

Daniele Soria, 23/05/2006

Post-genomics and Bioinformatics course

Description:

The course was held during 15th - 17th May 2006.

It was a course on the techniques and technologies used in the current practice of genomics, transcriptomics, proteomics and bioinformatics. All the lectures and the practical sessions are available on-line at <http://plantsci.arabidopsis.info/pg5.html>

Day 1:

During the first day a general view of genomics was given through lectures and practical activities. Some genome databases available on internet were shown and tutors explained how to exploit genome database resources using basic sequence analysis tools such as BLAST.

We worked in groups with gene IDs in order to investigate gene function, including using analysis tools such as spot history. We prepared a presentation for the next day on the obtained results.

Day 2:

The second day was all based on Transcriptomics. Tutors introduced the Macroarrays and microarrays techniques, and explained how to analyse transcriptome data (normalisation, clustering and pair-wise analysis, use of Genespring software).

During the day we were also taken on a tour of equipment for genomic resources.

We concluded with the PowerPoint presentations prepared by each group during the first day.

Day 3:

During the last day of course a general view of proteomics was given, covering methods of protein purification and separation including 1D/2D gels. Two lectures about metabolomics were also held during the day.

For the practical we used a tool called MASCOT for the identification of peptides.

At the end of the day we were taken on a tour of the Proteomics facilities.

Skills learned:

During the three days I learned how to identify on-line resources for genomics, transcriptomics and proteomics. Additionally, given a short DNA sequences, I am now able to identify both perfect and homologous matches in external databases. I can use these matches to identify online data about transcription profiling of these genes and related genes. Using prediction programs I also can investigate the functions of these genes.

Feedback:

The course was organised in a very good way, dividing the different “omics” in different days.

Some lectures and practical activities (especially in the second day) were quite difficult for me because I haven't the proper background on molecular biology. Perhaps it should be compulsory, for people without such a background, to attend the Computing and Molecular Biology course before this one.

I will try to attend the Computing and Molecular Biology course next semester in order to attend again the Post-genomics and Bioinformatics one next year.