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



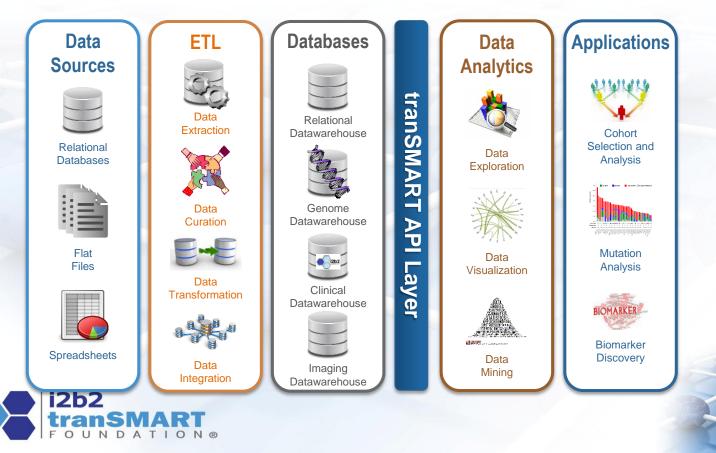


The Historyof tranSMART

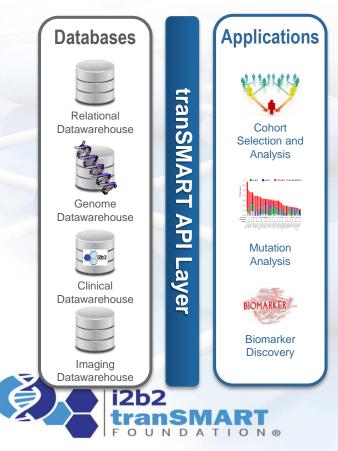
- In 2008: J&J saw a significant challenge in the lack of translatability of preclinical models into meaningful biological knowledge
- They created tranSMART "a knowledge management platform that would provide access to all R&D data as well as advanced analytics"
- It utilized components of the i2b2 (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



tranSMART Architecture



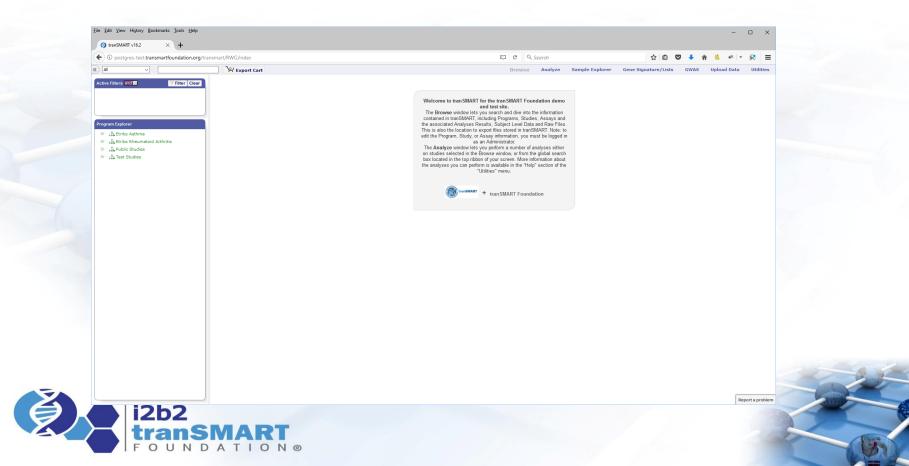
tranSMART: More than just a Platform an approach to enable translational science

