

Introduction to Integrative Bioinformatics

Introduction and overview Module 1
“In the context of Microarray data”

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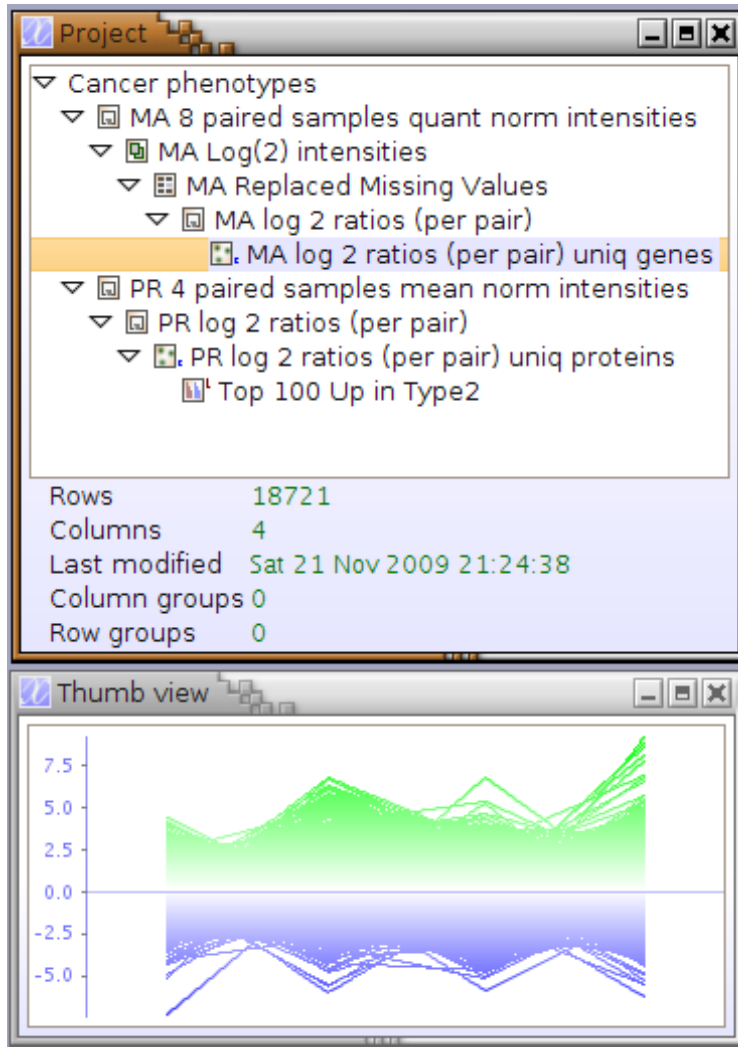
Learning aims

- Integration concepts – an approach
- Methods/Algorithms:
 - Rank Product
 - Gene Set Enrichment Analysis
- Tools
 - J-Express
 - ProMeTra
- Utilities:
 - KEGG2SBML
 - CellDesigner
 - Inkscape
 - Online ID mapping tools

