

Applications of Single Molecule, Real-Time SMRT® Sequencing

Date: 8.11.13

Time: 12.30 – 14.30

Location: Seminar room 134B
Oulu Medical Campus
Aapistie 5A



Program

12.30 Introduction of Pacific Biosciences and Helsinki University

John Kuijpers, Senior Executive Key Account Manager, Pacific Biosciences

12.45 Single-Molecule, Real-Time (SMRT) DNA Sequencing: Technology Overview and Recent Applications

Jenny Ekholm, Field Application Support, Pacific Biosciences

13.30 Next Next Generation Genomics in Institute Of Biotechnology

Lars Paulin, Laboratory Manager, Institute of Biotechnology

Abstract:

SMRT Sequencing is a DNA sequencing technology characterized by long read lengths and high consensus accuracy, regardless of the sequence complexity or GC content of the DNA sample. These characteristics can be harnessed to gain information about genomic regions previously inaccessible to other technologies. The speaker will highlight new applications, including the study of trinucleotide repeat expansions, structural variations, large-scale deletions, and palindromic sequences. The speaker will also discuss applications of SMRT Sequencing for long-range haplotype phasing, characterization of splice-isoforms, detection of minority-species in virology and cancer research, finished microbial genome assemblies in infectious and foodborne diseases, and the direct determination of epigenetic information alongside the DNA sequence.

What you will learn:

- The fundamentals of Single Molecule, Real-Time (SMRT) Sequencing
- How to improve assemblies and finish genomes using extra-long reads (multiple kilobases)
- How SMRT Sequencing can span difficult regions and comprehensively characterize genomic variation
- Examples include: rapid and complete assembly of bacterial genomes and methylomes, gap-filling and hybrid assembly of large genomes, repeat-expansion analysis, and haplotype phasing