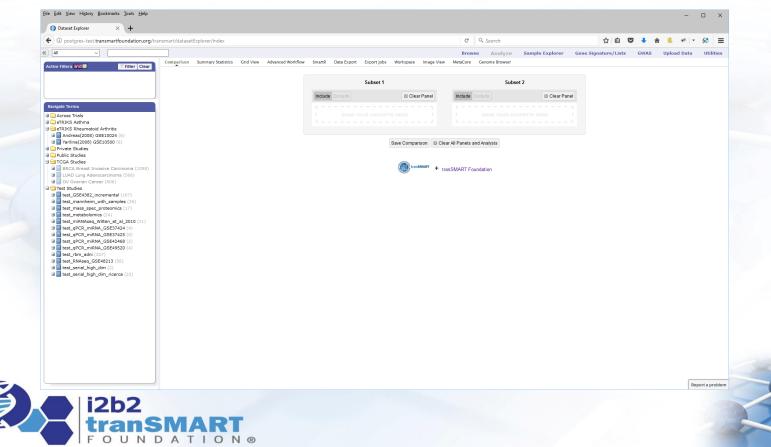


tranSMART – A platform and Community

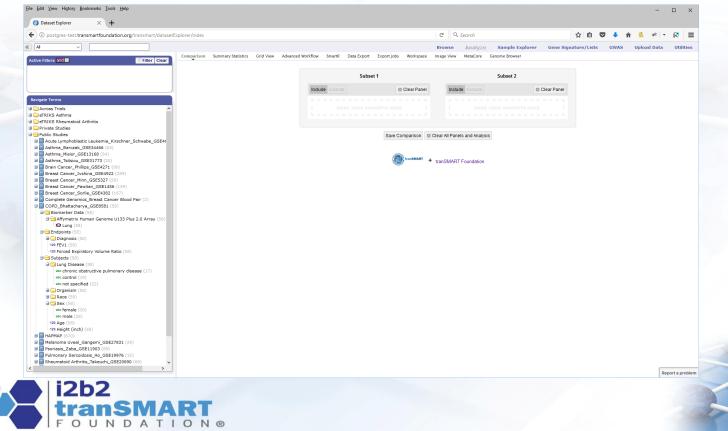
- Open-source and open-data translational biomedical research community
- Scientists, Developers, Service Providers, Clinicians

