



Solanaceae Coordinated Agricultural Project



Working with Infinium Genotyping Data

Allen Van Deynze

UC Davis

November 16th, 2010



United States
Department of
Agriculture
National Institute
of Food and
Agriculture



Marker development considerations

- ✓ How to sequence?
- ✓ What part of the DNA to sequence?

SNPs

- What lines to sequence?
- How many lines to sequence?
- Qualifying genotypic data





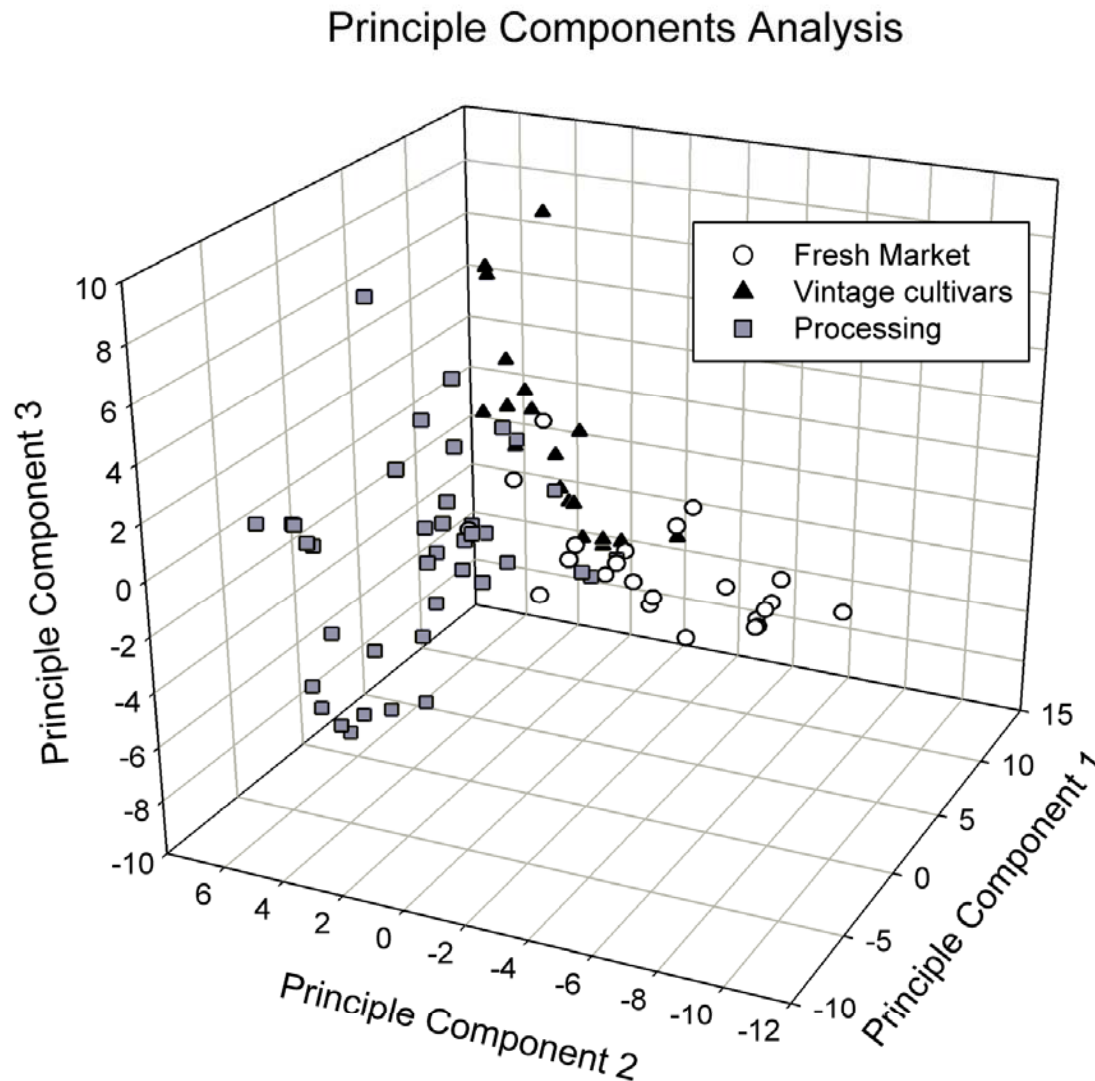
Converting Sequence to SNPs

Consider:

- Lines sequenced
- Duplications
- Heterozygosity



Basis of SNPs is important



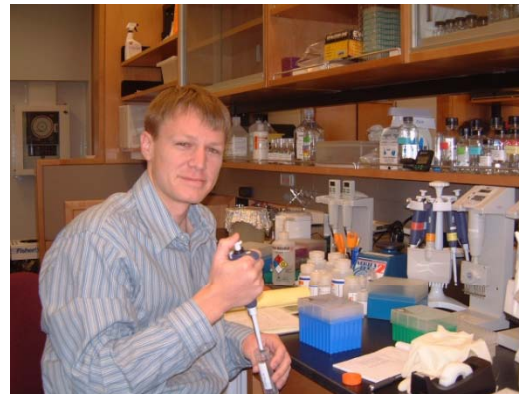
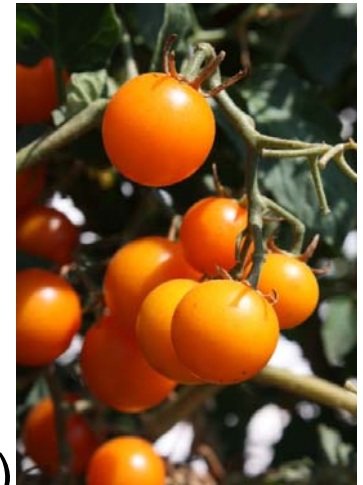
Robbins et al. 2011



