tranSMART Demonstration

Peter Rice, i2b2 tranSMART Foundation

Overview

- Brief history of tranSMART
- Precision Medicine: The Role of i2b2 and tranSMART
- What does the i2b2 tranSMART Foundation do?
- The importance and role of an Open Source “Community”
- i2b2 tranSMART Governance model
  - Board of Directors
  - Project Management Committees (PMC)
  - Partnership Program
  - Membership Program
- PMC Roadmaps
  - tranSMART – Peter Rice
  - i2b2 – Shawn Murphy
  - i2b2 tranSMART – Paul Avillach

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The Historyof tranSMART

- In 2008: J&J saw a significant challenge in the lack of translatability of preclinical models into meaningful biological knowledge

- They created tranSMART – “a knowledge management platform that would provide access to all R&D data as well as advanced analytics”

- It utilized components of the i2b2 (Informatics for Integrating Biology and the Bedside; http://www.i2b2.org) and incorporated search capabilities

- A goal was to release the software as open source to encourage precompetitive data sharing among pharmaceutical entities and academic institutions

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tranSMART Architecture

Data Sources

- Relational Databases
- Flat Files
- Spreadsheets

ETL

- Data Extraction
- Data Curation
- Data Transformation
- Data Integration

Databases

- Relational Datawarehouse
- Genome Datawarehouse
- Clinical Datawarehouse
- Imaging Datawarehouse

tranSMART API Layer

Data Analytics

- Data Exploration
- Data Visualization
- Data Mining

Applications

- Cohort Selection and Analysis
- Mutation Analysis
- Biomarker Discovery

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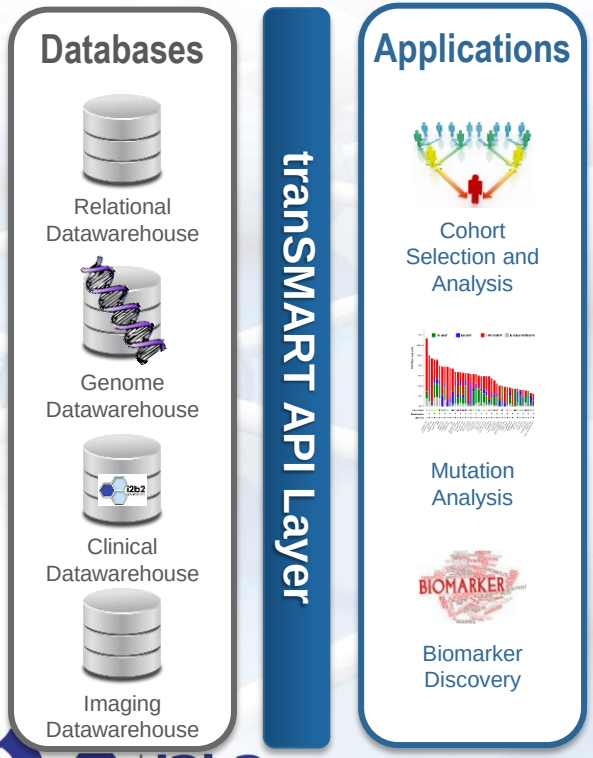
tranSMART: More than just a Platform

an approach to enable translational science



tranSMART – A platform and Community

- Open-source and open-data translational biomedical research community
- Scientists, Developers, Service Providers, Clinicians

A Community

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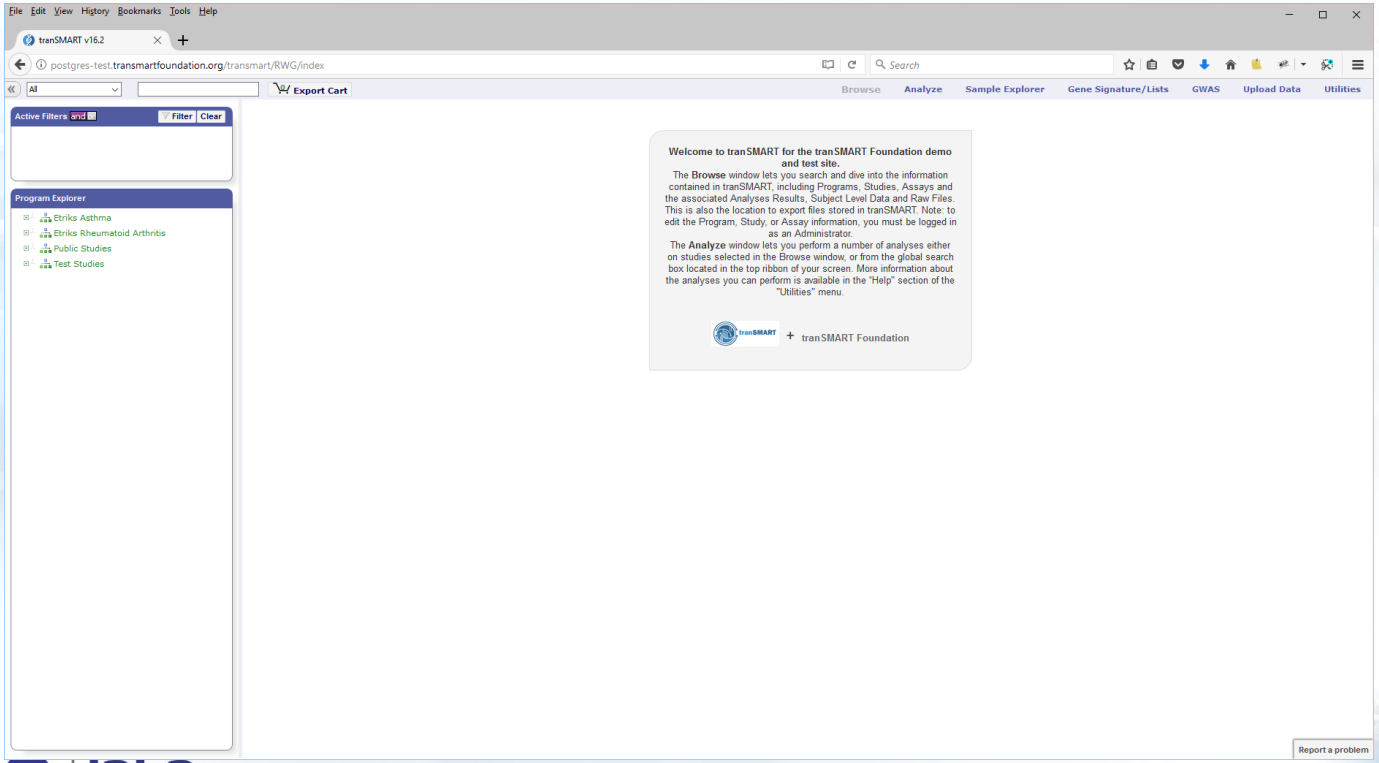

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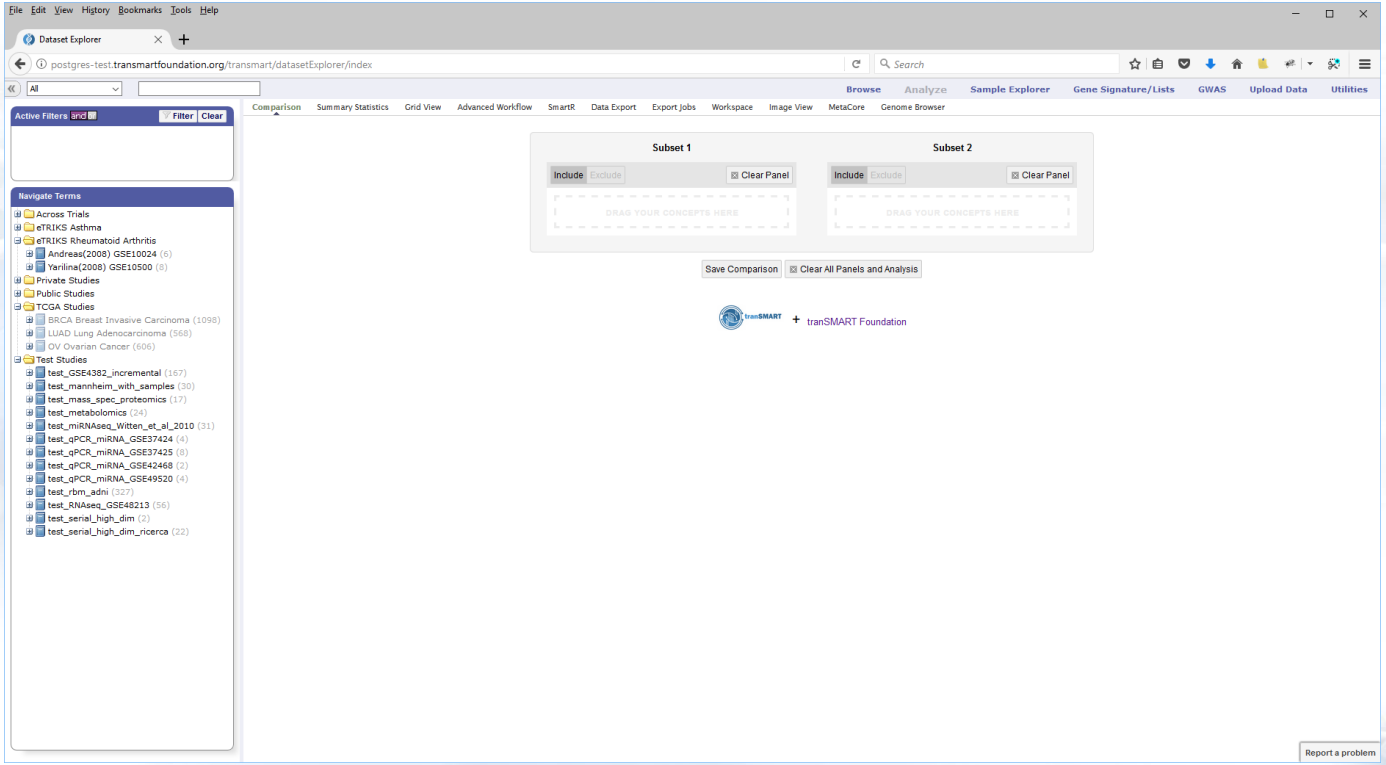