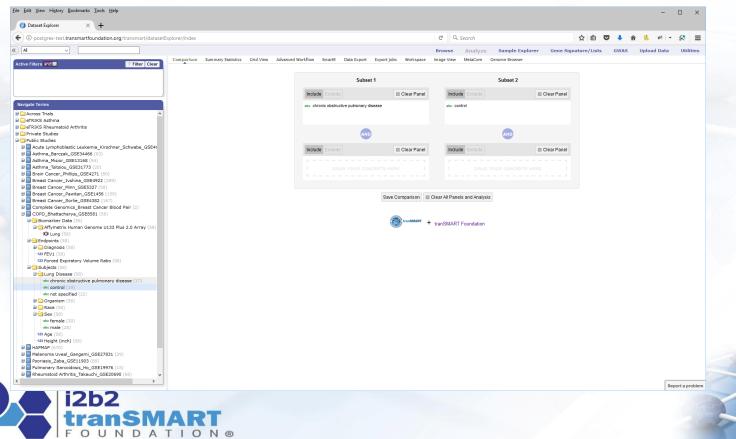
Community

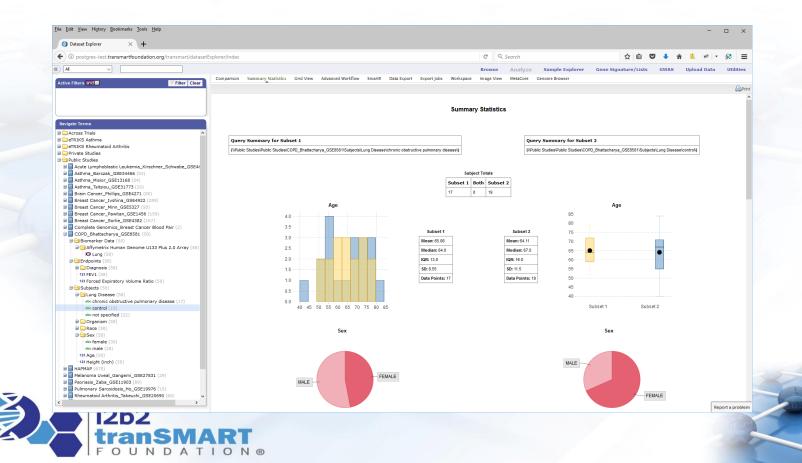


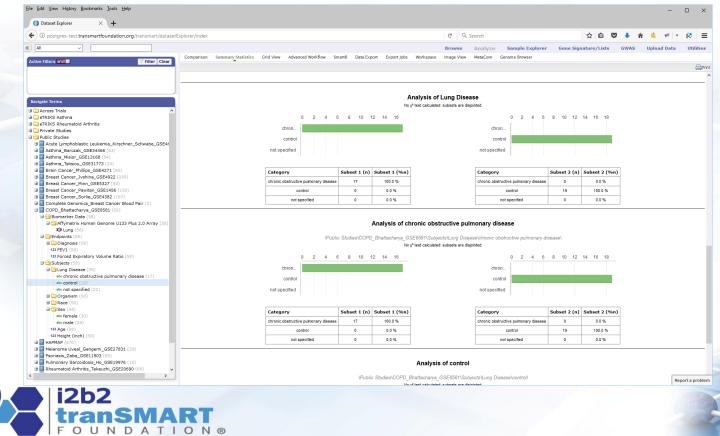




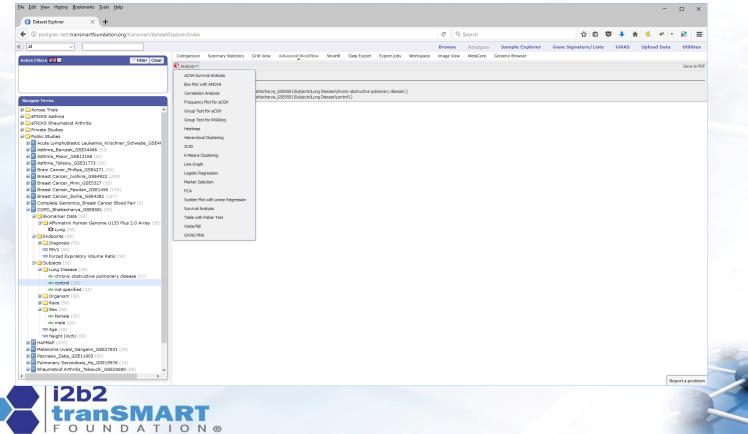




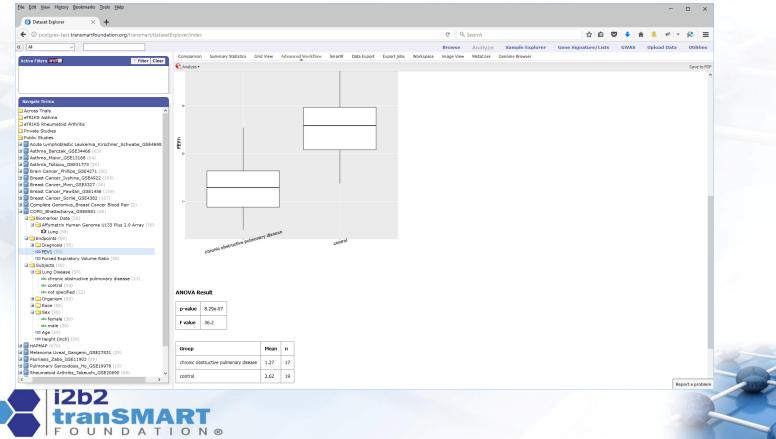


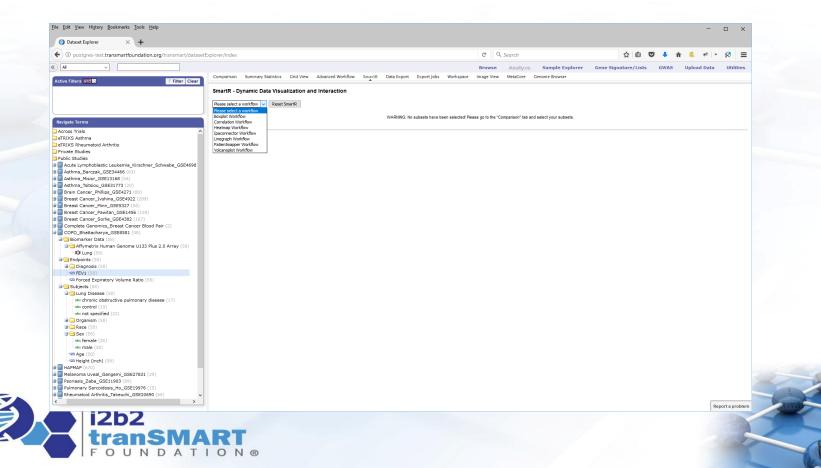


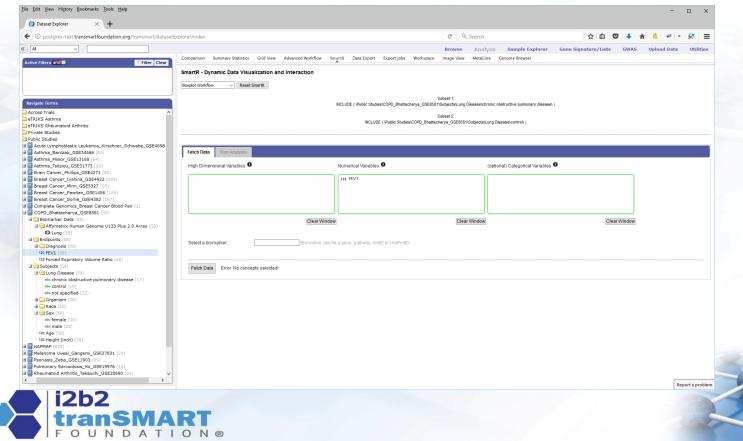
