Master Thesis Project at Boehringer Ingelheim RCV, Vienna

Analysis of Oxford Nanopore sequencing data

(Initial focus: oncobiome analysis)

Description

The field of microbiome research has grown tremendously in the last couple of years, not least due to major breakthroughs in making sequencing cheaper and easier. The impact of the microbiome on human physiology has been subject to extensive research, with cancer being one of the malignancies of interest (see Geller et al Science 2017 (DOI: 10.1126/science.aah5043) as one of the recent examples for research on the oncobiome).

This master project aims at establishing a microbiome analysis pipeline based on sequencing data generated from Oxford Nanopore's sequencing technology. An initial focus lies on the taxonomic assignment of the bacteria identified as well as abundance analyses between different samples. Publicly available data sets like the mock community data out of the Loman lab (https://github.com/nickloman/mockcommunity) should be leveraged for pipeline development, with the potential to generate proprietary in-house data. Additional areas of nanopore analyses can be explored upon mutual agreement.

Candidate Profile

- BSc Degree in Bioinformatics, Biostatistics, Computational Biology or equivalent qualification
- Experience with working in a LINUX/UNIX environment
- Hands-on experience with bash and shell scripting
- A solid background in at least one scripting language like Python, Perl, etc.
- Basic understanding of statistical analyses and their application in R/Bioconductor
- Precise and reproducible work- and documentation-style
- Experience with Next Generation Sequencing data analysis is a plus, especially variant calling, SNP or CNV analysis
- Fluent in English and good communication skills

Application Details

If you would like to work in an ambitious industrial research group with access to state-of-the-art computational infrastructure, please send a cover letter, a detailed CV and the contact details of at least one reference to andreas.wernitznig@boehringer-ingelheim.com.

- Projected starting date: January-March 2019
- Project duration: approx. 6 months
- Competitive financial support will be provided