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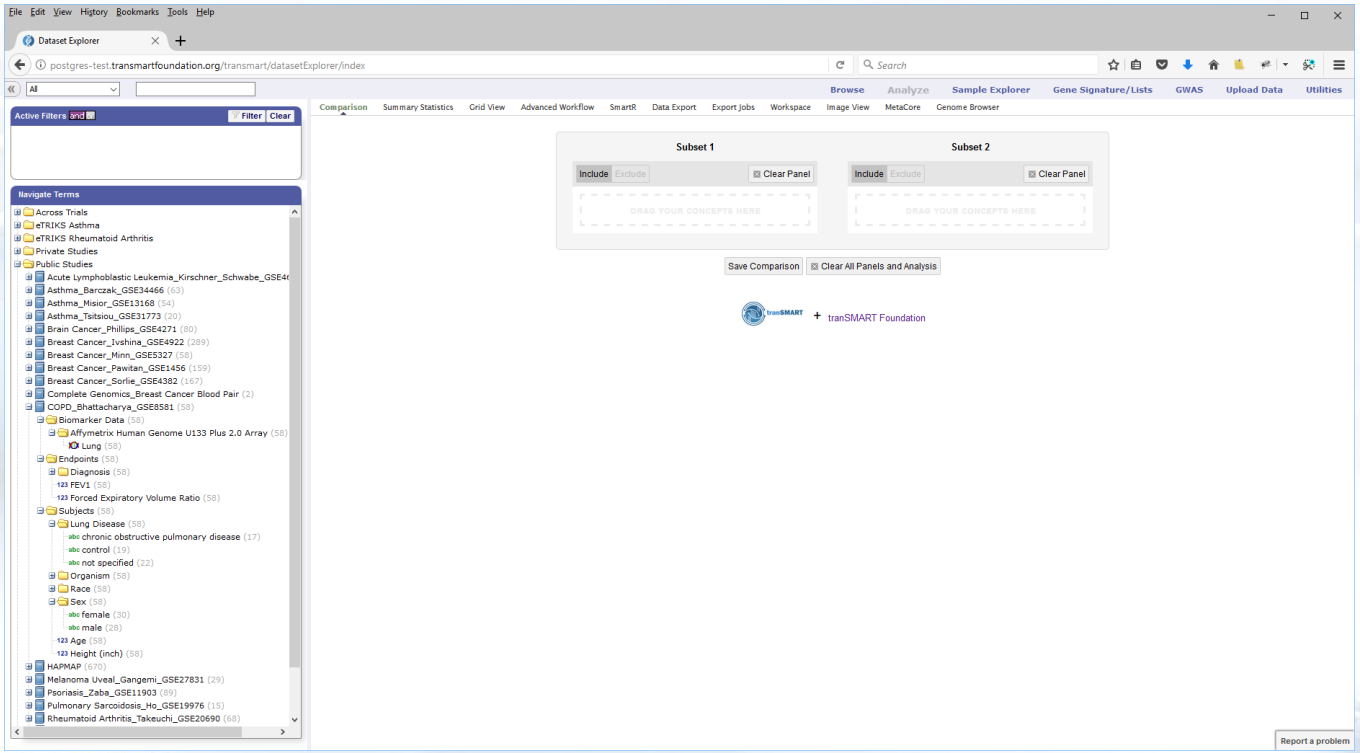

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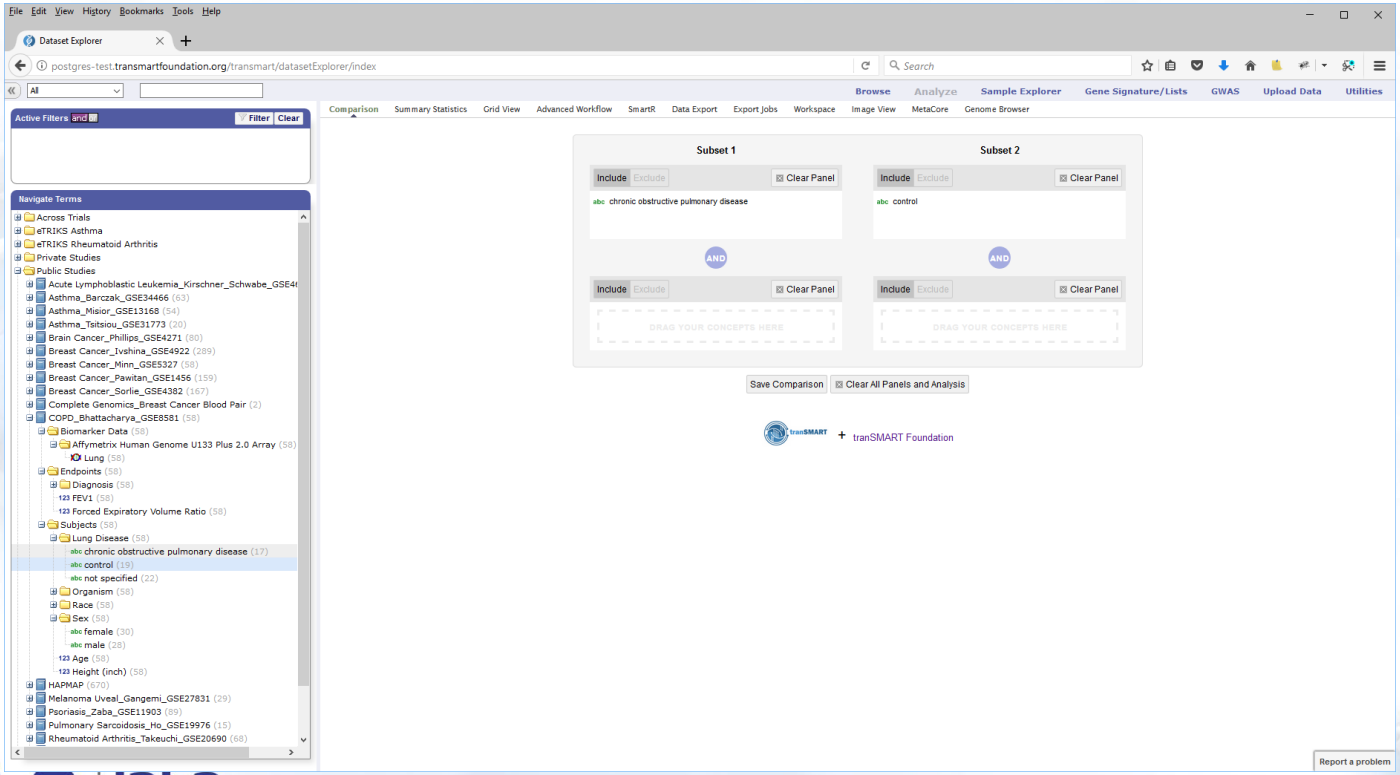

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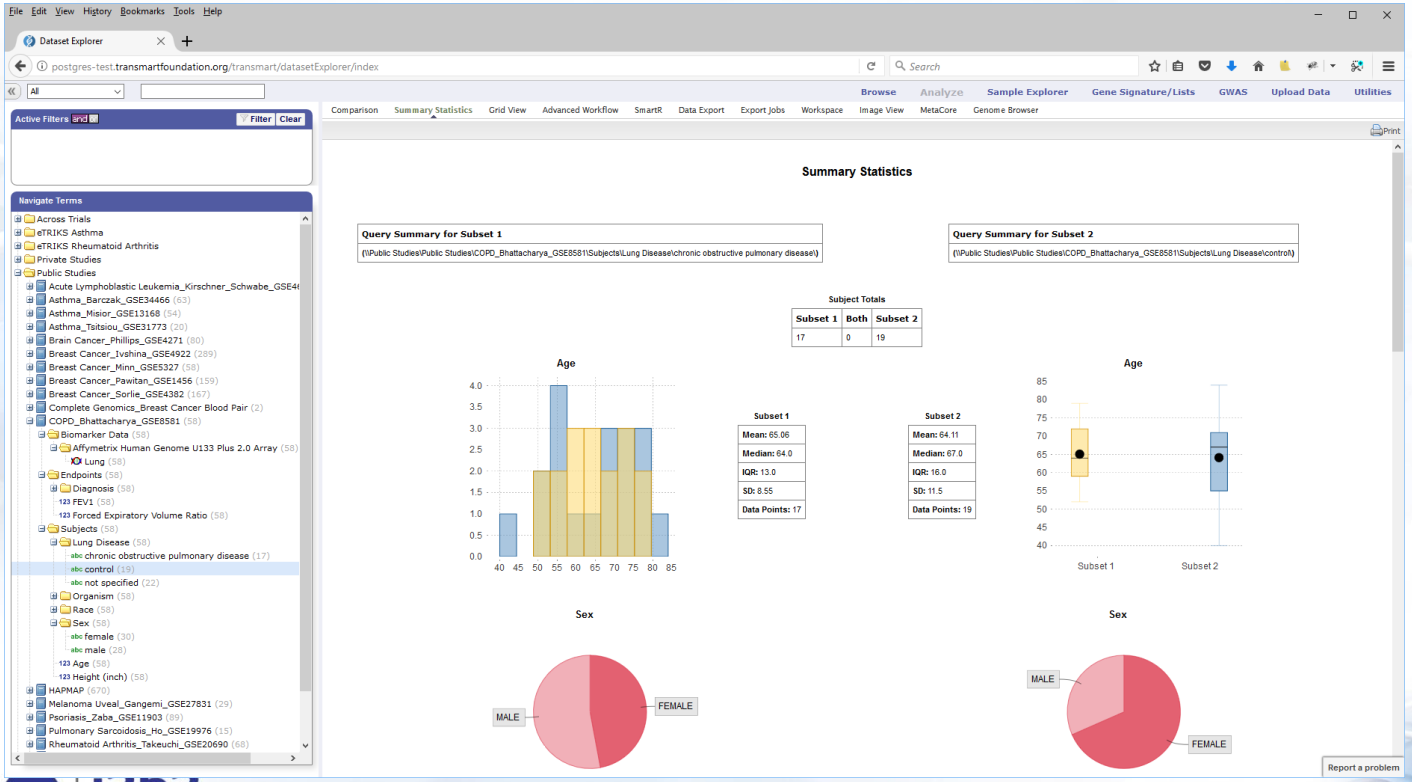

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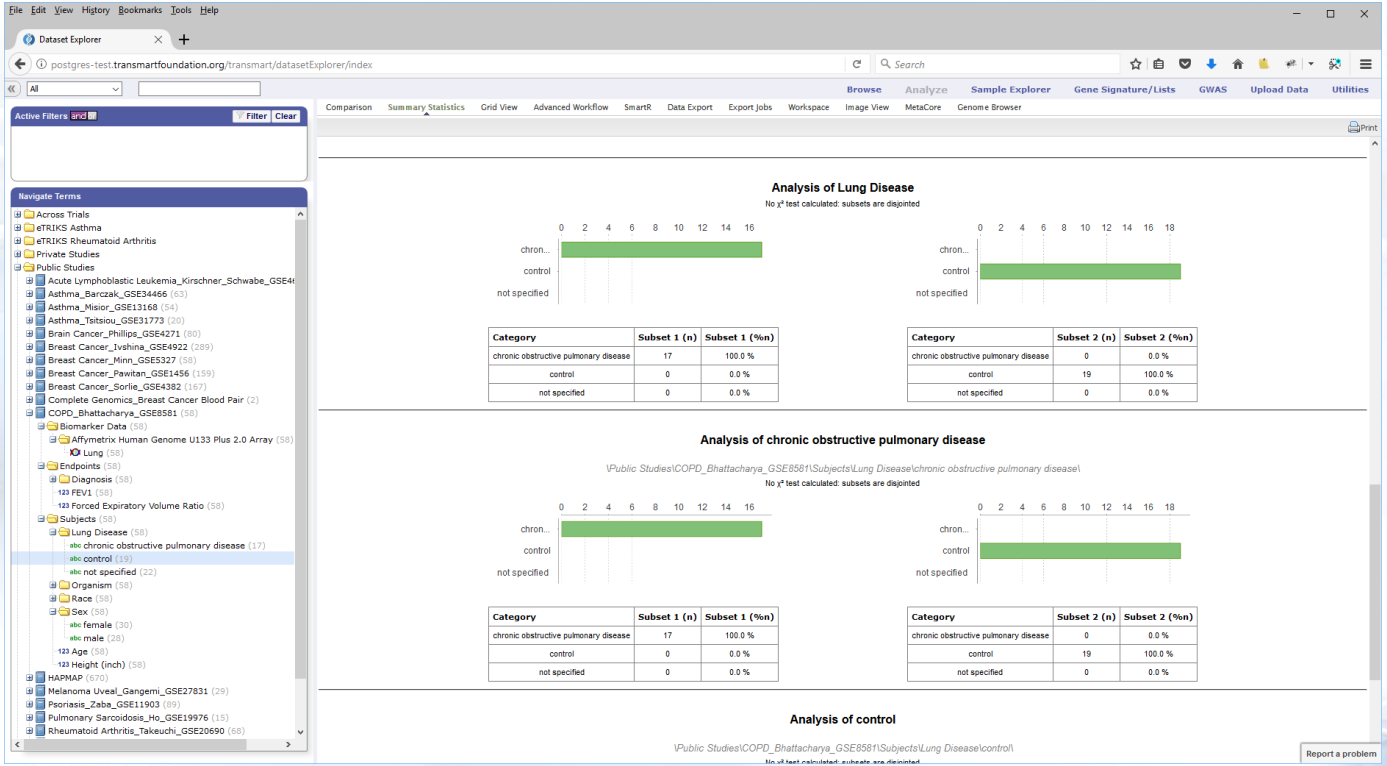