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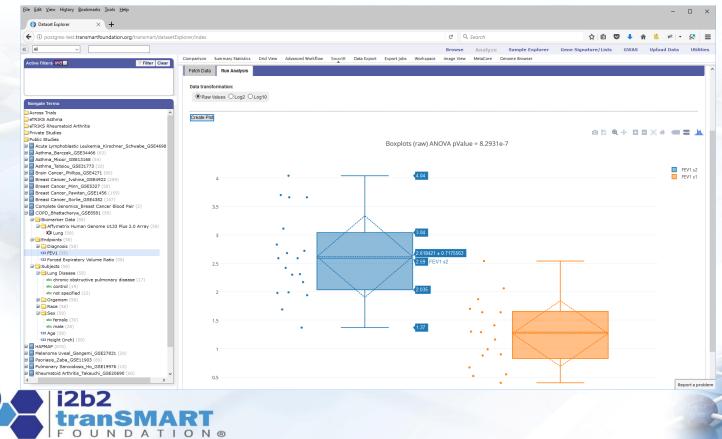
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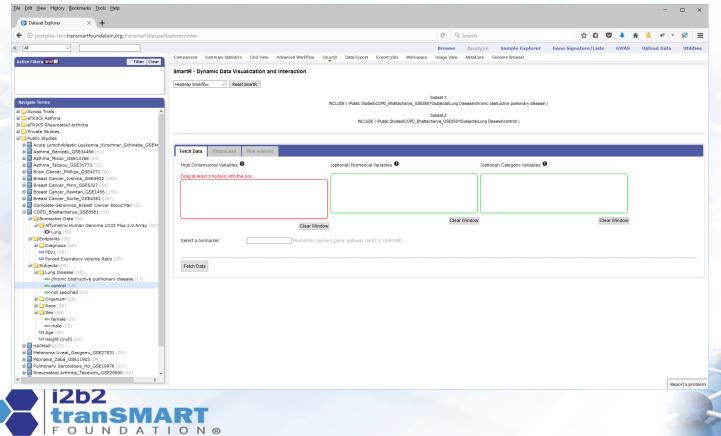




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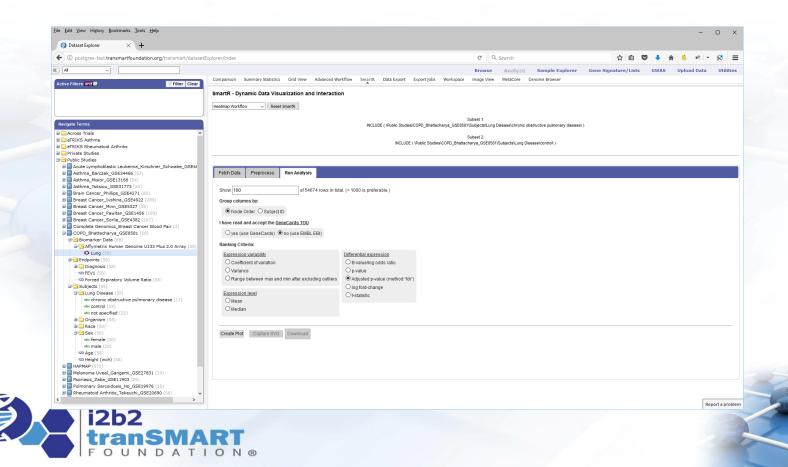


