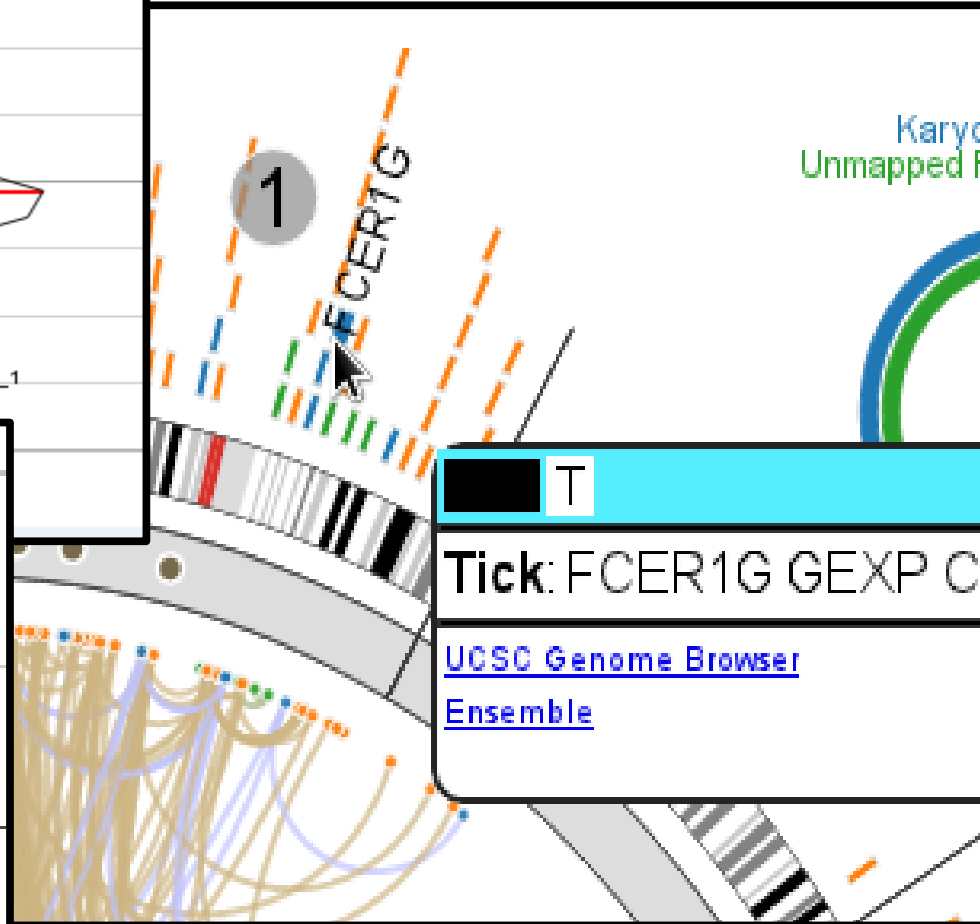
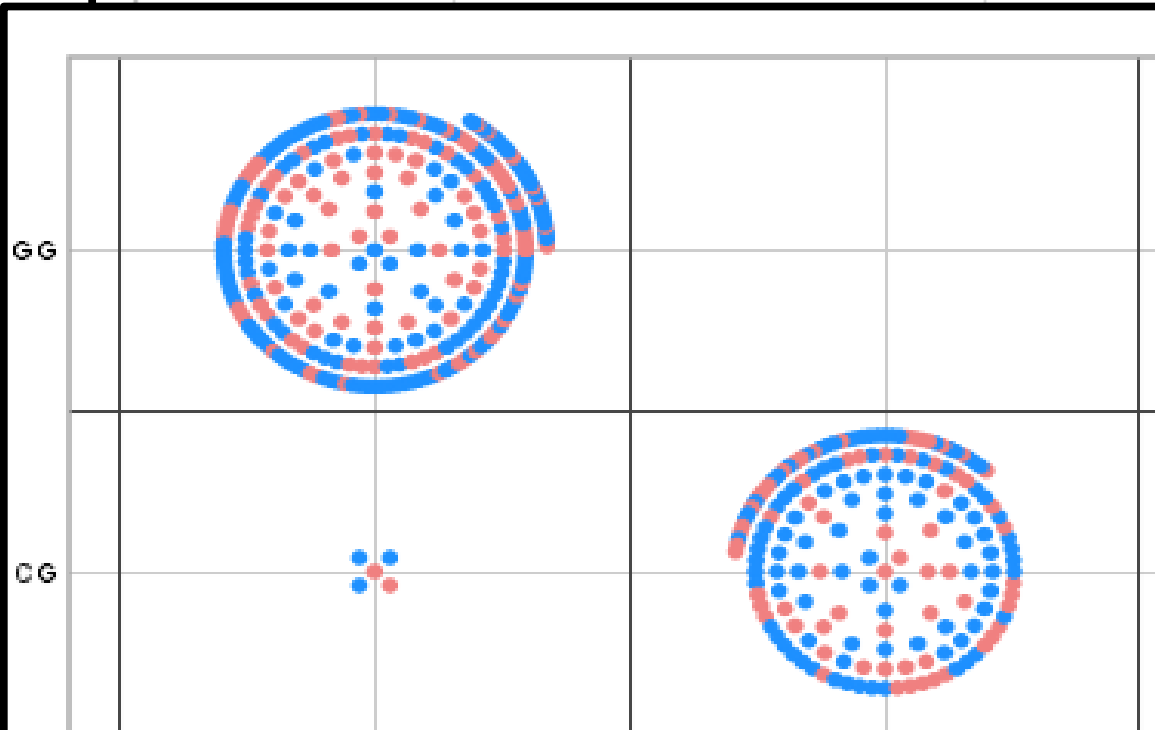
