

Trackster

(The Galaxy Track Browser)

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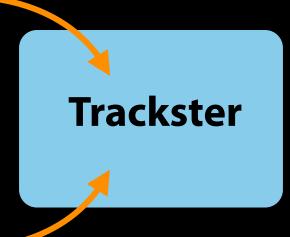
Why another genome browser?

Galaxy

- tool integration framework
- heavy focus on usability
- sharing, publication framework

Genome Browser

- physical depiction of data
- visually identify correlations
- find interesting regions, features



Trackster

User-friendly, Web-based visualization for NGS

Integrates visualization and analysis

Can share & publish working visualizations

NGS datasets on the Web

So. Much. Data.

NGS datasets are often GBs, so cannot load them all at once

Need to load data on demand

IGV and Savant on the desktop...
 ...and now Trackster on the Web

Viewing and Navigating

Viewing and Navigating

Trackster automatically indexes via Galaxy

Complete customization

custom builds!

Continuous and smooth scrolling

Integrating Analysis and Visualization

NGS Analysis Challenges

Complex tools, parameter dependent

Analysis and visualization not integrated

Want to be able to experiment

Experimentation in Trackster

Experimentation in Trackster

Tools integrated in visualization environment

Dynamically filter:

- visually identify features that match ranges
- on whole dataset

Run tools:

- quickly on visible region
- on whole dataset

Compatible Tools

Filtering tools

Genomic interval tools

Modified Cufflinks

Key requirement:

- local model
- access to global model

Your Tools with Trackster

local model

ready to go!

global model

- store and retrieve global model
- support filtering -- decorate data with attributes

Sharing and Publishing

Visualization as Communication

Communication paramount

- biomedical/genomics research is big
- majority of publications use visualization

"A picture is worth a 1000 words."

A fully-interactive visualization is worth many more words

Sharing Trackster Visualizations

Sharing Trackster Visualizations

Uses Galaxy's sharing/publication framework

Via URL or can be embedded in a Page

Visualization is fully functional

Looking Forward

Scalability

- Very large datasets
- many tracks at once

General visual interface for running tools

- alternative way to view Galaxy history
- easier experimentation

Trackster Summary

User-friendly, Web-based visualizations for NGS

Experimentation with tools, parameter values to improve analyses

Can share & publish visualizations to the Web

Thanks! Questions?

http://main.g2.bx.psu.edu/visualization/list_published

http://main.g2.bx.psu.edu/u/jeremy/v/gcc2011-1-viewing-and-navigating

http://main.g2.bx.psu.edu/u/jeremy/v/gcc2011-2-dynamic-filtering

http://main.g2.bx.psu.edu/u/jeremy/v/gcc2011-3-running-tools