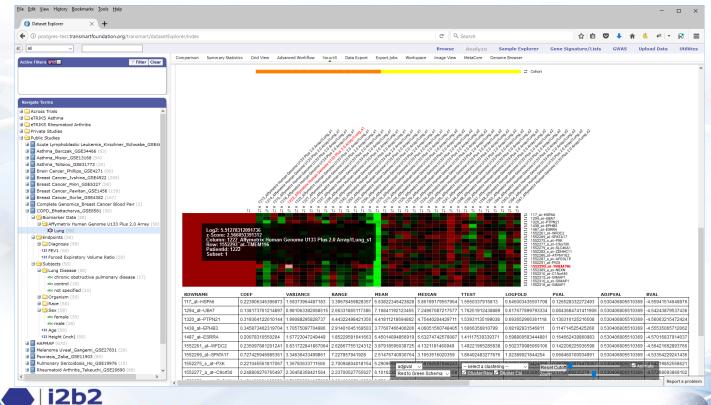
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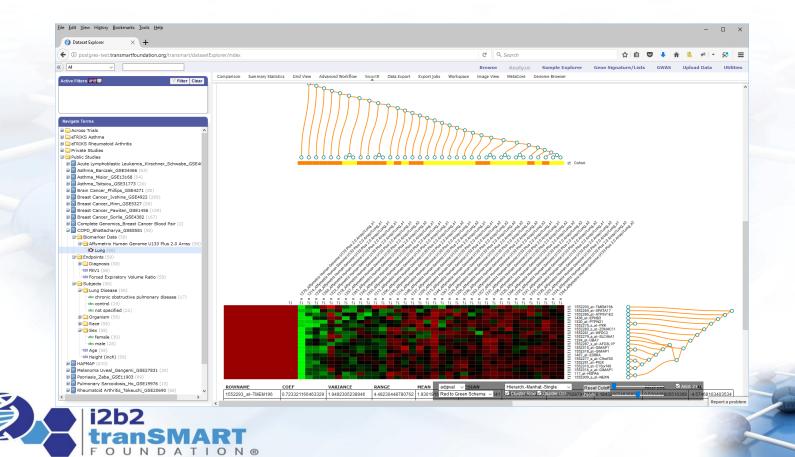
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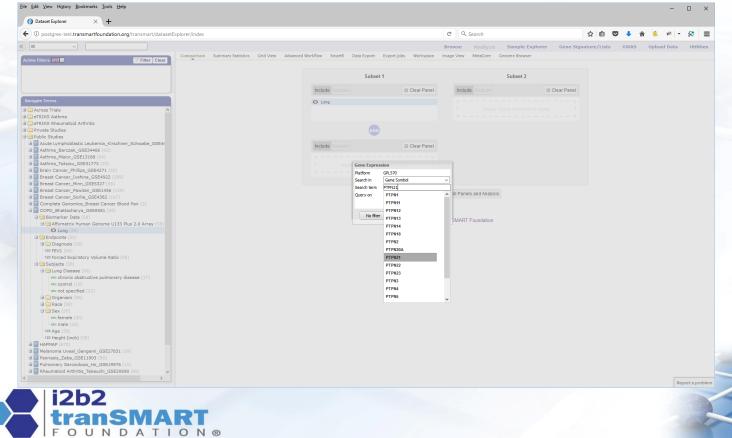
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B Brain Cancer_Phillips_GSE4271 (80) B Breast Cancer_Ivshina_GSE4922 (289)						
Breast Cancer_Minn_GSE5327 (58)		Clear Window	Clear Window	Clear Window		
B Breast Cancer_Pawitan_GSE1456 (159)				STOR THIOW		
B Complete Genomics_Breast Cancer Blood Pair (2)	Select a biomarker:	Biomarker can be a gene, pathway, mirlD or Unil	iProttD.			
🖨 😁 Biomarker Data (58)						
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123 FEV1 (58) 123 Forced Expiratory Volume Ratio (58)	Plot	Labels	Subset 1	Subset 2		
🖃 🔄 Subjects (58)		variableLabel :	Affymetrix Human Genome U133 Plus 2.0 Array//Lung_s1	Affymetrix Human Genome U133 Plus 2.0 Array//Lung_s2		
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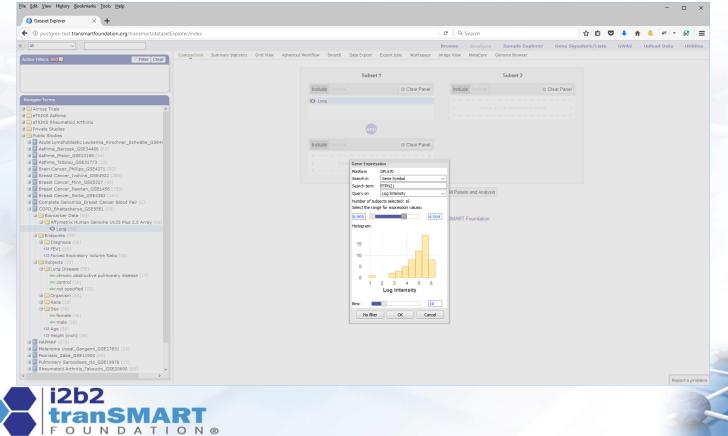