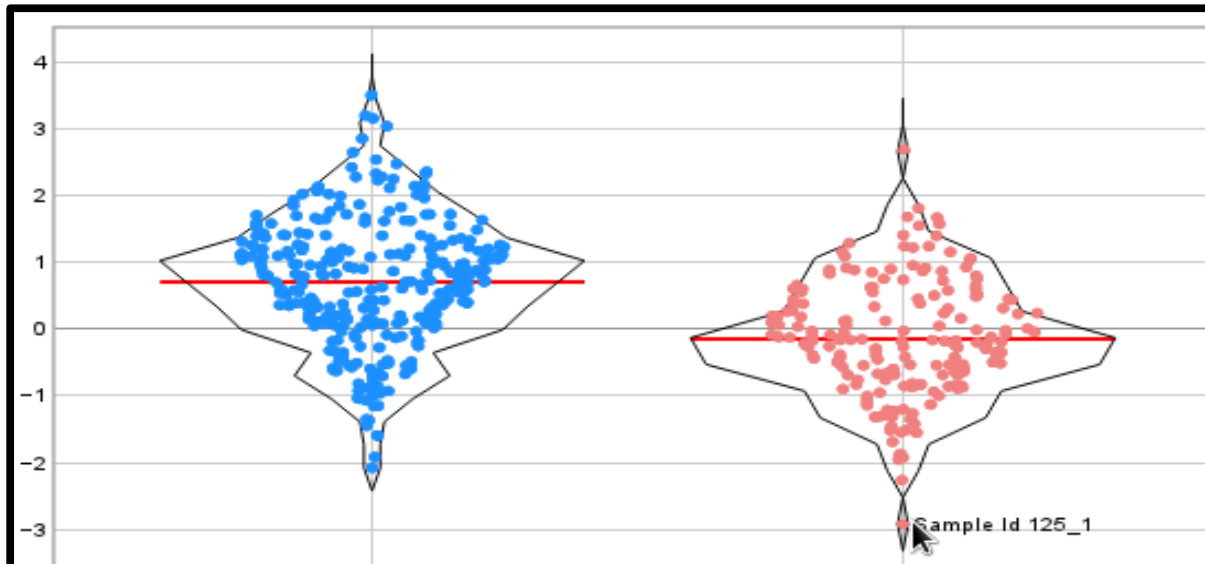


