures and at the same time challenges for sustaining and developing them. Biocenter Finland has a key role to the long-term viability and coordination of Life Sciences sector and attractiveness of Finland for collaboration partners.

- **Forward-looking provider of national Life Science services** to develop and establish emerging technologies and create an internationally attractive environment for the best talents in Life Sciences.
- **Vital supporter of research for sustainable development and green transition.** The infrastructures are used by the entire Life Sciences sector from ecology to green energy and clinical research allowing implementation of digital data and molecular level understanding of the environment to the benefit of the society and resilience to current and future health challenges.
- **Active supporter of innovation, translation and cooperation with industry and healthcare** with focus on closer interaction and harmonization of service practices.
- **Active partner in European research infrastructures** with focus on stronger coordination and collaboration of national activities with Scandinavian and pan-European organizations.
- **Forerunner in digital research data and open science** to develop secure data ecosystem, open-access protocols, and the harmonization of research methods in close partnership with researchers and stakeholders.
- **Developer of attractive career tracks for core facility personnel** in partnership with universities.
- **Long-term funding and developmental scheme** developed together with stakeholders to increase the competitiveness of Finland's Life Sciences sector.

**Biocenter Finland (BF)** is a joint organization of six Finnish Universities with a mission to promote excellence across Life Sciences sector by coordinating nationally important, open access research infrastructures (RI). BF promotes collaboration by combining research core facilities within each host university into national knowledge centers. This operational concept allows the provision of cutting-edge services and expertise for research, innovation and implementation in industry and healthcare for the benefit of researchers, patients, and the wider society. BF coordinates investments and division of activities of nationally important RIs according to a long-term plan anchored to the strategies of its six host universities: University of Eastern Finland, University of Helsinki, University of Oulu, Tampere University, University of Turku and Åbo Akademi University.

Life Sciences are at the center of the most pressing global challenges from climate change and loss of biodiversity to pandemics and other severe healthcare challenges. Response to these challenges require major improvements in understanding the underlying mechanisms. The ongoing technological and digital developments provide ways to address these challenges in unprecedented ways with direct implications and applications in environment, agriculture, healthcare, innovations and industry. At the same time, these developments pose significant challenges to maintain up-to-date instrumentation and expert staff, and highlight the need for national coordination. BF has pioneered several key policies and principles in RI services, and has been widely considered as an exemplar of outstanding national coordination and strategic use of financial and human resources within each discipline. BF coordinates 15 RI technology Platforms that cover key technologies in Life Sciences. The Platforms are selected and regularly evaluated by an international Scientific Advisory Board that ascertains the quality, relevance and continuous development of the services. The Platforms work in close collaboration with the Finnish ESFRI (European Strategy Forum on Research Infrastructures) nodes. Funding for BF consists of personnel costs provided by individual host Universities and user fees. Essential instruments can be applied for through the bi-annual AoF FIRI instrument calls.

BF RIs are used by a wide spectrum of research communities and organizations from ecology to medicine and they are aligned with the UN Global Sustainable Development Goals. Annually, BF Technology Platforms generate data for >1,300 research articles and organize >100 training courses. A high proportion of the most competitive research programs such as the Academy of Finland (AoF) Centers of Excellence, Flagships, Academy Professorship and ERCs are supported by BF services. The National competence centers on cancer, immunology, genomics, neuroscience, drug development and biobanks all rely on BF RIs.

The BF RIs have a major national impact on the translation of research findings into health care, patented innovations, spin-off companies and novel technologies. The Finnish bioscience spin-off company sector is developing steadily and gaining significant financial value in several publicly listed companies, and only in 2021 two companies were sold for over 1 B€. The BF technology services and related expertise have been instrumental in collaborations with business sector, and major global companies have established or strengthened their presence in Finland with significant investments. As an example, the FinnGen project combining genomic and digital health care data for disease prevention, diagnosis and treatment has received appr. 65m€ funding from international companies.

The current global trends and challenges in the society combined with the ongoing revolution in Life Sciences research and its implementation rely on state-of-the-art technologies and digital solutions that will significantly increase the importance of BF as a national Life Sciences RI and the attractiveness of Finland for international talents. The key Goals for BF for the next five years are presented here.