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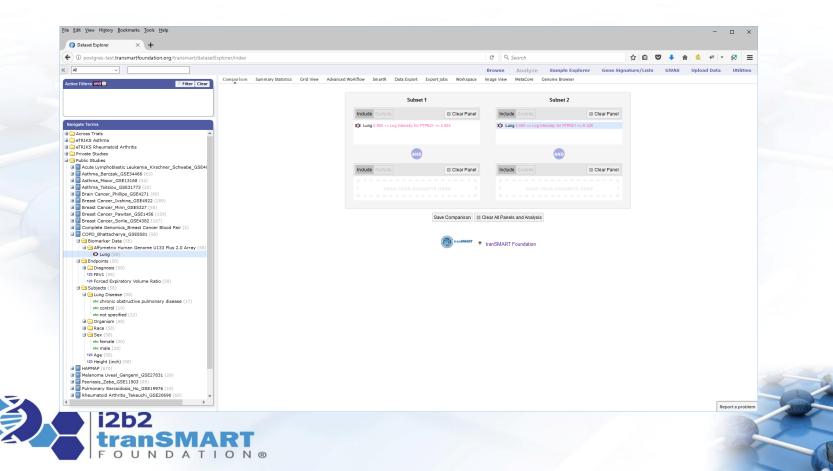


