

## AVEIRO MOLECULAR GENOMICS COURSE 2008

### Biological and Biomedical Applications of Massive Parallel DNA Sequencing

**HOST :** **Biocant-Cantanhede**

**Collaborations :** **IEETA, University of Aveiro**

During the last 3 years, a important new developments on large scale DNA sequencing opened remarkable new ways to sequence and analyse genomes primary structure. These technologies are opening new avenues to understand Biological complexity and to understand human disease. Recently, the Biocant Research Centre acquired a new 454 Massive Parallel Genome Sequencer which is being used for direct genome sequencing, SNP detection, transcriptome analysis and metagenomics studies. Parallel DNA sequencing produces large data sets whose analysis requires important expertise on Bioinformatics and statistical analysis. This course will cover in detail the methodologies used in massive parallel DNA sequencing and will provide hands-on-training on the Bioinformatics tools used for analysis large scale DNA sequence data. The course is addressed at PhD, Postdoctoral and Senior researchers in the Biological and Biomedical fields, which are interested in the fields on Genome sequencing, comparative genomics, evolutionary genomics, population genetics, transcriptome sequencing and metagenomics.

#### Course Program

##### Day 1

State-of-the-art DNA sequencing technologies.  
Overview of 454 sequencing technology.  
Experimental design: Human microbiome.

##### Day 2

Applications of 454 Massive Parallel Genome Sequencing.  
SNP detection with 454 sequencing technology.  
Hands-on training: analysis of mutations in population data sets.

##### Day 3

Whole genome shotgun sequencing with 454 technology.  
Hands-on training: Assembly and annotation of a microbial genome.

##### Day 4

Metagenomics and microbial diversity.  
Hands-on training: analysis of experimental data on human microbiome.

##### Day 5

Other sequencing applications: analysis of non-coding RNA, HIV genotyping and transcriptome studies.

**Date: 3th-7th of November 2008**

**Deadline for Registration: 15 October**

**E-mail for registration:** [cegas@biocant.pt](mailto:cegas@biocant.pt) / [sandra.tome@abap.pt](mailto:sandra.tome@abap.pt)

**Registration fees: 300 €**

**Maximum Number of participants: 20**

**Informações:** [www.biocant.pt](http://www.biocant.pt)