National Bioinformatics Infrastructure Sweden
NBIS

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NBIS – SciLifeLab Bioinformatics Platform

Enable world-class life science research and maximise scientific and societal impact of collected data by:

- Providing expert knowledge, innovative data integration, advanced training, efficient data publication for open science, and access to high-performance data analysis methods
- Coordinating bioinformatics support within Sweden and **making bioinformatics easily accessible** for life science researchers
- Swiftly responding to changes in support needs as new techniques are developed and utilised
- Forming the Swedish ELIXIR node and participating in relevant international projects

Analysis of biological data

- **Support**
  - Genomics/NGS/Metagenomics
  - Genome annotation and assembly
  - MS-Proteomics and Protein bioinformatics
  - Systems biology and Metabolomics
  - Integrative bioinformatics
  - Biostatistics
  - Data publication and FAIRification of data
  - Data management and Data stewardship (collaboration with SciLifeLab Data Centre)
    https://nbis.se/support

- **Infrastructure**
  - services, computational resources, data management, tools and guidelines
  - https://nbis.se/infrastructure

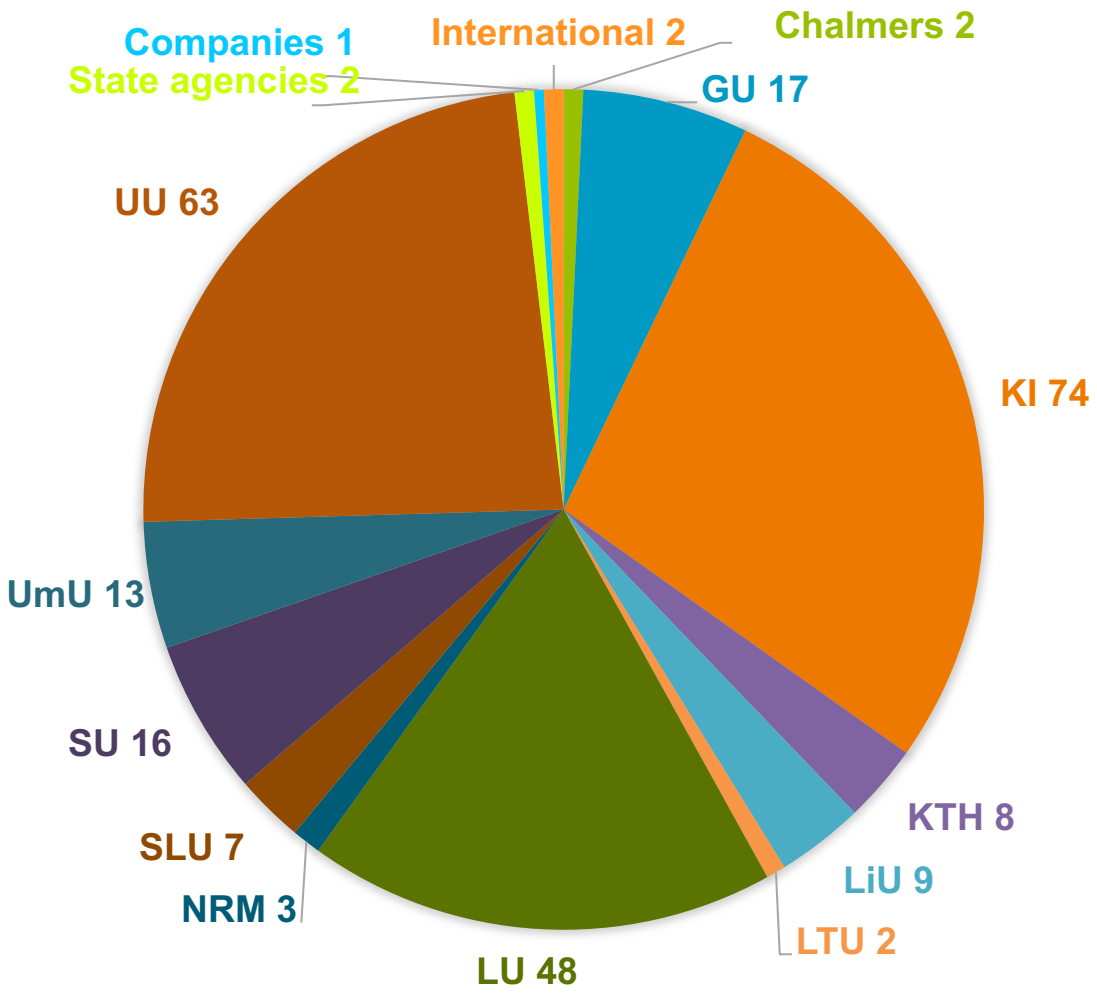
- **Training**
  - https://nbis.se/training

