Workshop Time Table and Program

Tuesday 23.11.2004

Morning session (11:00-13:00)

A: Overview ***(K. Strimmer)***
- cDNA and affymetrix technology
- problems in gene expression analysis

B: Preprocessing, calibration, normalization ***(B. Pütz)***
- loess normalization (Dudoit et al.)
- variance stabilisation (Huber et al.)
- SMA and quantile normalization (Speed et al.)

Afternoon session (15:00-18:00)

Tutorial and practical exercises
- introduction to R ***(R. Opgen-Rhein)***
- excercises for normalization ***(B.Pütz, K. Strimmer)***

Wednesday 24.11.2004

Morning session (11:00-13:00)

A: Searching for biological markers ***(A. Yassouridis)***
- experimental designs
- multivariate and multifactorial association analyses

B: Differential expression ***(B. Müller-Myhsok & D. Salyakina)***
- vulcano plots
- multiple testing (FDR)

C: Further statistical techniques ***(S. Seaman)***
- t-test and other related tests

Afternoon session (15:00-18:00)

Tutorial and practical exercises
- identification of differerentially expressed genes ***(B.Pütz, D. Salyakina, S. Seaman)***
- impact of normalization ***(J. Schäfer)***

Thursday 25.11.2004

Morning session (11:00-13:00)

A: Multivariate techniques ***(K. Hechenbichler)***

- non-hierarchical clustering (K-Means, SOMs, model-based clustering)
- hierarchical clustering (distance-based methods)
- classification methods (nearest-neighbor, CART)

B: Special topics ***(K. Strimmer)***

- time series and networks
- graphical models for inferring genetic networks
- analysis of gene expression cell cycle data

Afternoon session (15:00-18:00)

Tutorial and practical exercises

- clustering of genes, identification of coregulated genes, impact of distance measures, classification of tumor samples ***(K. Hechenbichler)***
- identification of periodically expressed genes, inference of a genetic network ***(J. Schäfer, R. Opgen-Rhein)***