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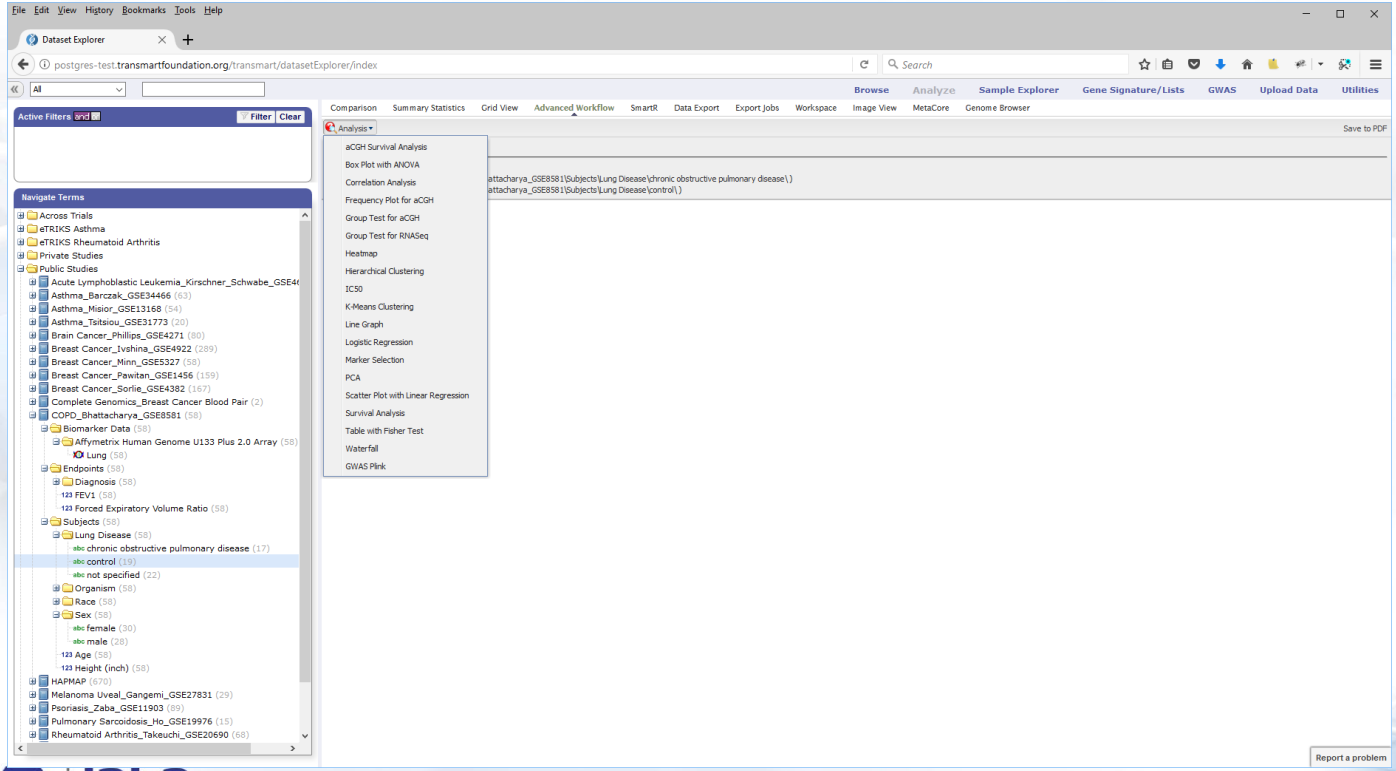

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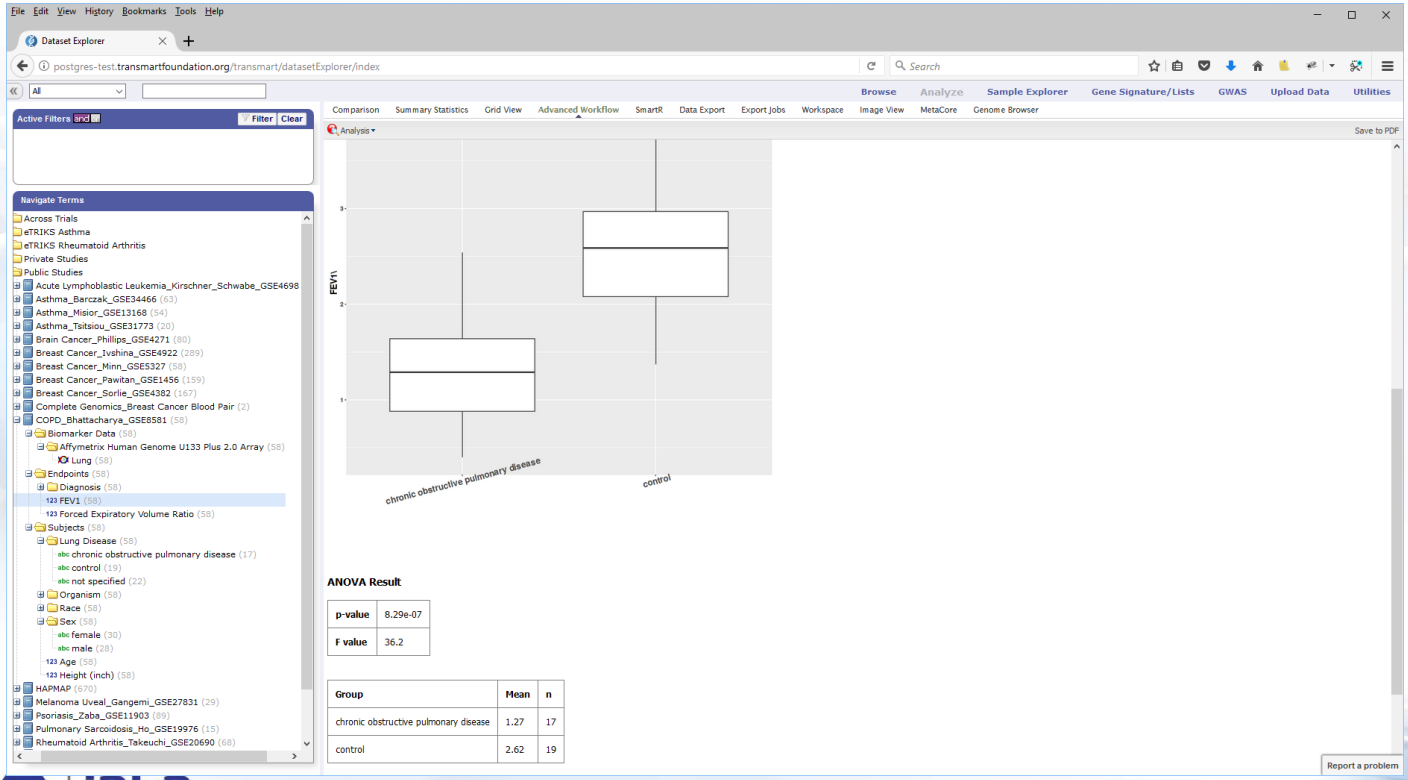

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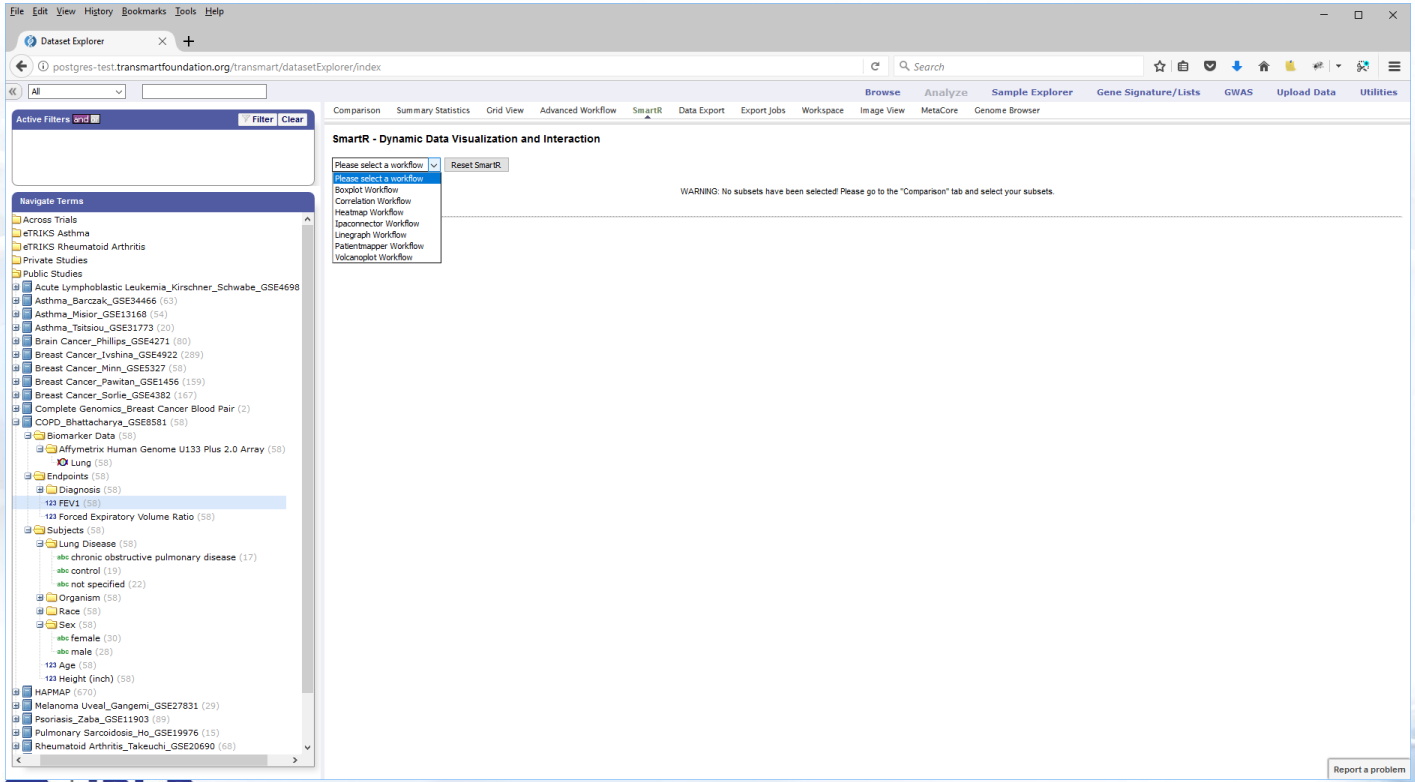

