

Newsletter/Core facilities

from The Faculty of Medicine

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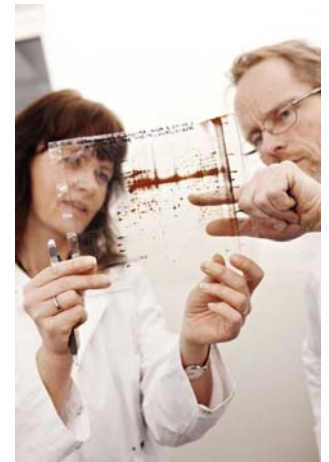
Edition 1. 2012

What is a core facility?

On 1 February this year, 5 new core facilities were set up by the Faculty of Medicine (DMF) at NTNU. All five new core facilities are created with the same model and by the following definition:

A core facility shall:

- contribute to make available advanced scientific technology / equipment, sample and data collections, and methods for researchers both regionally and nationally.
- conduct research and development within their own disciplines.
- have a service function performed by qualified personnel specialized for operation, maintenance and / or tutorial of core facility users.



Why set up core facilities?

At all research institutions, investments in equipment and expertise are important. Hereby follows a need for maintenance and technical expertise to maintain and develop equipment and techniques.

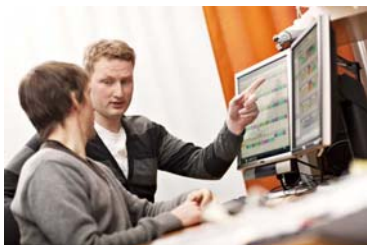
In Norway, it is becoming more and more common to set up shared infrastructure like DMF's core facilities. By making the core facilities available to all national researchers, it facilitates better national research collaboration. The researchers will have accesses to a broader range of equipment and methods, and at the same time it will be easier to exploit the total capacity of the infrastructure.

In recent years, there have been major increases in laboratory area, equipment investments and data collections at DMF. Furthermore, the portfolio of external funded projects is increasing. The need of a better organization of infrastructures was necessary, and hence, the result of setting up core facilities. Hopefully, this will call attention to competence in a new way, and facilitate utilization of equipment and data collections.

User fee is a new term related to shared infrastructure. All core facilities have a basic funding that is underfunded. The user fee is intended to help finance the not funded part of the core facility. The user fee includes maintenance and upgrades of instruments, reagents and consumables, and if necessary use of personnel.

In this way, all users of the infrastructure contribute to maintain a good infrastructure.

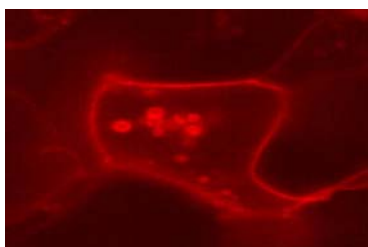
The five new core facilities are:



Bioinformatics Core Facility (BioCore)

BioCore works in the interface between bioinformatics and molecular biology with focus on high throughput sequence analysis, gene regulation (miRNA, TF, epigenetics), genome stability, genome variation (SNPs) and prokaryote gene/protein analysis.

www.ntnu.edu/dmf/biocore



Cellular and Molecular Imaging Core Facility (CMIC)

CMIC offers imaging of high scientific quality. You may image cells and molecules using a variety of imaging techniques such as: confocal laser scanning microscopy, live cell imaging, high throughput screening microscopy, fluorescence correlation microscopy, histochemistry and electron microscopy.

www.ntnu.edu/dmf/cmhc



Genomics Core Facility (GCF)

GCF supports your research needs for high-throughput genomics. Currently their services include whole genome gene expression, genotyping and DNA methylation analysis using Illumina or Affymetrix platforms. In 2012, a DNA/RNA sequencing service will be introduced, based on state-of-the-art "high throughput sequencing" (HTS) technology.

www.ntnu.edu/dmf/gcf



MR Core Facility

MR Core Facility offers services and access to state-of-the-art equipment for *in vivo* magnetic resonance imaging and spectroscopy in disease models in small animals as well as *ex vivo* high resolution NMR spectroscopy and MR metabolomics of human tissue samples and body fluids.