- The Swedish node in ELIXIR -- the European infrastructure for biological information

Funding from:

Distribution of support during 2020

- **267 PIs** (104 female, 163 male)
- 212 active support projects
- 104 study design consultations
- Several advanced training courses



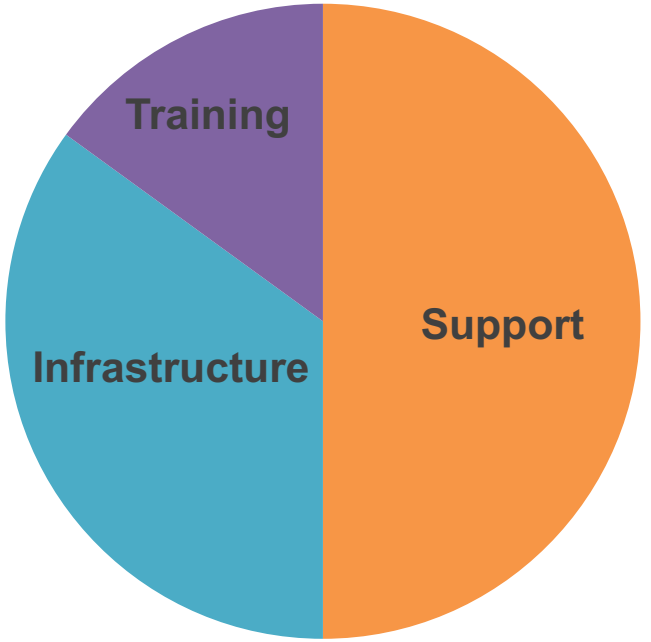
Overview of NBIS units

https://nbis.se/

Technical experts are increasingly important in technology- and data-driven life science

20 national courses
5 international courses
625 students
30 PhD:s in mentor program

Development for sensitive data
Coordination of e.g. 1M Genomes Initiative
Guidance to FAIR data
Maintaining selected Swedish tools



Resources 2019

245 unique PI:s
170 active support projects
100 new projects
70 publications
120 booked consultations
250 drop-in sessions

Training: A key strategic area

Training events and programs

- Courses, teacher-dense for good networking
- Mentor program, boosting PhD skills
  Advisory Programme open now! Deadline 22nd of December

Rapid knowledge-transfer

- Drop-in sessions (Currently online)
- Catalyse rapid knowledge-transfer across projects/research areas
- Portable tools and workflows to empower users

Four support tracks

- **Study design consultation**
  - provided for free (up to 3 hours)
  - help our users to order the right type of data for their analysis
  - consider bioinformatics and data management issues at an early stage
  - extra drop-in sessions at VR grant application periods

- **Short- & Medium-term support**
  - academic user fee 800 SEK (~80 EUR) per hour
  - short waiting times
  - 50% support between universities, most suitable expert

- **Long-term support**
  - KAW funding, up to 500 hours for free
  - scientific evaluation; application rounds 3 times per year

- **Partner Projects (PP)**
  - intended for projects with a large bioinformatics component
  - NBIS support ≥12 person months over the project life-time, running 2–5 years calendar time
  - user fee to cover staff costs

Training: A key strategic area

Training events and programs

- Courses, teacher-dense for good networking
- Mentor program, boosting PhD skills