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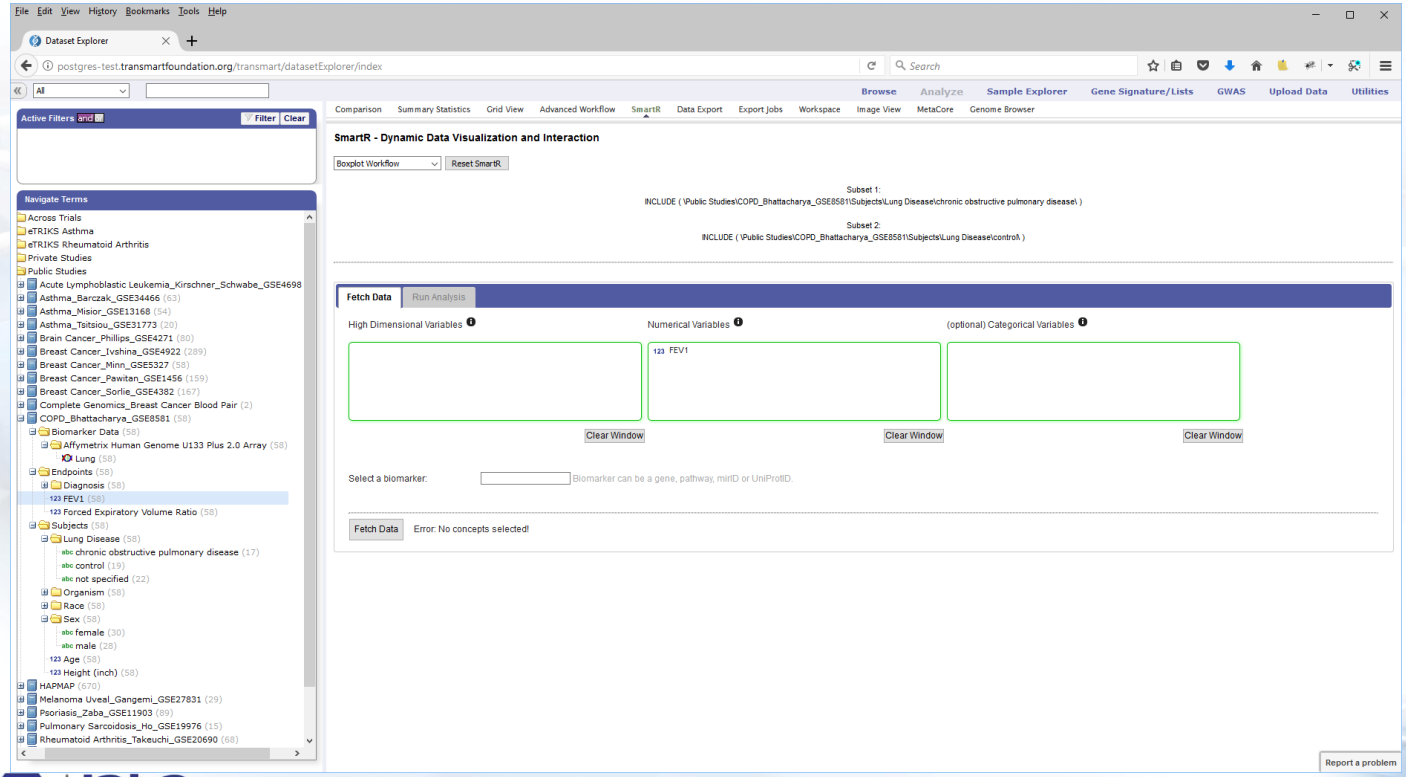

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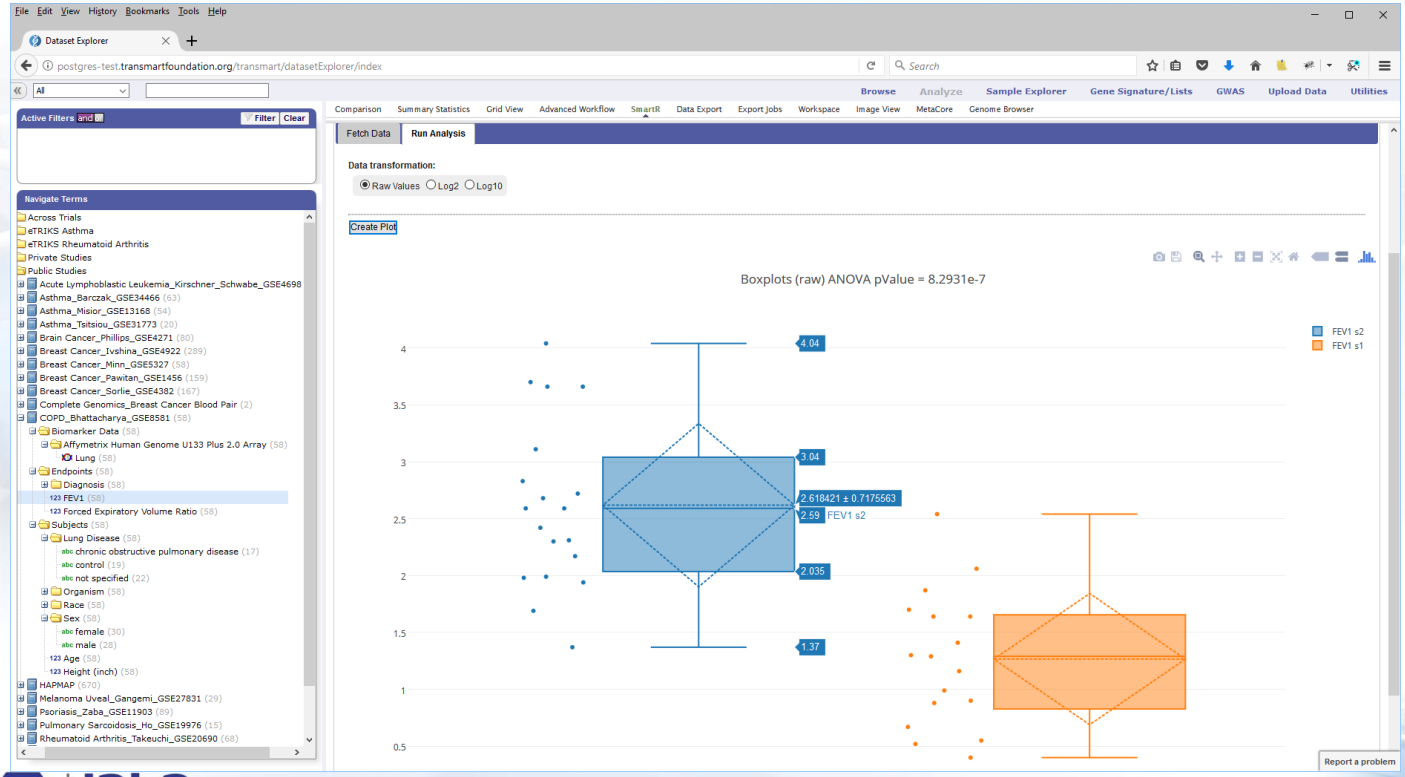

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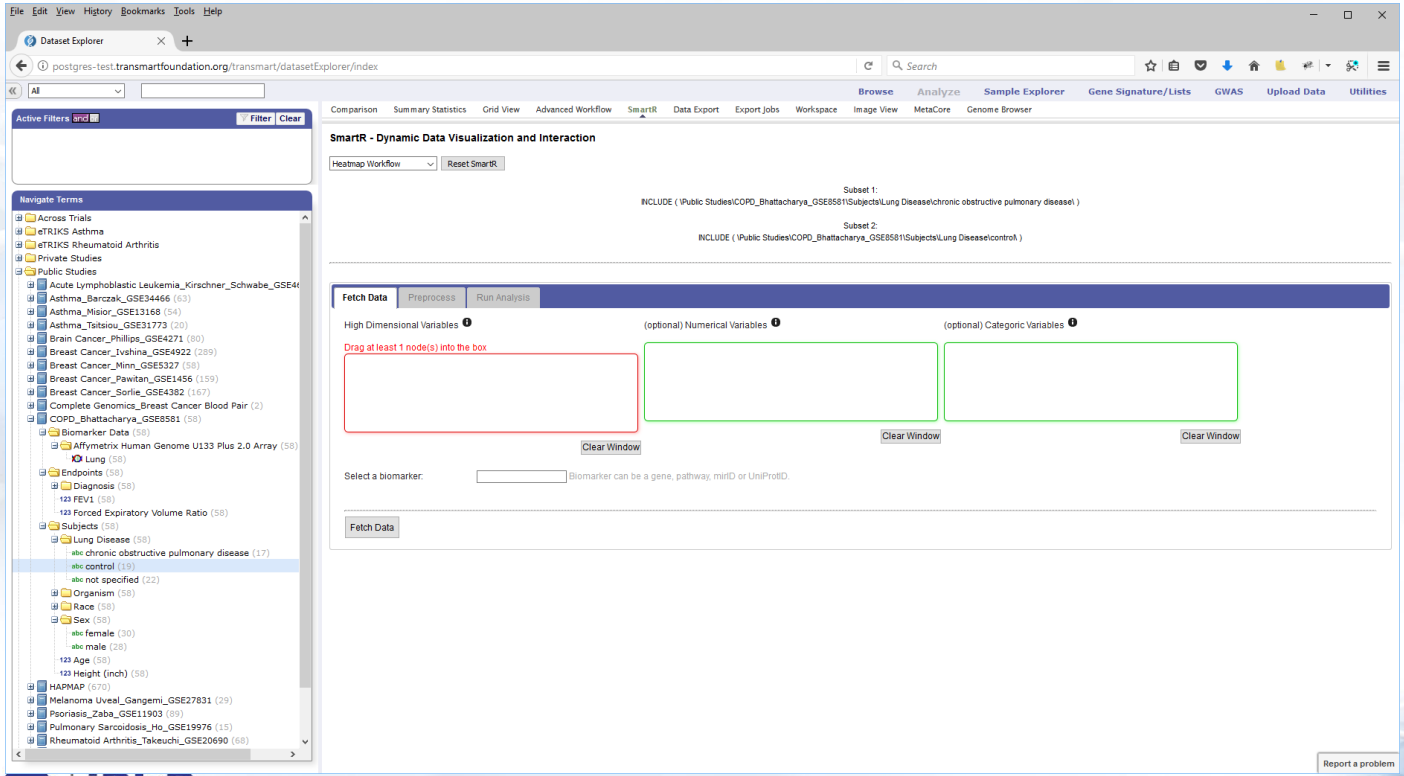