Research school = cutting edge

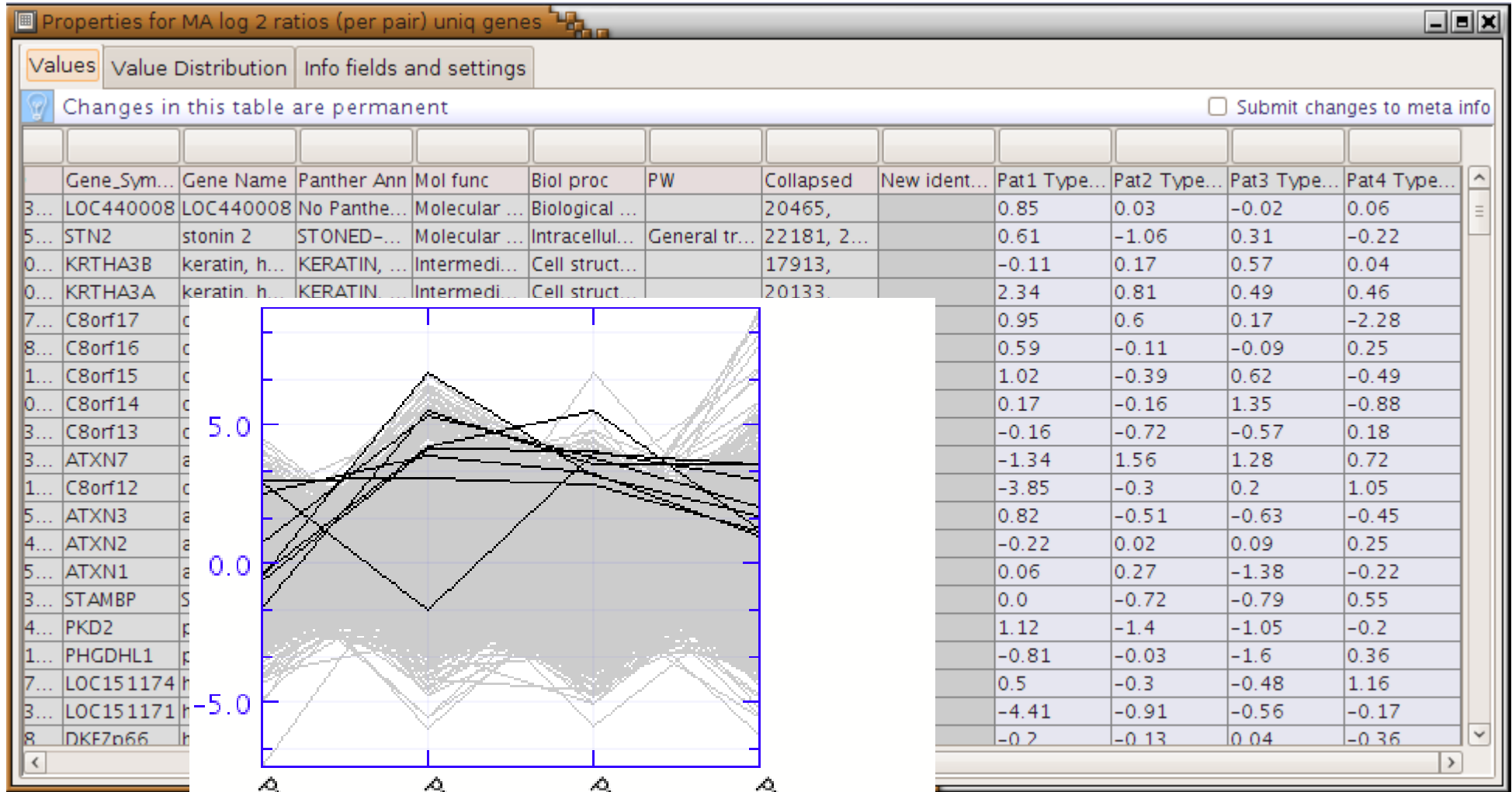
- Approaches are a mix of published methods, and more ad hoc solutions.
- Real data, not idealised, not published
- Not all resources easily accessible and polished

The test data



- Two cancer phenotypes
- MA: 8 samples total, 4 pairs
- PR: 4 samples total, 2 pairs

Numbers and graphs



Overview

Today

Introduction and overview

Learn the basics of J-Express

Break

Differential expression in
high-throughput data

Practical

Viz. PW w/data

Rank Product

PW Ranks

PW Ranks

GSEA MA

GSEA PR

DE MA

DE PR

Tomorrow

Before Lunch

Gene Set Enrichment Analysis

GSEA Practical

Break

Identifier/mapping intro

Break

Meta analysis using Rank
Product. Intro and practical

After Lunch

ProMeTra / visualization

Break

Systematic representation of
KEGG pathways

Break

ProMeTra/KEGG Practical