An Integrated View into  
Multivariate Associations  
Inferred from TCGA Cancer Data

*Dick Kreisberg  
Institute for Systems Biology  
Shmulevich Group  
Nov 17, 2011*

# Visual Analytics

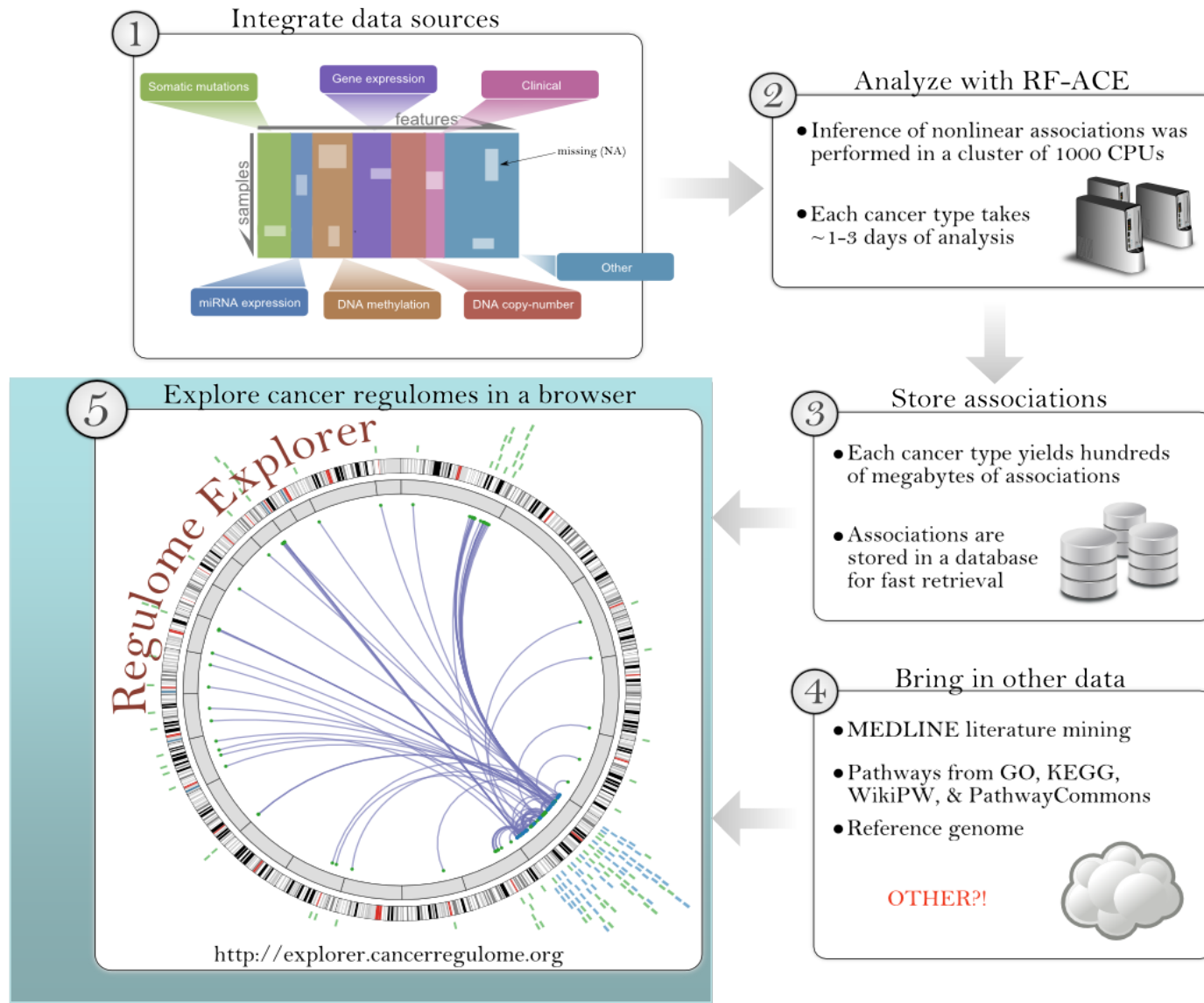


# Emergent Technologies

- Browser-based Graphical Rendering
  - SVG, Canvas, WebGL, Flash
- Cloud Services
  - Highly available, scale-able
- NoSQL (Couch, Mongo, etc)
  - Adaptive data models
- Graph Databases (Neo4J, OrientDB)
  - Adaptive data relationships
- Graph Computation
  - Reasoning on the topology of the data