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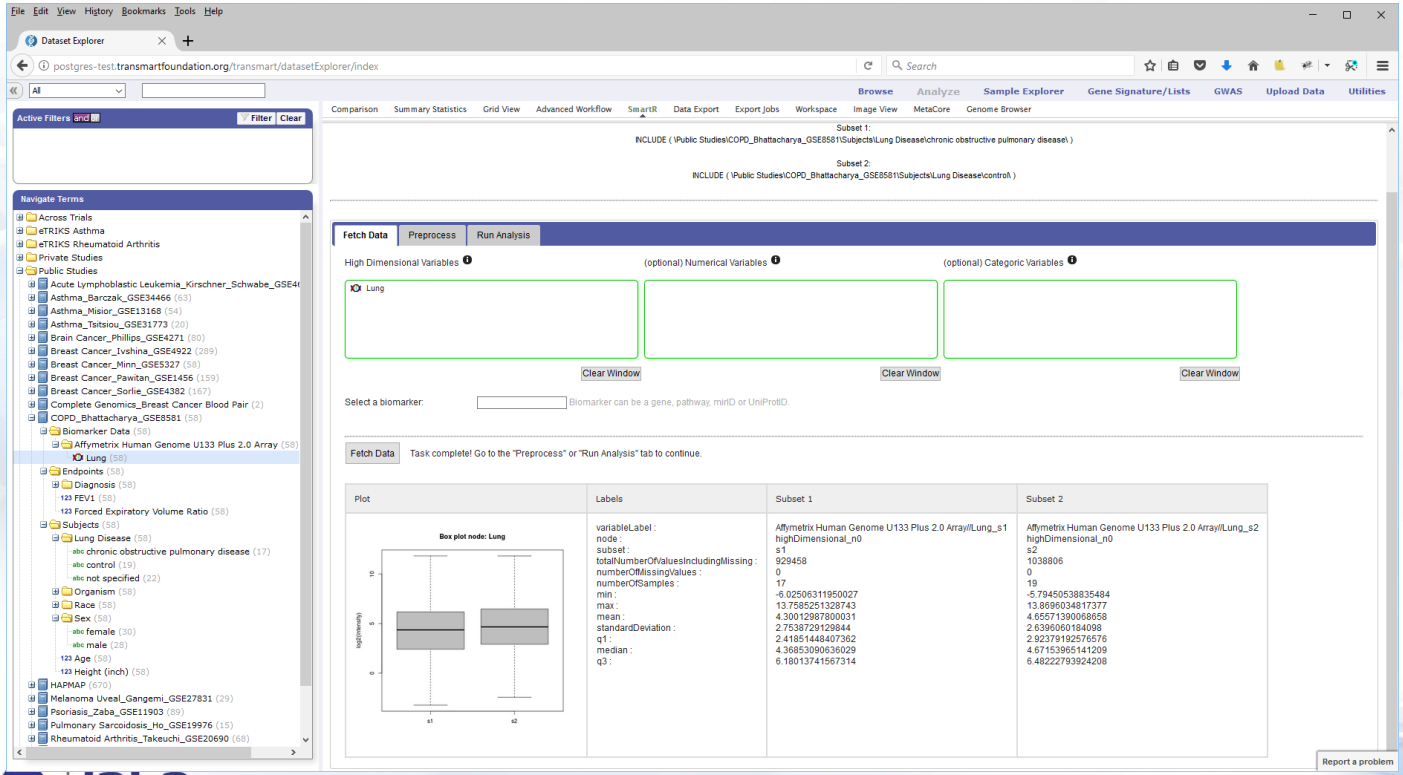

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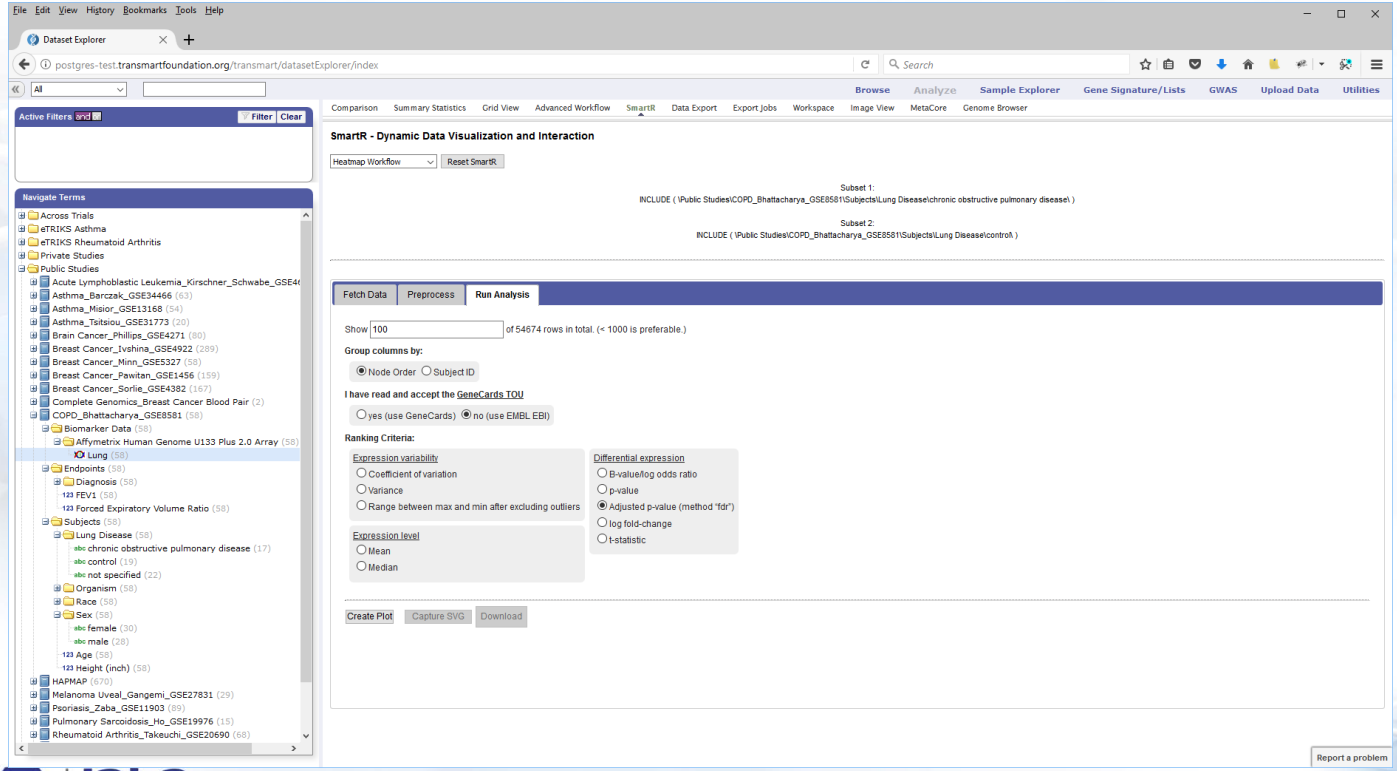

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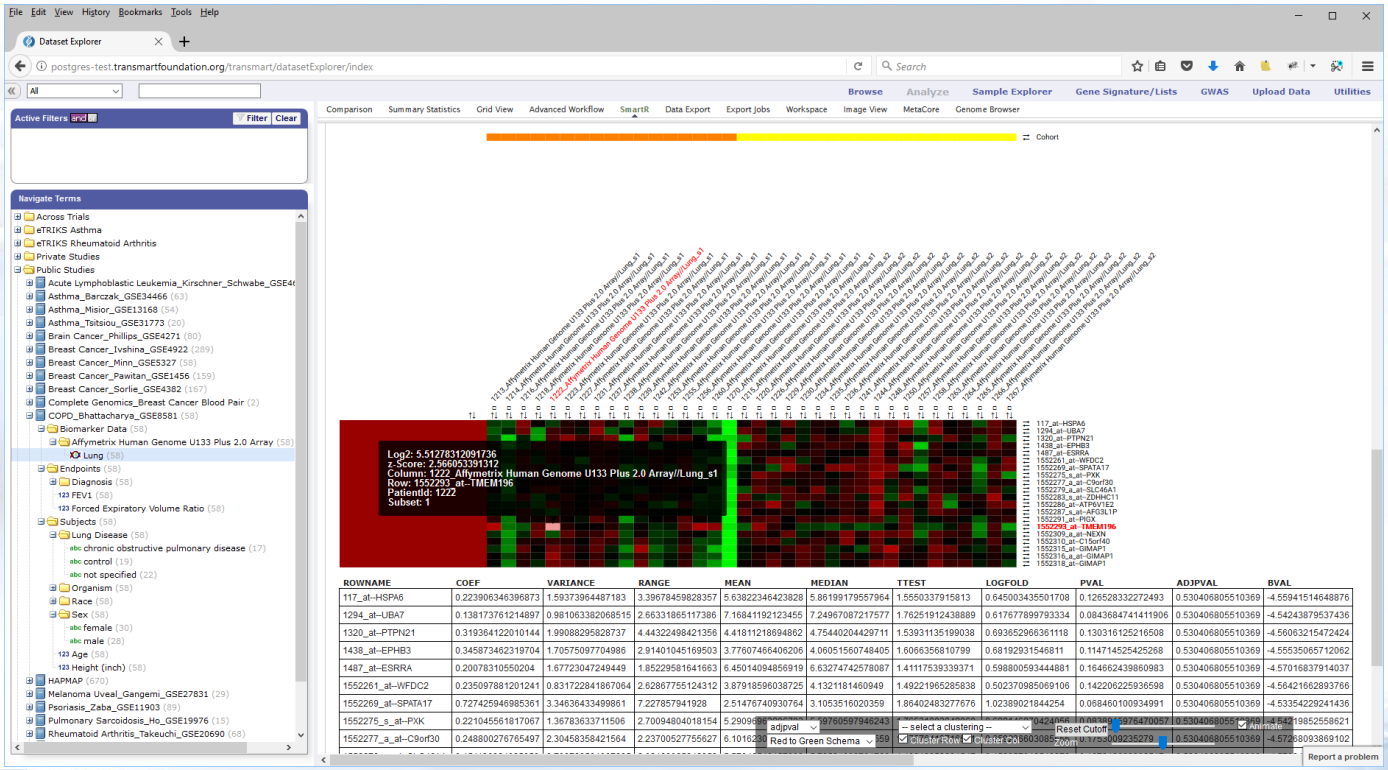
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eTRIKS Asthma
eTRIKS Rheumatoid Arthritis
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Public Studies
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Psoriasis_Zaba_GSE11903 (89)
Pulmonary Sarcoidosis_Ho_GSE19976 (15)
Rheumatoid Arthritis_Takeuchi_GSE20690 (68)
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Animate
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Zoom
Report a problem

