

Bioimaging and Functional Genomics

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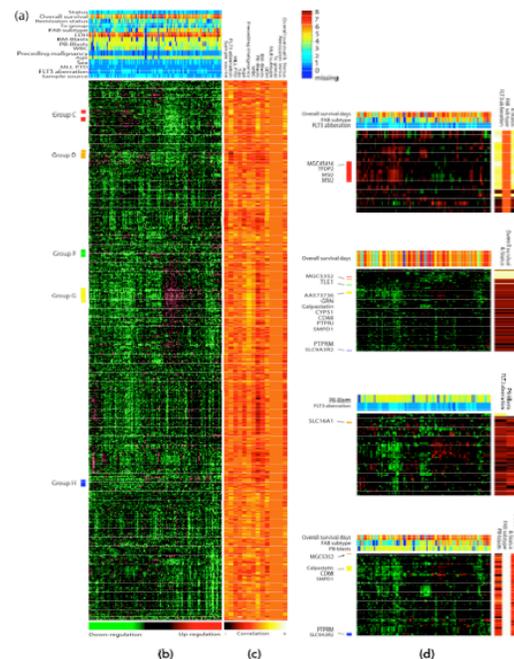
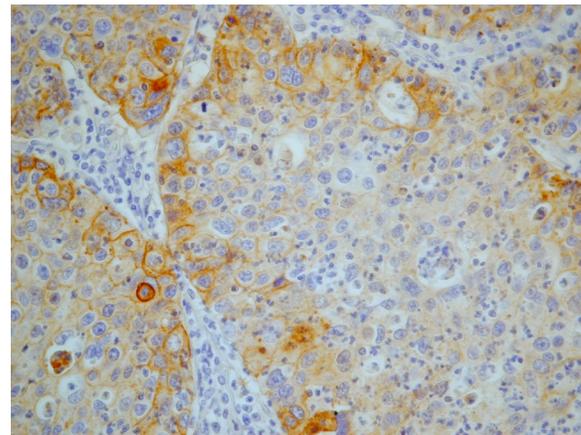
Presentation

A consistent amount of research in genomics has been done in the last few years concerning correlation of gene expression to multi-factorial genetic pathologies. Microarrays are the main instrument exploited so far to this purpose. Despite this effort, results obtained are strongly limited by the poor informative content provided by clustering techniques applied on microarray's data.

At the same time, in the field of biomedical and molecular imaging, new techniques have been shown to be effective in extracting clinical and functional biological information from images of molecules and tissues. By observing processes as they happen within the cell, these techniques add an important extra dimension to the understanding of cell behavior and function for early disease detection and drug response. In the clinic, new applications of conventional imaging technologies are likely to play increasingly important roles, particularly in oncology.

Goal

Up to now, these two independent sources of information, namely microarrays and bioimaging, have never been correlated to enhance gene expression analysis and to increase the amount of confidence in the hypothesized gene expression paths. Scope of this project is to develop a software framework able to put together data coming from microarrays and biological image processing on pathological tissues (NSCLC, non small cell lung carcinoma) and to perform a joint clustering technique in an automated way.



Publications

Contacts and Links:

- ISREC Swiss Institute for Experimental Cancer Research <http://www.isrec.ch/>
- Fondo Edo Tempia, Lab. di Farmacogenomica dei Tumori, Biella Italy <http://www.fondoedotempia.it/>
- Department of Radiology, UCSD, S. Diego, CA, USA <http://medicine.ucsd.edu/Radiology>