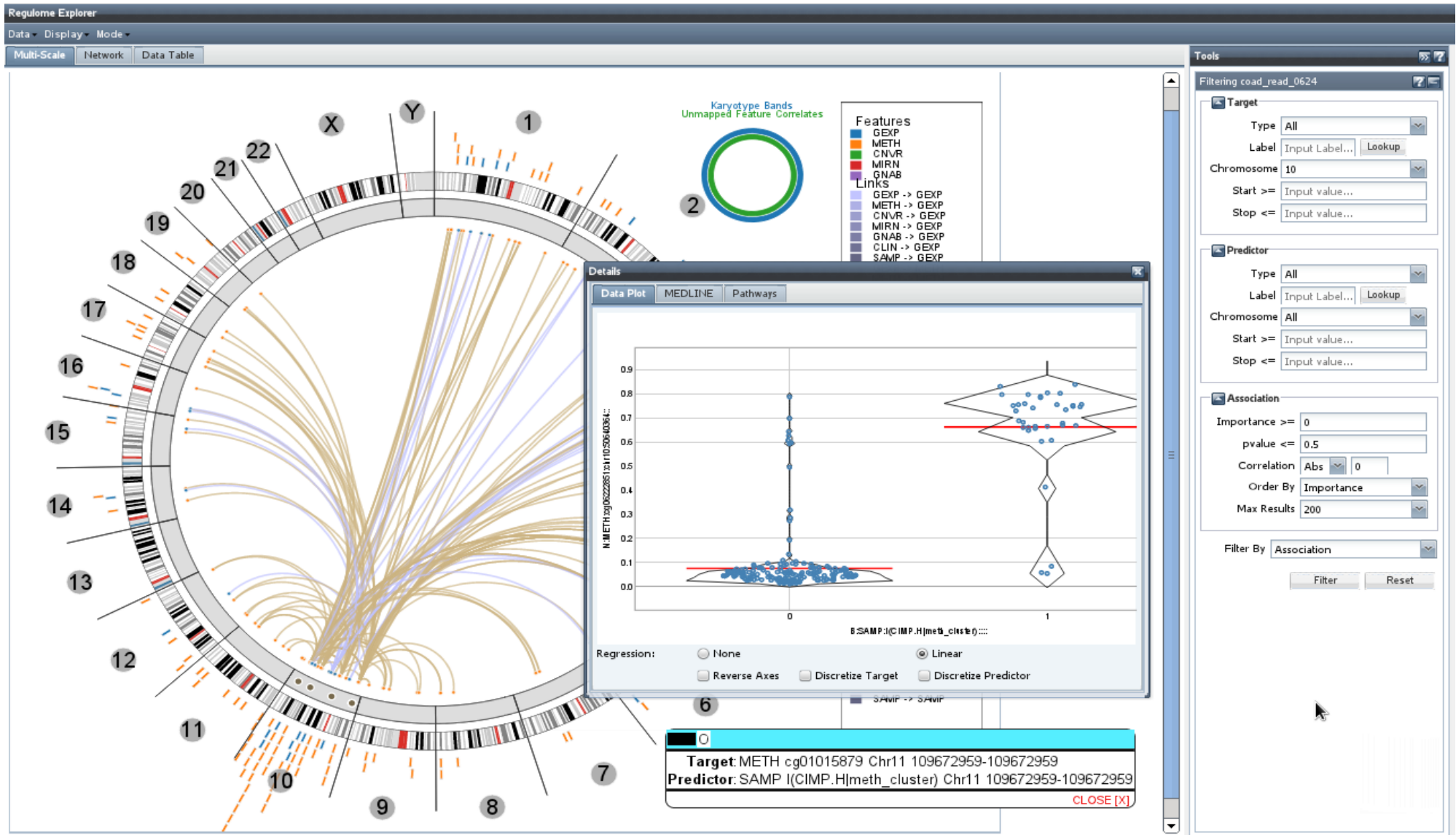


# Integrating Data Across Sources, Analyses, and Literature



<http://explorer.cancerregulome.org>

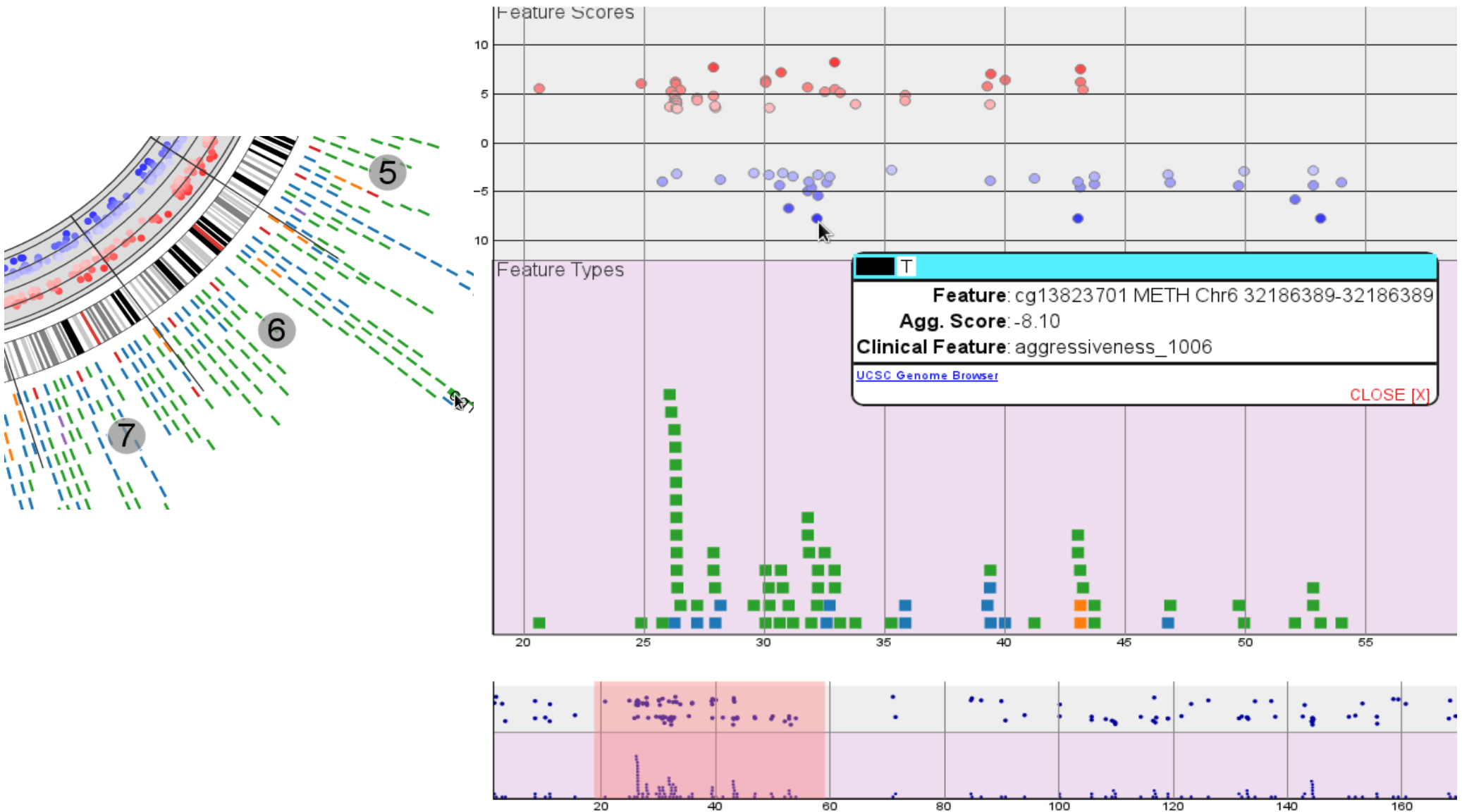
# Random Forest Analysis



Regulome Explorer Genome View –RF, Significant Pairs, Aggressiveness

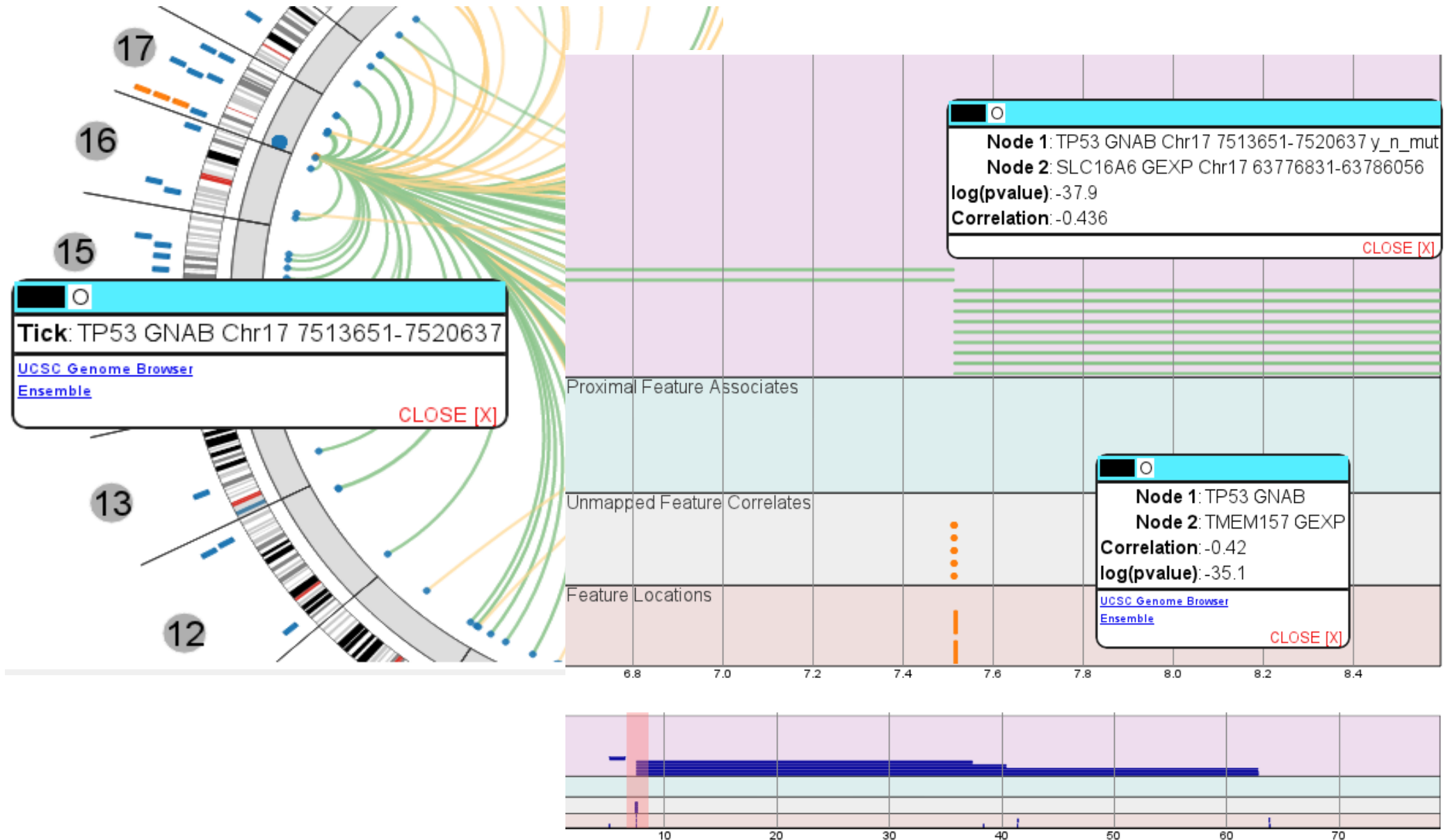
