DNA Microarrays, DNA Structure, and Gene Expression

Tutor: Professor Pierre Baldi
Department of Information and Computer Science and
Department of Biological Chemistry, College of Medicine
Director Institute for Genomics and Bioinformatics
University of California, Irvine
Irvine, CA 92697-3425
(949) 824-5809
(949) 824-4056 (FAX)
www.ics.uci.edu/~pfbaldi
www.igb.uci.edu

Reference:

"DNA Microarrays and Gene Expression"
G. Wesley Hatfield and Pierre Baldi
Cambridge Univesity Press (expected Spring 2002)

Tutorial Description:

DNA microarrays can provide a snapshot of the level of expression of all the genes in a cell at a given time. Like the invention of the microscope a few centuries ago, DNA arrays hold the promise of transforming biomedical sciences by providing new vistas of complex biological systems. This tutorial will provide a brief overview of DNA microarray technologies and will focus on the analysis of DNA microarray data at four different levels of increasing complexity: (1) single genes (e.g., differential analysis); (2) multiple genes (e.g., clustering, co-regulation); (3) regulatory regions (e.g., motif finding); (4) regulatory networks. The tutorial will also focus on several aspects of DNA structure, how it can be assessed, and its importance for DNA packing and gene regulation.