## **Key Goals**

### **Forward-looking provider and developer of national Life Science infrastructure**

BF will have an increasingly important role in enabling ground-breaking research and its applications in the society. Regular evaluation by an international Scientific Advisory Board ascertains the quality and renewal of services including monitoring of emerging technologies and their fast introduction to Finland for users across Life Sciences sector. The technology platforms are operated by experts that also actively participate in training and method development and harmonization. Up-to-date RIs are vital for creating an internationally attractive research environment and recruiting the best talents.

Emphasis is placed on closer communication with the Universities and other stakeholders to develop national plan for implementation of latest technologies for the entire field. Regular discussions with the Technology Platforms and customers facilitate development of the services and increasing and widening the user base.

### **Active supporter of innovations, translation and cooperation with industry and health care**

BF has a vital role as a national, multidisciplinary RI to support broadly Life Science research and innovation from medicine to green and digital transition and citizen science. BF provides a coordinated platform for universities, hospitals and industrial partners to address major medical, environmental and societal challenges. The COVID-19 pandemic has demonstrated in concrete terms the importance of state-of-the-art RIs and several BF Technology Platforms played a key role in addressing the threat in national first-line diagnostics, therapeutic or preventive approaches and in basic research. Key action points are on enhanced communication on the quality and availability of the services and expertise for industry and health care and their streamlined access.

### **Essential supporter of research for sustainable development and green transition**

The dramatic advances in BF technology platforms and quantitative data generation allow molecular-level understanding of changes in our environment and provides means to address these. BF platforms are aligned with the UN Sustainable Development Goals and the RI services are applicable and used across multiple disciplines and research questions. The importance of BF in ecology, food science, agriculture, green energy and in plant research will increase.

### **An active partner and collaborator in international research infrastructure organizations**

BF is actively partnering with international RI organizations, especially the European Research Infrastructure Consortia (ERICs) and ESFRIs. BF maintains and develops Finland's Life Sciences technology platforms in collaboration with the international ESFRI/ERIC nodes, and BF will lead the national cooperation and operational alignment with EMBL partners. BF will also actively develop cooperation with Scandinavian RI providers including SciLifeLab and EMBL partner institutes where technology and knowledge-sharing are important goals made possible through joint investments.

### **Forerunner in open science and digital research data**

The rapid developments in digitalized analytical tools and solutions play a vital role in all Life Sciences research and in BF-supported activities. The CSC hosted LUMI supercomputer will bring unsurpassed tools for the broad spectrum of Life Sciences in artificial intelligence, simulations and data analytics. BF works in close partnership with host Universities and other stakeholders to find solutions for safe and secure data ecosystems for Life Sciences RIs. BF promotes the harmonization of research methods and open access to protocols that are critical for the reproducibility of scientific data. The transforming role of digitalization will be taken into account when planning national Life Sciences RI strategy and funding.

### **Advocate of career development of core facility personnel**

The ability to attract and retain the best technology experts is vital for the success of RIs. In partnership with universities BF provides continuous education for RI staff and together with universities develops attractive RI career tracks.

### **Developer of long-term funding and developmental schemes**

Increasing costs of state-of-the-art equipment pose existential challenges for Finland's Life Sciences sector, and national coordination of investments will become even more important in future. In order to increase the competitiveness of Finland's Life Sciences sector with green and digital 'double transition' goals and preparedness for health challenges, BF will lead discussions with key stakeholders including universities, politicians, ministries and state organizations (SITRA, Business Finland) to formulate a long-term funding and operational strategy for Life Sciences infrastructures that align with parliamentary committees view on long-term RDI strategy.

## **BIOCENTER FINLAND VISION 2022-2026**

Forward-looking provider of  
NATIONAL LIFE SCIENCE  
SERVICES

Vital supporter of research for  
SUSTAINABLE DEVELOPMENT  
AND GREEN TRANSITION

Active partner in  
EUROPEAN RESEARCH  
INFRASTRUCTURES

**BF**  
Biocenter Finland

Developer of attractive and  
competitive  
CAREER TRACKS FOR CORE  
FACILITY STAFF

**Life Sciences for  
Sustainable World**

Active supporter of  
INNOVATION, TRANSLATION and  
COOPERATION WITH INDUSTRY  
AND HEALTHCARE

Forerunner in  
DIGITAL RESEARCH DATA AND  
OPEN SCIENCE

Long-term  
FUNDING AND  
DEVELOPMENTAL SCHEME