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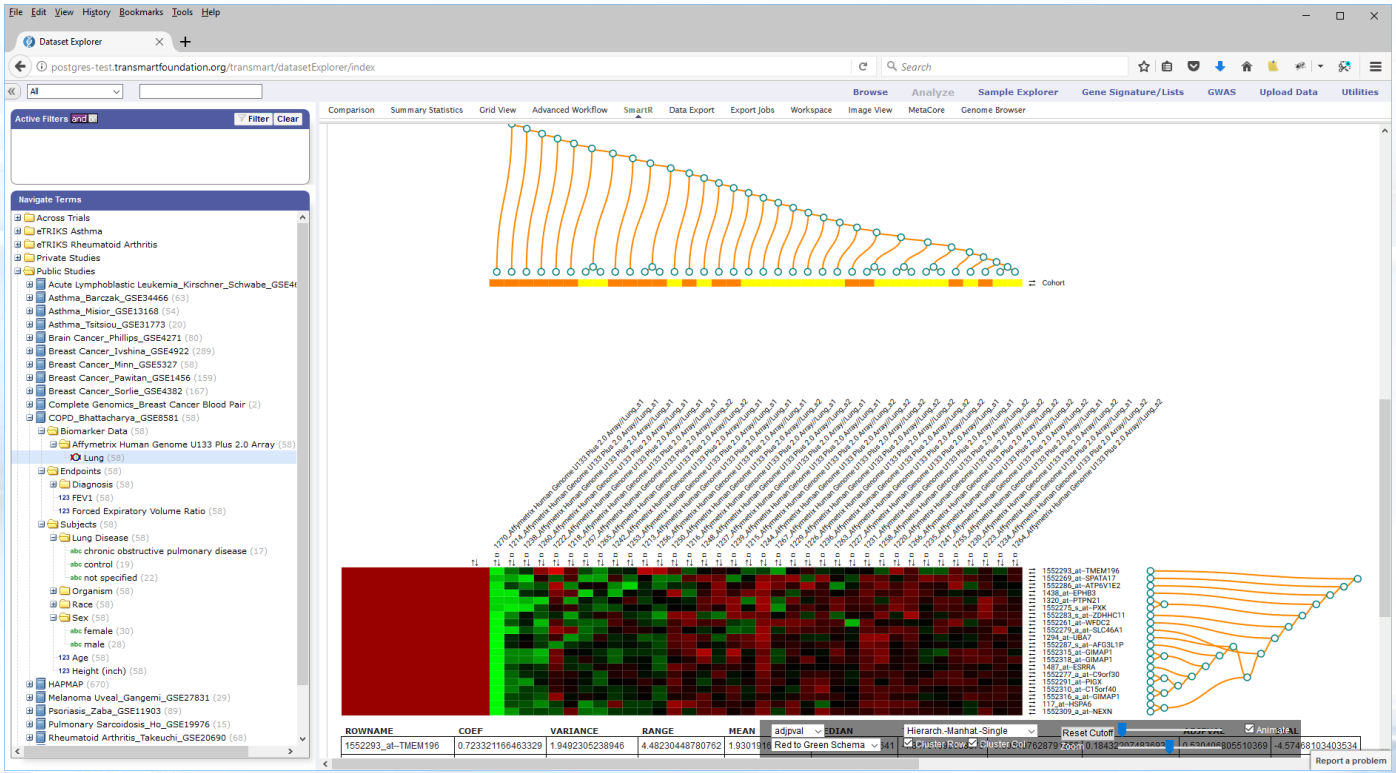

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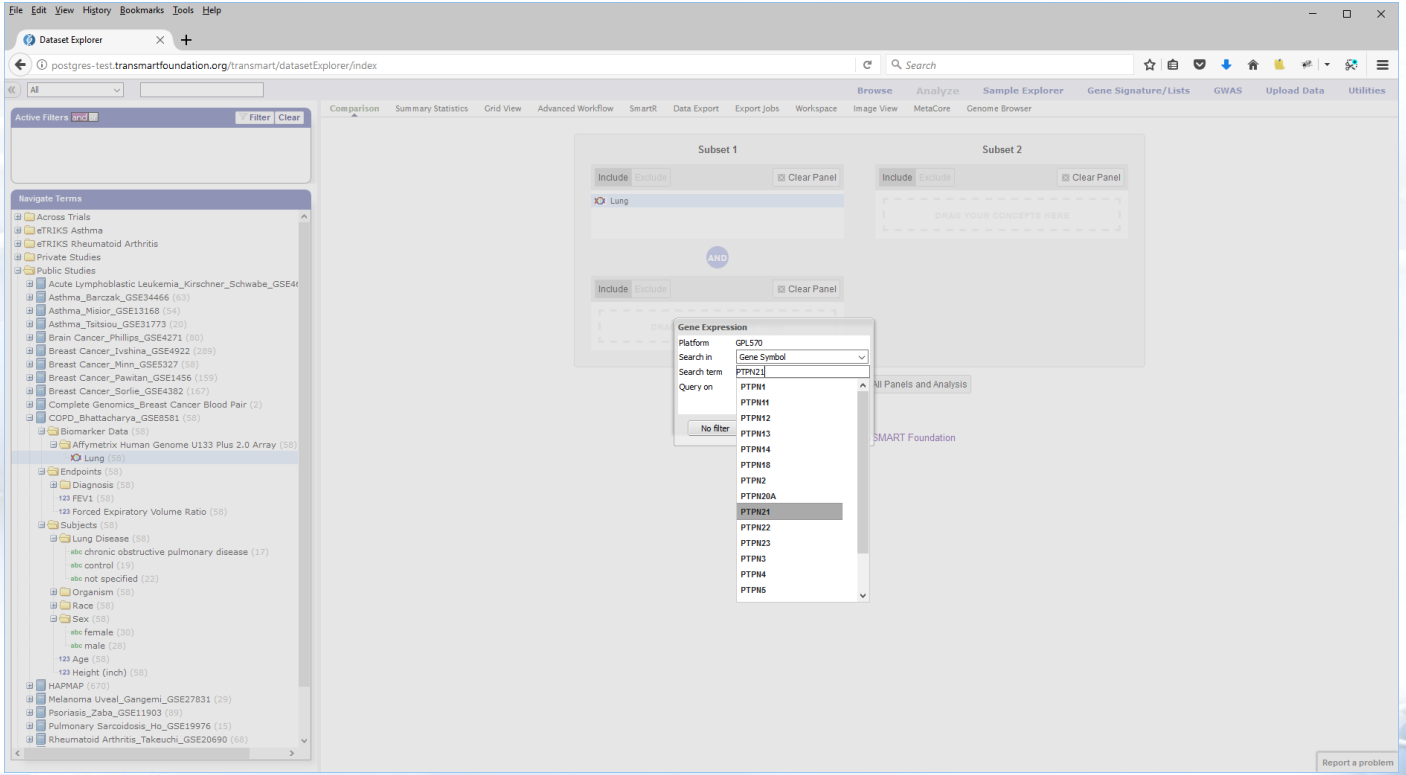

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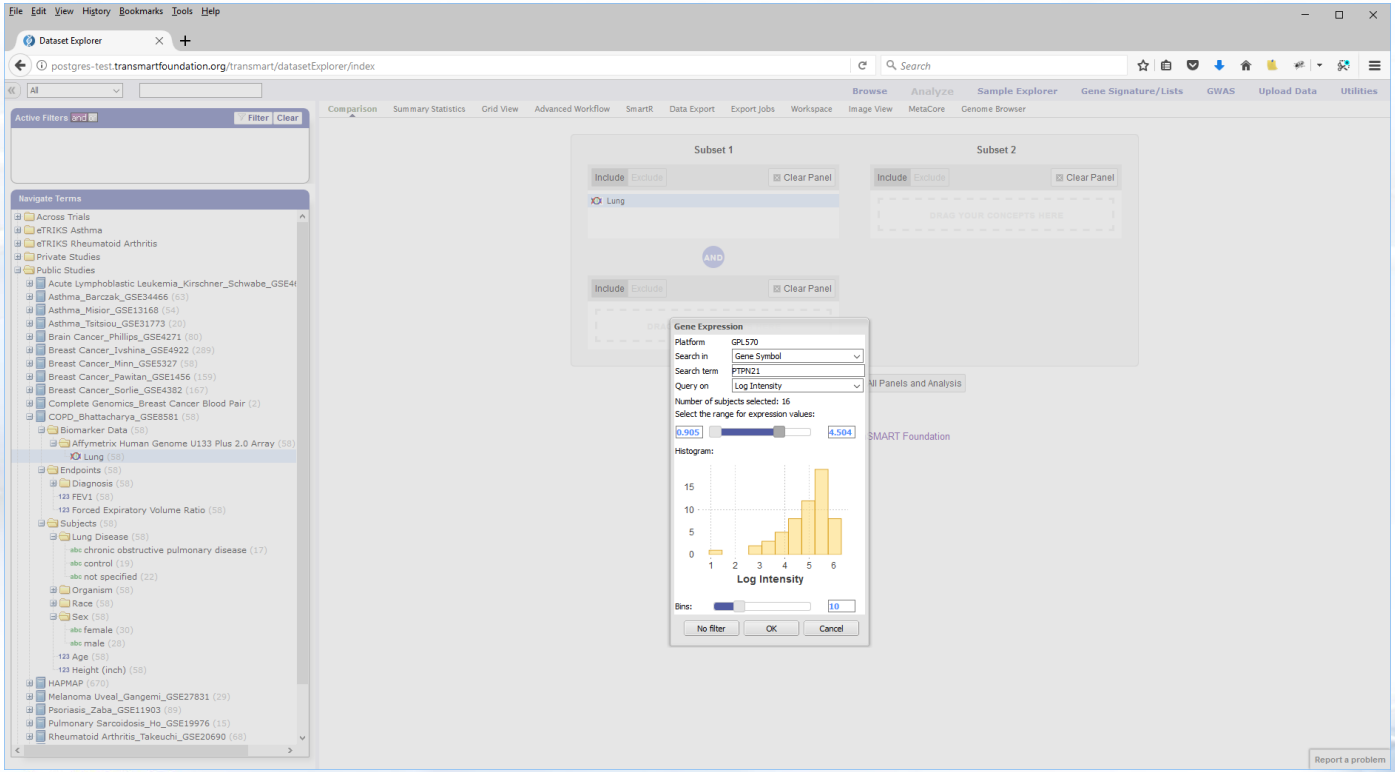

