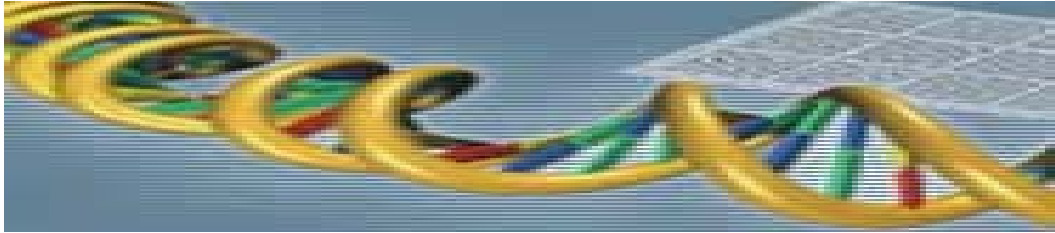


JAMES RENNIE BEQUEST

REPORT ON PRACTICAL COURSE

Course Title: Large scale gene expression analysis using DNA microarrays



Travel Dates: May 10 - 15, 2004

Location: Tuku, Finland

Group Member: Andrea Chini

Aims: Attend the practical course on the use of complex DNA- and antibody microarrays as tools in functional analyses and statistical analysis of microarray out-put.

The European Science Foundation and the Turku Centre for Biotechnology (University of Turku) organised the practical course “Large scale gene expression analysis using DNA microarrays” that took place on May 10-15 2004 in Turku, Finland. Forty-eight young scientists, coming from all over Europe (PhD student or young post-doc), were selected to participate to the course.

The purpose for this course was to acquire knowledge on the DNA microarray technology. An important aim for this course was the participants to learn to design their experiments carefully, to learn to use DNA microarrays for questions that can be answered with the technique.

The course introduction focused on information about the different DNA microarray technologies, including cDNA microarrays and Affymetrix oligonucleotide microarrays, the manufacturing and usage of the techniques, experiment design issues and a case study of research done with both microarray techniques. In addition, the differences and the pros and cons of different techniques were emphasized. In the afternoon of the same day, the introduction to the laboratory training was also provided. Experiment design focused on the bases of how to do good and reproducible microarray experiment with reliable results.

During the second day, microarray experiments were performed on laboratory employing the RNA provided by the organizers. The hybridization reaction was run over night, and the slides were washed the following morning. We then scanned our slides at the state-of-the-art facilities of the Turku Centre for Biotechnology. We therefore performed all practical steps required to complete a microarray analysis.

The rest of the course dealt with the statistical analysis and data management of the results. Data extraction was carried out using a programme developed by the Turku Centre for Biotechnology which is freely available to the international scientific community.

In summary, the James Rennie Bequest Committees kindly offered me a Travel Grant that enabled me to gain practical experience on microarray analysis. Moreover, I learnt which questions can be addressed by this technology and the importance to carefully design microarray analysis. I was very glad to carry out a microarray experiment from the first manual steps to the final data statistical analysis. Finally, I understood the fundamental important of a robust statistical analysis of the data out-put; as a matter of fact, too often microarray results are misinterpreted because of poor statistical analysis.