

# MultiPark NextGen Sequencing (NGS) Platform

## *Description and steering document*

### *Short description*

The Multipark NGS platform is located at the BMC in Lund. It is a NGS facility providing you with services for RNA or DNA isolation, library preparation using Illumina kits to sequencing on our NextSeq500 or at Centre for translational genomics (CTG). Quality checks using Agilent Bioanalyzer and qubit for starting DNA/RNA and finished libraries are included. A bioinformatician will provide you with a quality check of the sequencing data and raw files. It is open to all interested Multipark affiliates as well as external users on a first-come, first-serve basis.

<https://www.multipark.lu.se/infrastructures/next-generation-sequencing-ngs>

### *Service provided*

The services provided by the NGS platform are:

- RNA isolation (from both cells in culture as well as rodent and human brain tissue)
- Initial quality control (QC) of RNA/DNA (BioAnalyzer +Qubit)
- Library preparation
- Generation of single-cell and single-nuclei libraries (the core has access to a 10X Chromium Platform)
- QC of sequencing libraries (BioAnalyzer +Qubit)
- Next generation sequencing (the core has a Illumina NextSeq500 instrument)
- Data storage
- Initial bioinformatics analysis (QC)

In addition to RNA-seq, other NGS-based techniques such as various forms of DNA-analysis and ChIP-seq are available upon request.

The core has expertise in handling many different types of tissues and cells, including the analysis of samples with very small amount of RNA. Importantly, there is a high level of expertise in analysing brain tissue samples.

Following the wet-lab analysis, the obtained data will be transferred to the LUNARC server where it will be backed-up and stored. The platform keeps a constant dialogue with LUNARC and StemTherapy to monitor storage possibilities. If necessary, (e.g. in case of extremely large data-sets) users may have to make storage agreements directly with LUNARC or other storage facilities.

As a minimum bioinformatic service, a quality control of the data will be performed, and the raw data will be supplied to the user. The platform does not currently offer full bioinformatic support.

### *Investments and financing*

The Next Generation Sequencing platform was established through funding from MultiPark and Bagadilico. MultiPark provided funding to cover the purchase of a NGS system along with a 5-year service agreement. This system and the service agreement have been fully paid for. Bagadilico has provided funding for a Bioanalyzer instrument, which has been fully paid for. In addition to the NGS system and the Bioanalyzer, the platform also contains minor equipment such as a Qubit and a PCR system. The platform also has access to a 10X Chromium Platform funded by Jakobsson/Parmar. The platform is located on B11.

Rent and personnel is financed by Multipark and includes:

50% Wetlab technician, Jenny Johansson

40% Bioinformatician, Yogita Sharma

The facility benefits of a close collaboration with the bioinformatics core at StemTherapy. This results in increased expertise in data analysis. The connection with StemTherapy and Lunarc also provides an important resource for data storage. In addition, the facility has a long-standing collaboration with CTG which allows for efficient sequencing at the platform as well as standardised data transfer from CTG.

### *Management*

The NGS platform is managed by Johan Jakobsson, Yogita Sharma, Jenny Johansson and Paulina Pettersson. J. Jakobsson is responsible for the overall management of the platform. J. Johansson is responsible for sample handling, library preparation and contact with CTG. Y. Sharma is responsible for data management post-sequencing as well as initial QC of data. PP is handling the finances of the platform.

### *Steering group*

The steering group has the overall responsibility for the platform's well-functioning and reporting, and sees to advertise the activities of this platform in line with the MultiPark infrastructure policy. The steering group sees to promptly communicate changes to the users and the MultiPark leadership. The steering group is composed of researchers with competence in this technology, who also represent different areas of activity in MultiPark. The steering group is composed of J. Jakobsson (chair), Tomas Deierborg, Niklas Marklund, Malin Parmar.

### *Access*

The facility is open for all users (both within LU and externally). Priority is given to MultiPark users.

### *User fees*

Use of the core facility is free of charge and users only pay for reagents plus a 10% charge. The 10% charge is intended to build a surplus to help cover unexpected costs, repairs and similar expenses associated with the platform. It should be noted that this is a research platform, and the cost of using the platform is for using the service. As such,

reimbursement will not be provided based on analysis results. Each project will be charged on a project basis, taking into account factors such as number of samples. Approximate costs for one single RNA-seq sample typically range from 1000 SEK – 3000 SEK per sample but are dependent on the design of the project. A single-nuclei RNA-seq sample typically costs around 20.000 SEK.

Invoicing is performed by Paulina Pettersson.

*Other*

No

*Date updated*

2022-10-19