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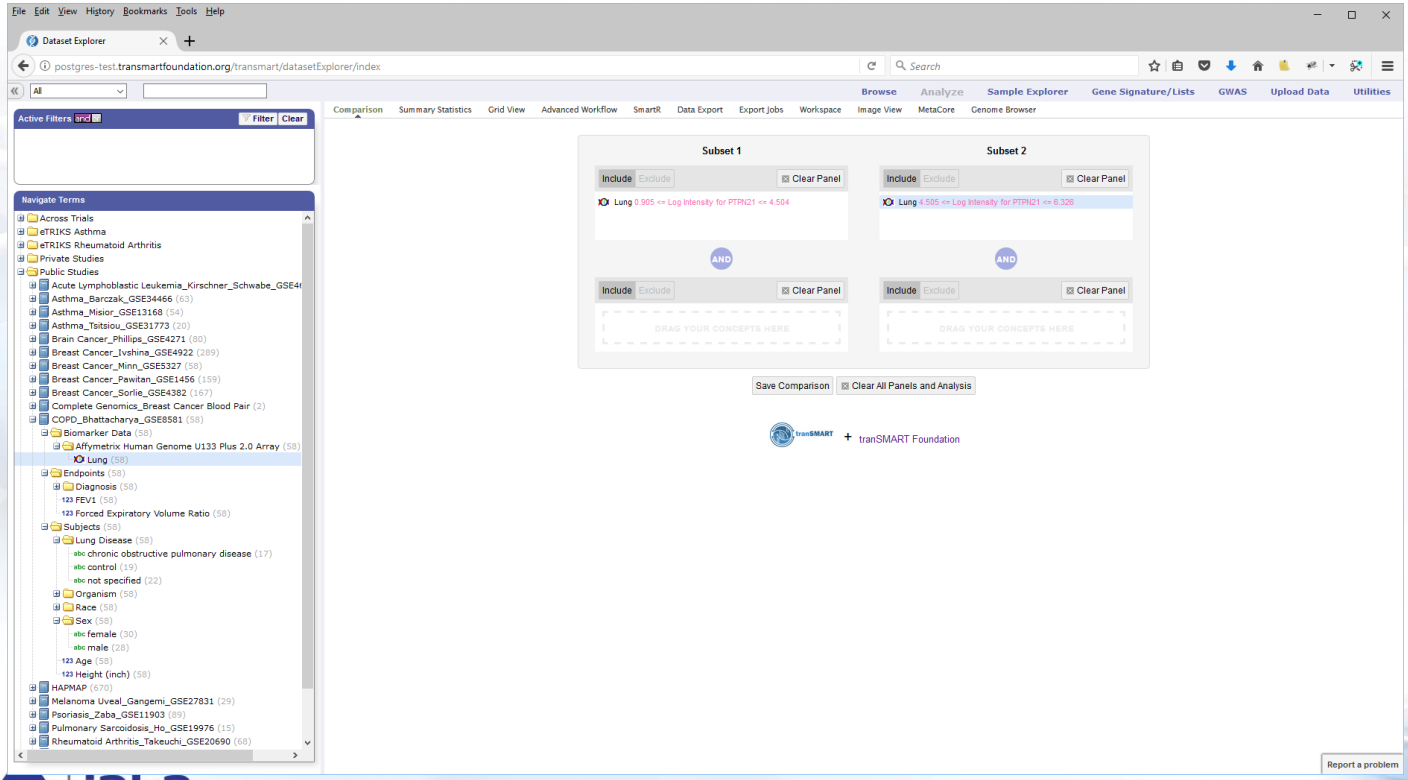

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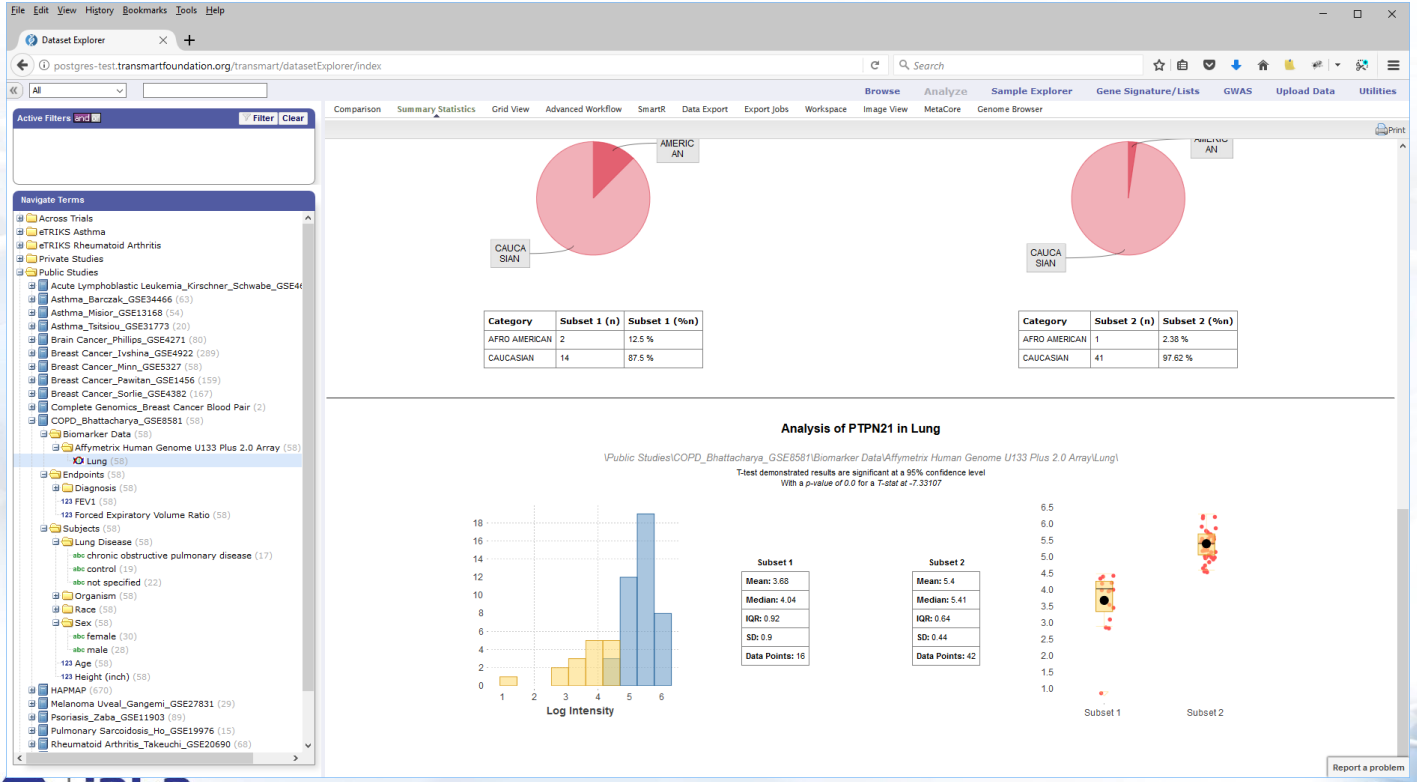

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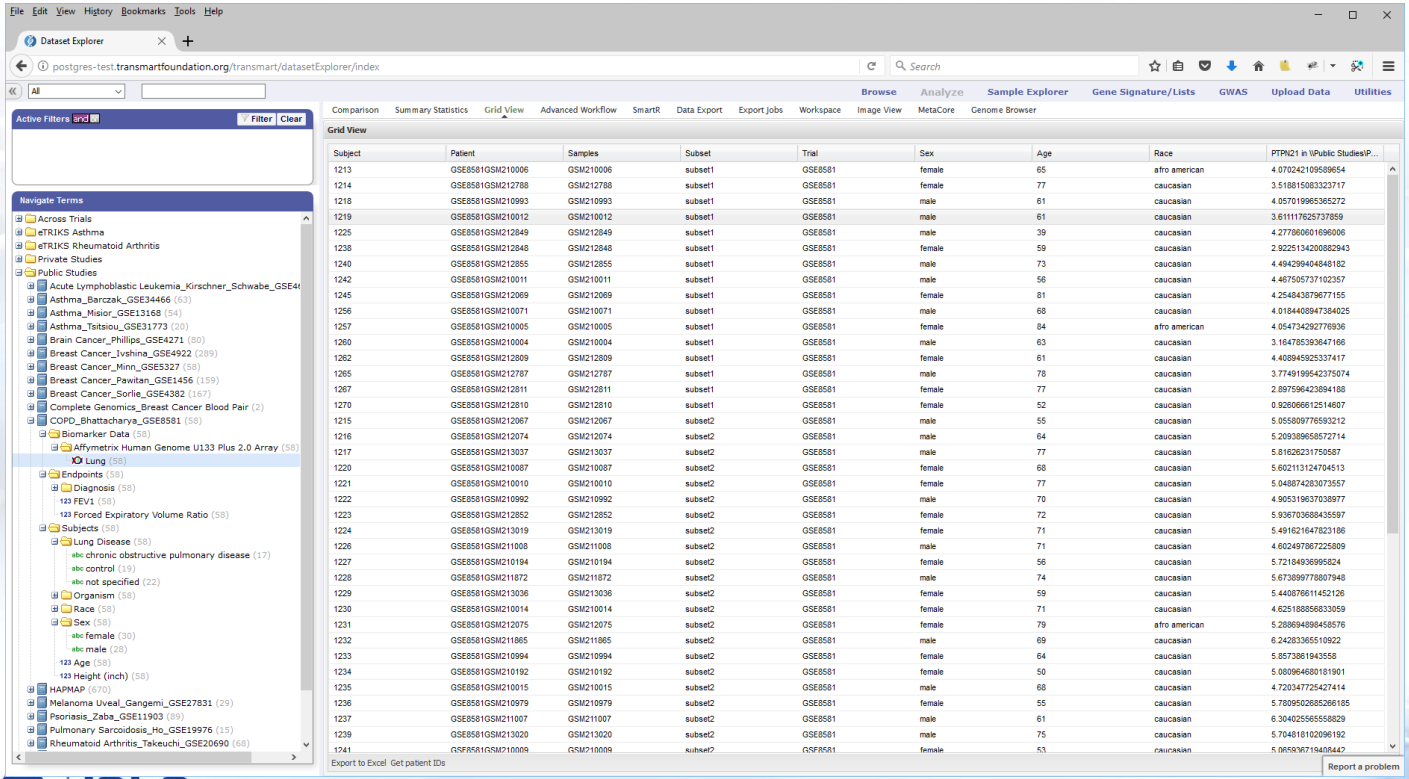