Rapid knowledge-transfer

- Drop-in sessions (Currently online, Tuesdays at 14:00)
- Catalyse rapid knowledge-transfer across projects/research areas
- Portable tools and workflows to empower users

Infrastructure, Data management, Tools

Infrastructure development
- International repositories (e.g. Federated EGA)
- Hosting/interoperability of national resources of major interest (e.g. Human Protein Atlas, SweFreq, Metabolic Atlas)

Data management (close collaboration with Data Centre)
- Representing Sweden in international data initiatives
- Data Stewards to guide users in data management and FAIR data publishing

Tools
- Maintaining a few selected major Swedish software
- Continuous development of software, workflows and services

Compute & Storage

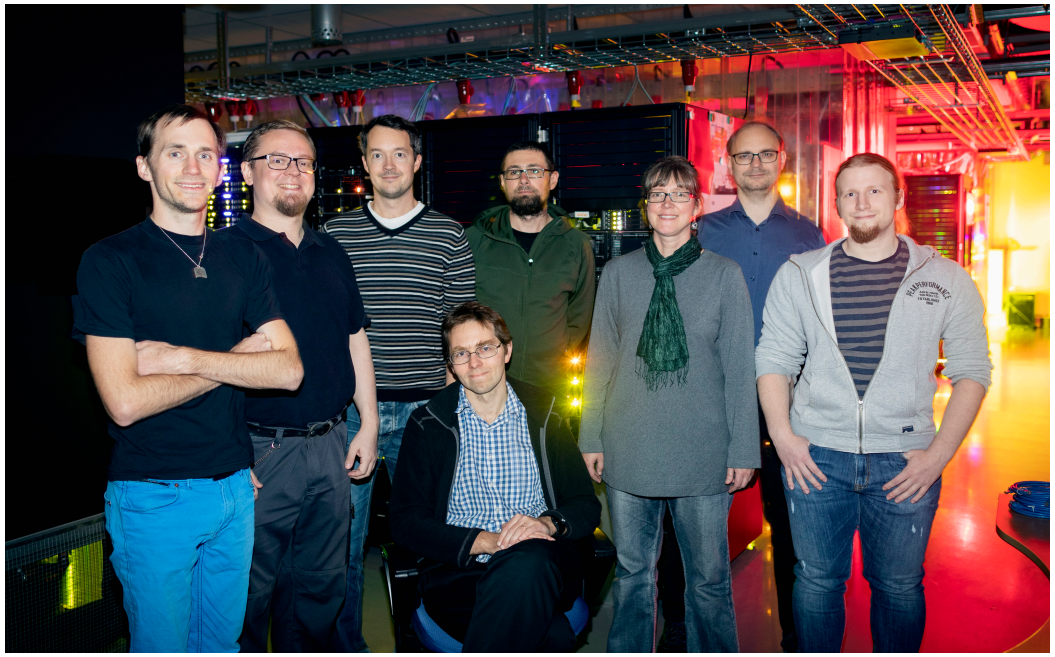
About 6 staff members

A **bridge** between NBIS and SNIC-funded UPPMAX

- SNIC — **free to use** national infrastructure for computing, funded by Swedish Research Council
- UPPMAX — Uppsala high-performance computing centre

Provides a **digital research environment** serving 700+ PIs with over 1000 projects

Focus on HPC systems provided by UPPMAX



NBIS coordinates the Swedish node in ELIXIR – the European infrastructure for biological information