www.ntnu.edu/dmf/mr-corefacility



Proteomics and Metabolomics Core Facility (PROMEC)

PROMEC support your research needs for proteomics and metabolomics. MS-tools for protein identification, de-novo sequencing and analysis of post translational modifications, as well as both gel- and liquid-chromatography based techniques are offered. The core facility also offers LC-MS instrumentation for metabolite analysis.

www.ntnu.edu/dmf/promec

BioCore – Bioinformatics support

Bioinformatics has been one of the national networks within The Norwegian Research council's large programmes; FUGE, Functional Genomics research. Even though the FUGE programme is completed, the national network will still be operable. Moreover, the Medical Faculty has set up bioinformatics as a Core Facility, BioCore.



- Although we have become a core facility we will continue to be a part of the national network. BioCore will contribute to a common bioinformatics helpdesk together with the University of Bergen and Oslo, says the Academic Leader Paul Sætrom.

At the same time, other parts of the national network will continue through the European bioinformatics network; ELIXIR. The Norwegian initiative is led by Prof. Inge Jonassen at the University of Bergen, however, prof. Finn Drabløs is ELIXIR's regional project leader. There is a close collaboration between BioCore and ELIXIR.

- Our main focus will be in the areas of high throughput sequence analysis, gene regulation (miRNA, TF, epigenetics), genome stability, genome variation (SNPs) and prokaryote gene/protein analysis, says Sætrom.

BioCore is located in the Laboratory building together with molecular biologists. A close contact with professionals who work in the laboratories is essential in order to cover the needs of those who produce the data to be analyzed. A close collaboration with two other core facilities, GCF and ProMec is also essential and facilitated by the location. These two core facilities produce large amounts of data where the bioinformatics support is essential.

BioCore currently have 4 employees, an Academic leader; Pål Sætrom, a manager; Jostein Johansen, and two researchers; Eivind Coward and Tony Håndstad.

- It is important that the researchers contact us before doing experiments in the wet lab, says manager and contact person, Jostein Johansen. The reason for this is to ensure that the quality of the data have the quality recommended for statistical and bioinformatics analysis.

Researchers can also work at BioCore for a short or longer time as a part of a professional collaboration. This is a good opportunity for molecular biologists to learn bioinformatics techniques and bring it back to their research group.

News - MR Core Facility



In the beginning of March, NTNU signed a contract with Bruker Biospin for a full upgrade of our 7T small animal MR system. The upgrade is scheduled to take place in late August/ early September this year and will result in 2-3 weeks down time while the new hardware is installed.

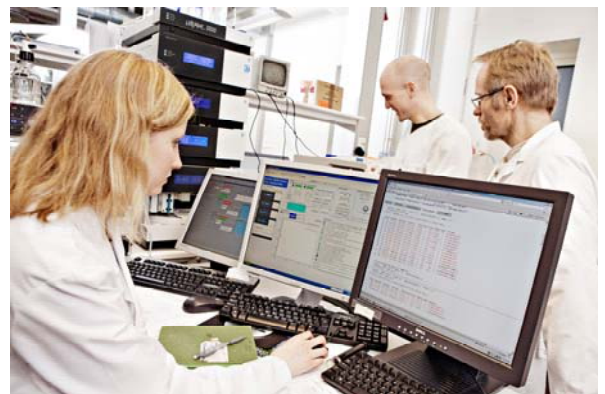
Most system components will be changed and bring the system to a state-of-the-art performance level with improved shim, faster and more powerful gradients and multi-channel receive possibilities with several multi-array coils that open the possibility for parallel imaging. New X-nuclei coils for ¹⁹F and ³¹P, a new life

monitoring system for small animals and animal beds are also included in the upgrade. How the system is operated will change somewhat due to major hardware changes, and all current and new users will be given training to operate the upgraded system after the installation.

iLab solutions – a booking system

iLab is a booking system that must be used if you would like to book instruments, training and services at the core facilities.

In iLab, you may book instruments, training, and service. All prices and contact persons to the core facilities can be found in iLab, and your orders in iLab will be the basis for the billing. In this way we ensure that all R&D users get equal access to the core facilities at equal terms.



Information on how to register for iLab can be found at:
<http://www.ntnu.edu/dmf/booking-manual>