Timo Erkkila

# Colorectal Aggressiveness Scoring



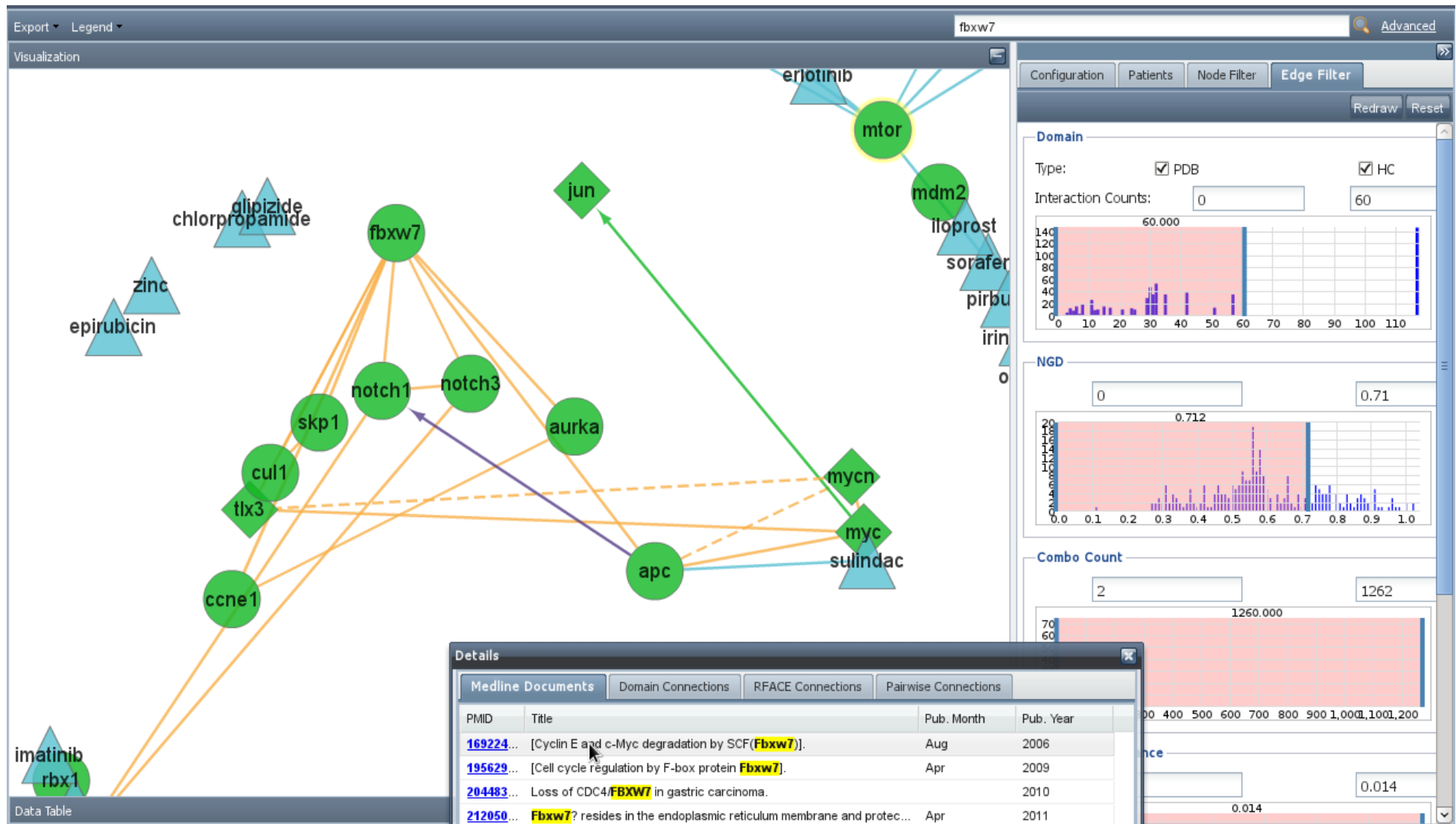
Vesteinn Thorsson

# All Pairs Significance



Sheila Reynolds, Thomas Robinson

# Exploring the Association Topology



Regulome Explorer Network View – Semantic, Protein Domain, RF Edges

Brady Bernard, Andrea Eakin



# Future Work



Graph Databases



Graph Computation



Network Topologies

Explicit, Retrievable State

User Data Import

<http://explorer.cancerregulome.org>



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### Genome View

Jake Lin

Dick Kreisberg

### Network View

Andrea Eakin

Brady Bernard

### Analysis

Vesteinn Thorsson

Sheila Reynolds

Timo Erkkila

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Ryan Bressler

Adam Norberg

Thomas Robinson

### Technologies

Protovis

ExtJS

Google Visualization API

Cytoscape Web

Neo4J

Golem

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