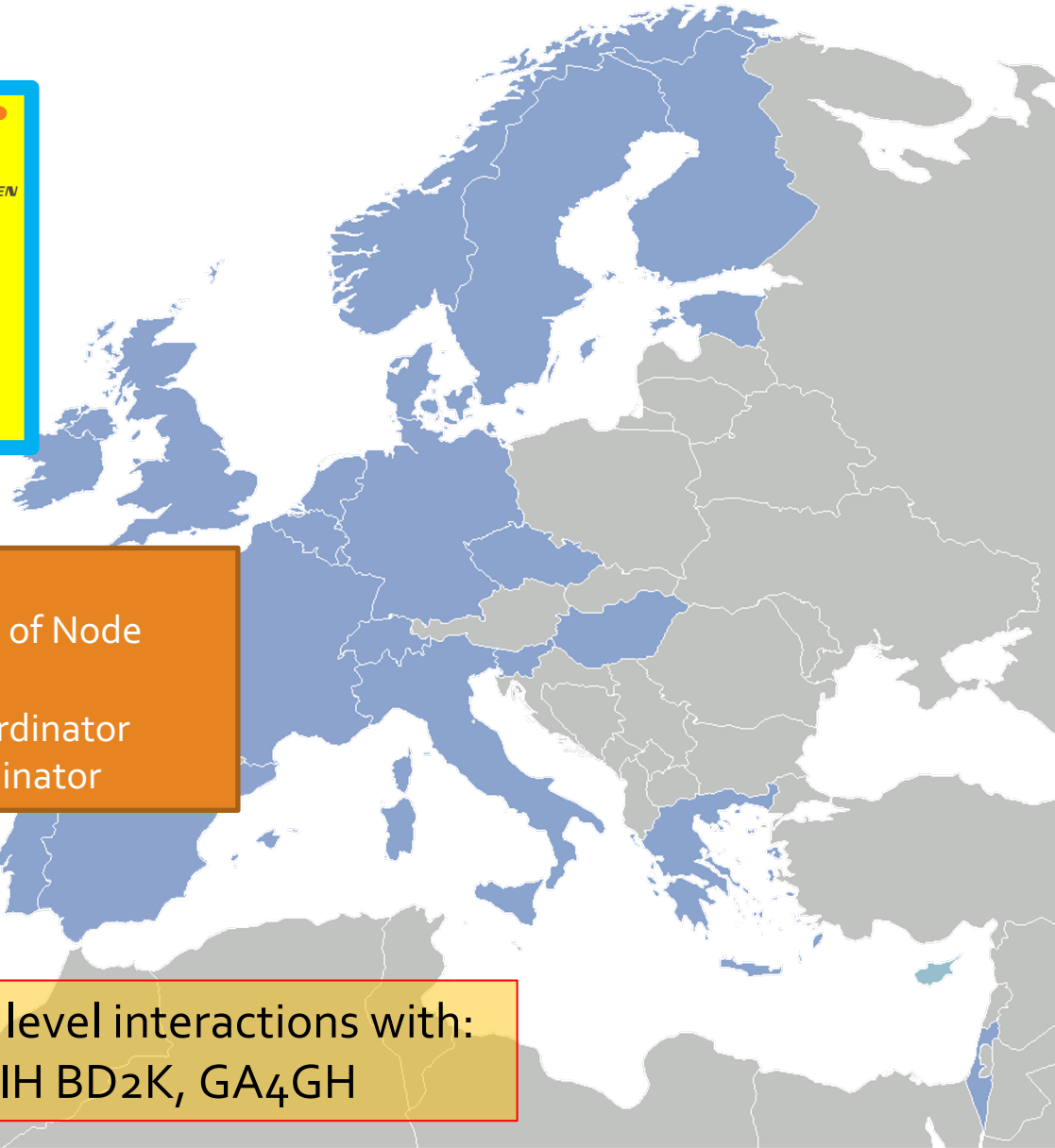
22 members + 1 observer

Five technical platforms for
Compute
Data
Tools
Interoperability and
Training

Complemented by **Communities** in
Marine metagenomics
Rare diseases
Human data
Plants sciences
Proteomics
Metabolomics
Galaxy and more to come

Swedish contributions:
-- Human Protein Atlas
-- Human Data Community
-- Federated EGA and Beacons
-- Data Management
-- Biodiversity
-- Training (Jessica Lindvall Ex-Co)

- Bengt Persson, Head of Node
- Jessica Lindvall, Deputy Head of Node and Training Coordinator
- Johan Viklund, Technical Coordinator
- Jessica Lindberg, Node Coordinator



At the global level interactions with:
RDA, NIH BD2K, GA4GH

Thank you!!

Any questions?