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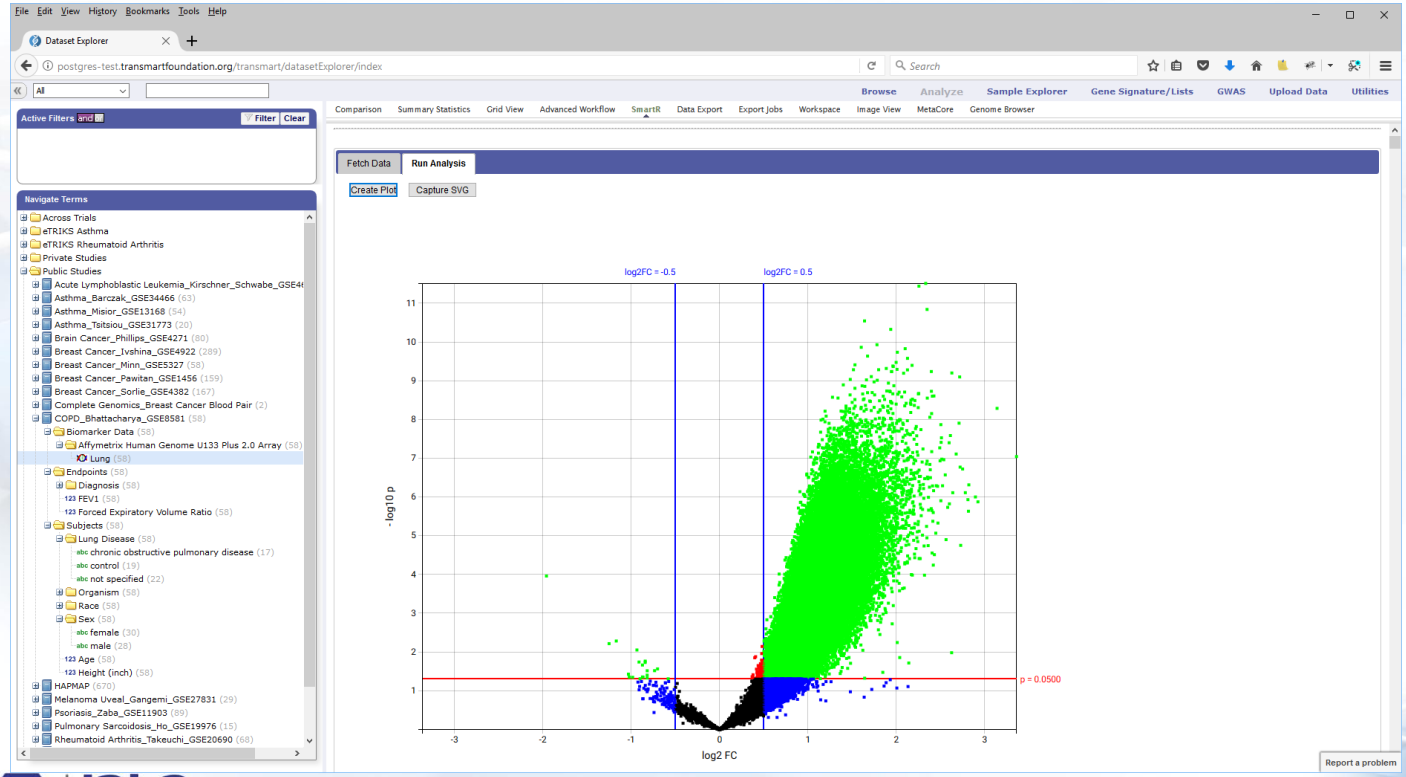

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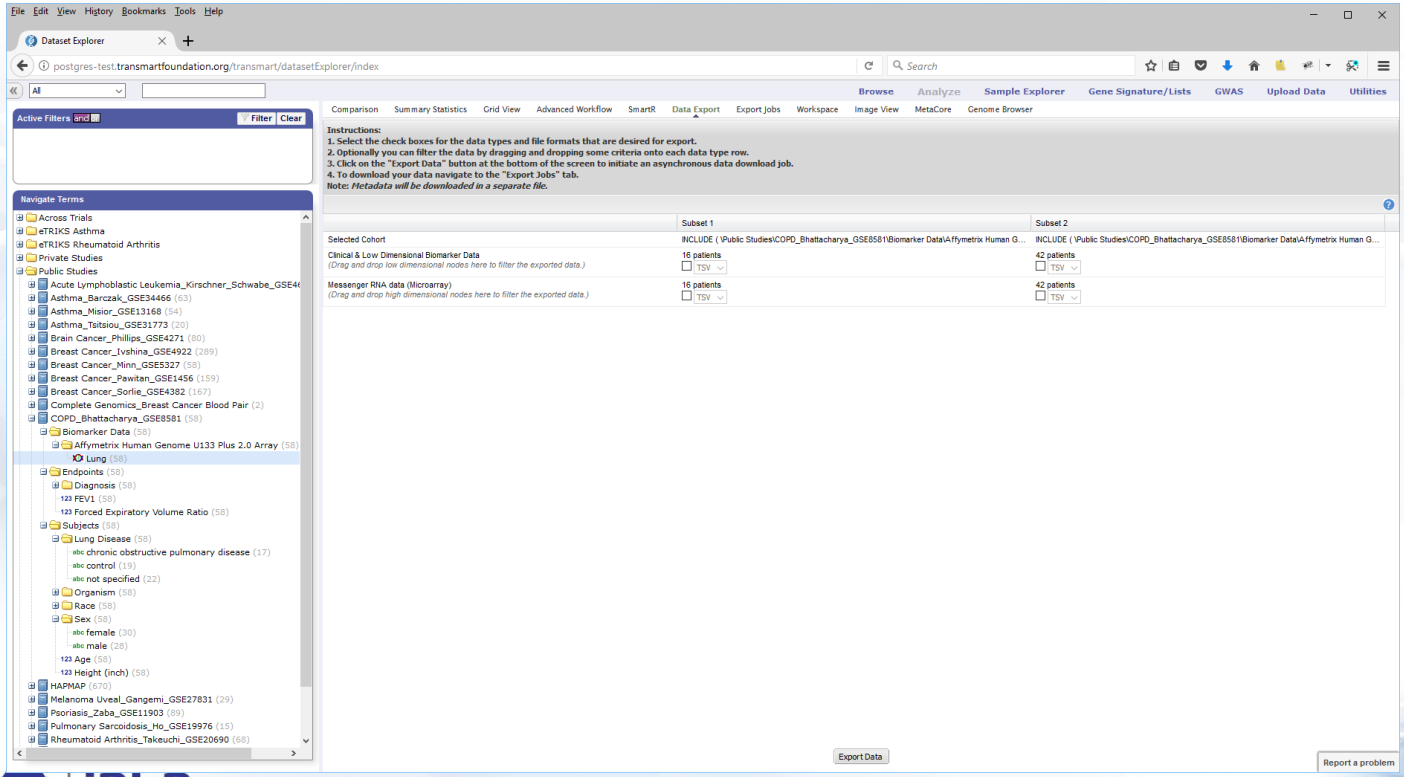
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Clear
Navigate Terms
Across Trials
eTRIKS Asthma
eTRIKS Rheumatoid Arthritis
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Comparison
Summary Statistics
Grid View
Advanced Workflow
SmartR
Data Export
Export Jobs
Workspace
Image View
MetaCore
Genome Browser
Instructions:
1. Select the check boxes for the data types and file formats that are desired for export.
2. Optionally you can filter the data by dragging and dropping some criteria onto each data type row.
3. Click on the "Export Data" button at the bottom of the screen to initiate an asynchronous data download job.
4. To download your data navigate to the "Export Jobs" tab.
Note: Metadata will be downloaded in a separate file.
Subset 1
Subset 2
Selected Cohort
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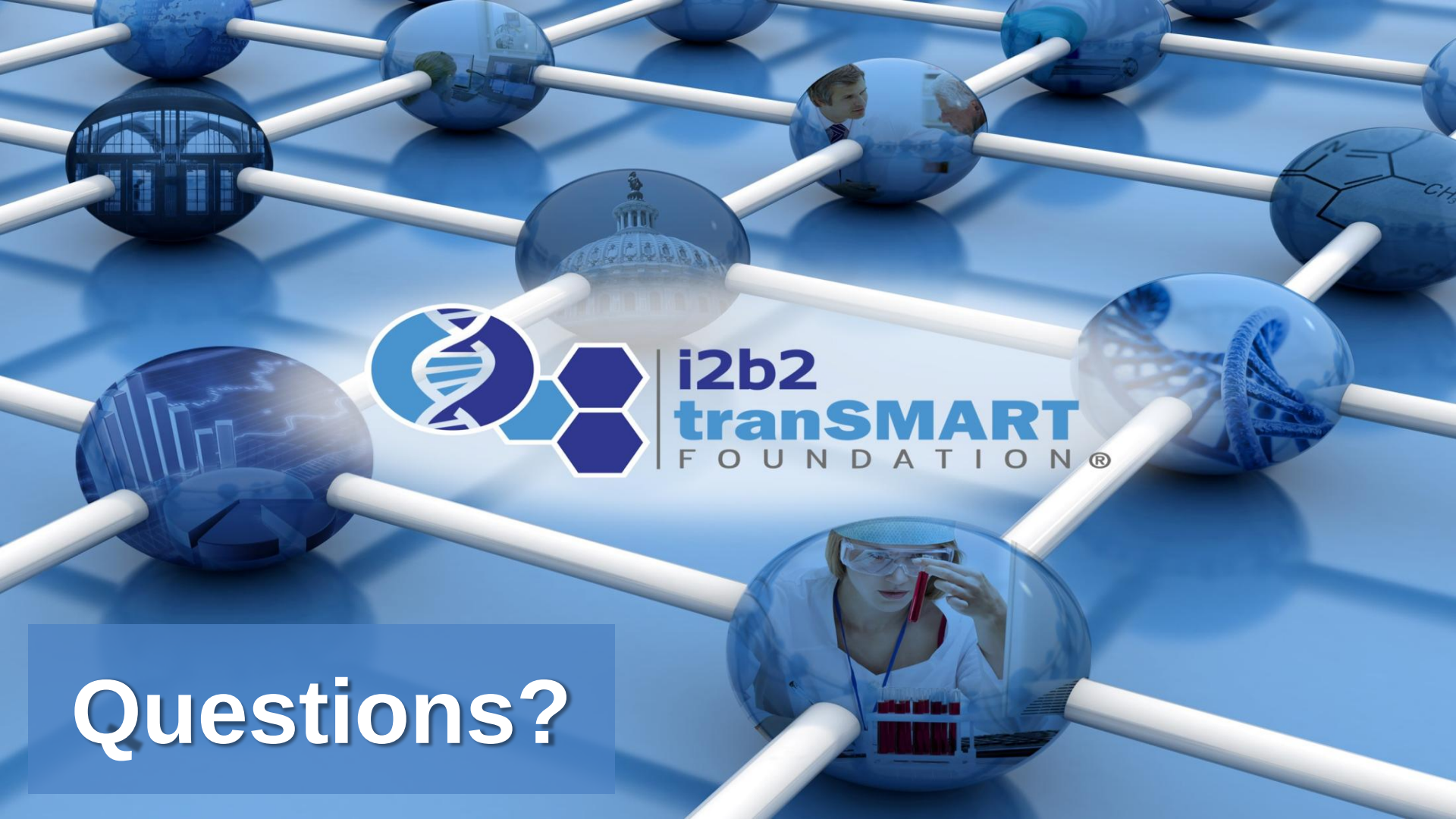
INCLUDE (\Public Studies\COPD_Bhattacharya_GSE8581\Biomarker Data\Affymetrix Human G...
Clinical & Low Dimensional Biomarker Data
(Drag and drop low dimensional nodes here to filter the exported data.)
16 patients
42 patients
TSV
Messenger RNA data (Microarray)
(Drag and drop high dimensional nodes here to filter the exported data.)
16 patients
42 patients
TSV
Export Data
Report a problem



Questions?