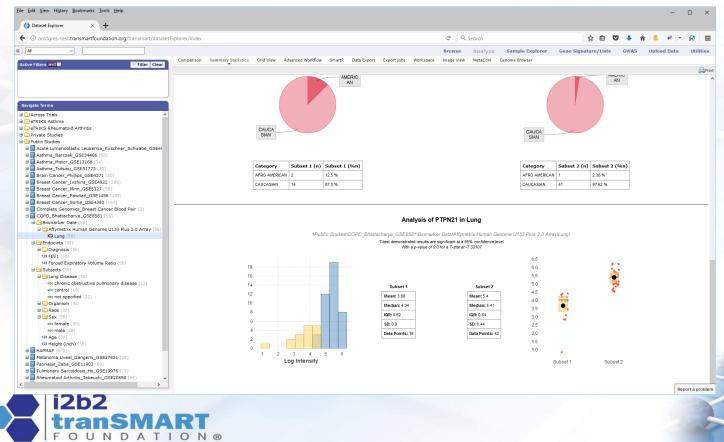


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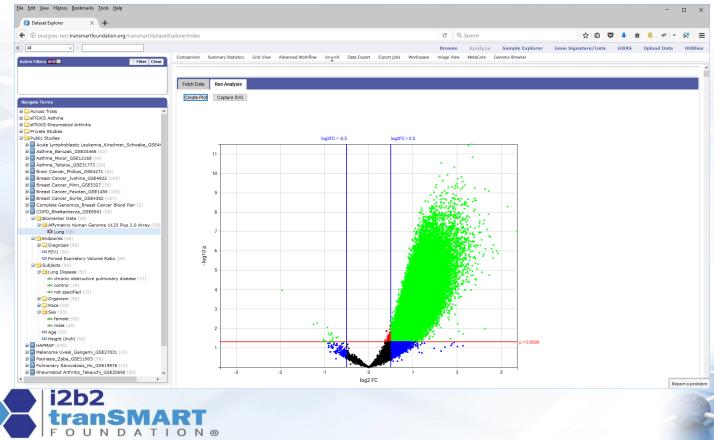








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	1213	GSE8581GSM210006	GSM210006	subset1	GSE8581	female	65	afro american	4.070242109589654
	1214	GSE8581GSM212788	GSM212788	subset1	GSE8581	female	77	caucasian	3.518815083323717
Navigate Terms	1218	GSE8581GSM210993	GSM210993	subset1	GSE8581	male	61	caucasian	4.057019965365272
B Across Trials	1219	GSE8581GSM210012	GSM210012	subset1	GSE8581	male	61	caucasian	3.611117625737859
🛚 🦳 eTRIKS Asthma	1225	GSE8581GSM212849	GSM212849	subset1	GSE8581	male	39	caucasian	4.277860601696006
eTRIKS Rheumatoid Arthritis	1238	GSE8581GSM212848	GSM212848	subset1	GSE8581	female	59	caucasian	2.922513420088294
B	1240	GSE8581GSM212855	GSM212855	subset1	GSE8581	male	73	caucasian	4.494299404848182
Public Studies General Acute Lymphoblastic Leukemia_Kirschner_Schwabe_GSE4(1242	GSE8581GSM210011	GSM210011	subset1	GSE8581	male	56	caucasian	4.467505737102357
B Asthma_Barczak_GSE34466 (63)	1245	GSE8581GSM212069	GSM212069	subset1	GSE8581	female	81	caucasian	4.254843879677155
B Asthma_Misior_GSE13168 (54)	1256	GSE8581GSM210071	GSM210071	subset1	GSE8581	male	68	caucasian	4.018440894738402
Asthma_Tsitsiou_GSE31773 (20)	1257	GSE8581GSM210005	GSM210005	subset1	GSE8581	female	84	afro american	4.054734292776936
B Brain Cancer_Phillips_GSE4271 (80) B Breast Cancer Ivshina GSE4922 (289)	1260	GSE8581GSM210004	GSM210004	subset1	GSE8581	male	63	caucasian	3.164785393647166
Breast Cancer_Minn_GSE5327 (58)	1262	GSE8581GSM212809	GSM212809	subset1	GSE8581	female	61	caucasian	4.408945925337417
Breast Cancer_Pawitan_GSE1456 (159)	1265	GSE8581GSM212787	GSM212787	subset1	GSE8581	male	78	caucasian	3.774919954237507
Breast Cancer_Sorlie_GSE4382 (167)	1267	GSE8581GSM212811	GSM212811	subset1	GSE8581	female	77	caucasian	2.897596423894188
Complete Genomics_Breast Cancer Blood Pair (2)	1270	GSE8581GSM212810	GSM212810	subset1	GSE8581	female	52	caucasian	0.926066612514607
COPD_Bhattacharya_GSE8581 (58) G G Biomarker Data (58)	1215	GSE8581GSM212067 GSE8581GSM212074	GSM212067 GSM212074	subset2	GSE8581 GSE8581	maie	55	caucasian	5.055809776593212
G Affymetrix Human Genome U133 Plus 2.0 Array (58)	1216	GSE8581GSM212074 GSE8581GSM213037	GSM212074 GSM213037	subset2	G5E8581 GSE8581	maie	77	caucasian	5.81626231750587
- 10 Lung (58)	1217	GSE8581GSM210087	GSM213037 GSM210087	subset2	GSE8581	female	68	caucasian	5.602113124704513
🖬 😋 Endpoints (58)	1220	GSE8581GSM210087	GSM210087 GSM210010	subset2	GSE8581	female	77	caucasian	5.048874283073557
Diagnosis (58)	1222	GSE8581GSM210992	GSM210992	subset2	GSE8581	male	70	caucasian	4.90531963703897
-123 FEV1 (58) -123 Forced Expiratory Volume Ratio (58)	1223	GSE8581GSM212852	GSM212852	subset2	GSE8581	female	72	caucasian	5.936703688435597
G Subjects (58)	1224	GSE8581GSM213019	GSM213019	subset2	GSE8581	female	71	caucasian	5.491621647823186
🖃 🗁 Lung Disease (58)	1226	GSE8581GSM211008	GSM211008	subset2	GSE8581	male	71	caucasian	4.60249786722580
abc chronic obstructive pulmonary disease (17)	1227	GSE8581GSM210194	GSM210194	subset2	GSE8581	female	56	caucasian	5.72184936995824
-abc control (19) -abc not specified (22)	1228	GSE8581GSM211872	GSM211872	subset2	GSE8581	male	74	caucasian	5.67389977880794
Growniam (58)	1229	GSE8581GSM213036	GSM213036	subset2	GSE8581	female	59	caucasian	5.440876611452126
B Cryshian (56)	1230	GSE8581GSM210014	GSM210014	subset2	GSE8581	female	71	caucasian	4.625188856833059
🖃 🚍 Sex (58)	1231	GSE8581GSM212075	GSM212075	subset2	GSE8581	female	79	afro american	5.288694898458576
-abc female (30)	1232	GSE8581GSM211865	GSM211865	subset2	GSE8581	male	69	caucasian	6.24283365510922
- 123 Age (58)	1233	GSE8581GSM210994	GSM210994	subset2	GSE8581	female	64	caucasian	5.8573861943558
-123 Age (58) -123 Height (inch) (58)	1234	GSE8581GSM210192	GSM210192	subset2	GSE8581	female	50	caucasian	5.08096468018190
B HAPMAP (670)	1235	GSE8581GSM210015	GSM210015	subset2	GSE8581	male	68	caucasian	4.72034772542741
Melanoma Uveal_Gangemi_GSE27831 (29)	1236	GSE8581GSM210979	GSM210979	subset2	GSE8581	female	55	caucasian	5.78095026852661
Psoriasis_Zaba_GSE11903 (89)	1237	GSE8581GSM211007	GSM211007	subset2	GSE8581	male	61	caucasian	6.304025565558829
Pulmonary Sarcoidosis_Ho_GSE19976 (15) Rheumatoid Arthritis_Takeuchi_GSE20690 (68)	1239	GSE8581GSM213020	GSM213020	subset2	GSE8581	male	75	caucasian	5.704818102096192
	1241	GSE8581GSM210009 patient IDs	GSM210009	subset?	GSE8581	female	53	caucasian	5.065936719408442 Rep



