

ELIXIR.NO newsletter no 5**January 2018****NeLS – Norwegian e-infrastructure for Life Science**

We develop, operate, and support NeLS, the Norwegian e-infrastructure for Life Science. The system allows users to store, share, and analyse bioinformatics data sets. Tools and pipelines for tasks like differential gene expression, variant calling, and taxonomic classification are already available, and new methods are added on a regular basis. Data uploading and management can be done through a dedicated web portal. Analysis functionality is provided through linked instances of the Galaxy system – a popular bioinformatics workbench. You can log in to NeLS at nels.bioinfo.no using your regular university account (through Feide), or else obtain a NeLS-specific user account. NeLS is in active use by more than 500 users and in close to 100 projects.

Regular user workshops – and online training

We are running user workshops in Bergen, Oslo, Tromsø and Trondheim – to aid users in utilizing NeLS, including the Galaxy workbench with analysis workflows, as well as the TSD (Tjenester for Sensitive Data) system. The workshops are popular and often fully subscribed within hours after they have been announced. Information on up-coming workshops is available at www.bioinfo.no (Training tab). We are also making available short videos showing how particular tasks can be done within NeLS and the associated Galaxy workbench – these are also available at the same web site.

New funding period (2017-2021)

The Research Council of Norway has granted support for ELIXIR Norway for a new period of four years. Together with an increased level of support from the partner institutions, it allows us to maintain and extend our e-infrastructure project NeLS, our help desk, strengthen our ELIXIR deliverables, and to start up new activities. In this newsletter we describe some of the new activities including systems biology and an increased effort in the area of marine genomics. We are currently also in the process of hiring an administrative coordinator for ELIXIR Norway.

Systems biology - now part of ELIXIR Norway

With the inclusion of a work package dedicated to systems biology in this new funding period, ELIXIR Norway is expanding the scope of analysis workflows made available in NeLS. The already close connection between the research fields of bioinformatics and systems biology is leveraged by providing network analysis and genome-scale metabolic modeling as new capabilities in the next years.

Towards a distributed ENSEMBL

Ensembl and its sister project Ensembl Genomes are among the most used portals for accessing, browsing and analysing genomic data worldwide. Supported by an ELIXIR Implementation study with participation from EMBL-EBI and Elixir Sweden in addition to Elixir Norway we have explored technical aspects of moving to a distributed model for operation of the Ensembl resource. This includes both genome annotation and providing genomic information through web portals and programmatic interfaces. The reason for exploring a distributed model is that it would allow for a

closer coupling between groups with biological expertise (and data generating efforts) on individual genomes and their annotation. It might also provide a more sustainable model in terms of funding allowing national agencies to support efforts on species of high national importance. The project has met a number of technical challenges, but using container technology, most have been tackled. The project also includes mapping out organisational challenges related to a distributed model of operation - making a good foundation for considering implementation of such a model.

Galaxy workshop in Oslo

Galaxy (<https://galaxyproject.org>) is an open, web-based platform for accessible, reproducible, and transparent computational biological research. Galaxy allows computational workflows to be set up and used, without the need of programming skills. Recently ELIXIR Norway hosted the European Galaxy Administrator Workshop in Oslo with international instructors and 35 national and international participants. Participants learned how to install, configure, customize, and extend their own Galaxy servers. Topics included tool configuration, authentication and user management, using heterogeneous storage and compute services, and many other topics that will enable the participants to get their own Galaxy servers up and running, performing well, and used by their local community. Link to event website:

<https://www.elixir-europe.org/events/european-galaxy-administrator-workshop>



Participants of the European Galaxy Administrator Workshop in Oslo eagerly learning how to manage their Galaxy servers.

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