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B eTRIKS Asthma	Selected Cohort	INCLUDE (VPublic Studies/COPD_Bhattacharya_GSE8581\Biomarker Data\Affymetrix Human G	INCLUDE (\Public Studies\COPD_Bhattacharya_GSE8581\Biomarker Data\Affymetrix Human G
B C RIKS Kneumatoid Arthritis	Clinical & Low Dimensional Biomarker Data	16 patients	42 patients
Private Studies Public Studies	(Drag and drop low dimensional nodes here to filter the exported data.)		TSV ~
Acute Lymphoblastic Leukemia_Kirschner_Schwabe_GSE46	Messenger RNA data (Microarray)	16 patients	42 patients
B Asthma_Barczak_GSE34466 (63)	(Drag and drop high dimensional nodes here to filter the exported data.)	TSV 🗸	TSV 🗸
Asthma_Misior_GSE13168 (54)			
B Asthma_Tsitsiou_GSE31773 (20)			
Brain Cancer_Phillips_GSE4271 (80)			
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Breast Cancer Pawitan GSE1456 (159)			
Breast Cancer_Sorlie_GSE4382 (167)			
Complete Genomics_Breast Cancer Blood Pair (2)			
GSE8581 (58)			
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B Pulmonary Sarcoidosis Ho_GSE19976 (15)			
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Questions?