cDNA Libraries for Sequencing

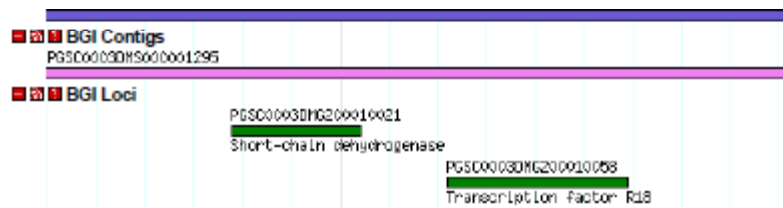
Using Illumina Genome Analyzer

- | | | | |
|------------|---------------------------------------|---|---|
| •OH08-6405 | (CA fresh-market) | } | Root
Leaf
Flower
Fruit
Callus |
| •FL7600 | (Florida fresh-market) | | |
| •NC84173 | (NC fresh-market) | | |
| •OH9242 | (Ohio processing) | | |
| •PI114490 | (wild cherry tomato) | | |
| •PI128216 | (wild current tomato) | | |
| •H1706 | (Midwest Processing; Genome sequence) | | |
| •TA496 | (CA Processing; EST sequence) | | |



SNP Filters

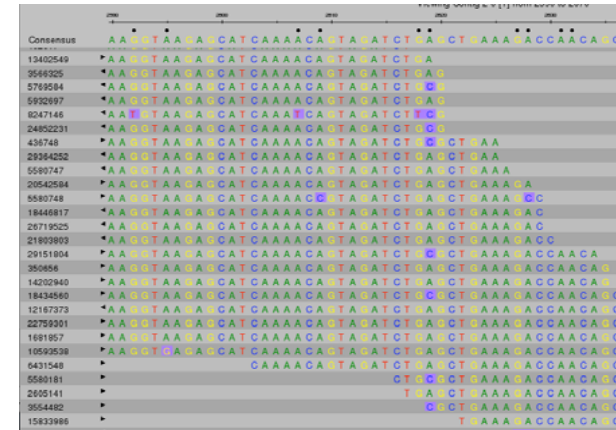
Sequence Alignment



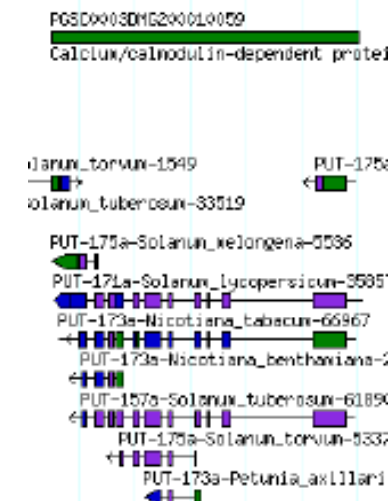
Allele Frequency

- OH08-6405 (CA fresh-market)
- FL7600 (Florida fresh-market)
- NC84173 (NC fresh-market)
- OH9242 (Ohio processing)
- PI114490 (wild cherry tomato)
- PI128216 (wild current tomato)

Allele depth



Candidate genes



Results of validation Test-96 Bead express

After filters: 28,380 putative SNPs

Cultivated: 9200

Category	% PM	Total Number
Total Number	97%	9,200
Cultivated	70%	6,500
Processing	60%	5,600
Fresh-Market	43%	4,000
Vintage	34%	3,500
<i>S. pimpinellifolium</i>	40%	3,750
M82 x LA716	30%	2,760



SNPs from SolCAP, Trait Genetics and INRA
Design: John Hamilton, Robin Buell, David Francis, Allen Van Deynze





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Qualifying genotyping data-not about bands

GenomeStudio Project Wizard - Loading Sample Intensities

Genotyping Project

Please specify the samples you want to load by identifying the sample sheet and associated data and manifest repositories

Sample Sheet
\\plantsciences\dfs\FacultyData\VANDEYNZE\VanDeynze\Proj Browse...

Data Repository
\\plantsciences\dfs\FacultyData\VANDEYNZE\VanDeynze\Proj Browse...

Manifest Repository
\\plantsciences\dfs\FacultyData\VANDEYNZE\VanDeynze\Proj Browse...

Cancel < Back Next > Finish



Setting up the project

GenomeStudio Project Wizard - Cluster Positions

Genotyping Project

If you have an existing cluster file that you want to import cluster positions from, enter it here. Otherwise, you can cluster the samples you've selected to determine cluster positions.

☒ Import cluster positions from a cluster file

Cluster File

Project Settings

Options

☐ Pre-Calculate

Pre-Calculate should only be used for memory based projects.

This option will improve speed but requires 4.5x more memory.

Project Creation Actions

☐ Cluster SNPs

☐ Calculate Sample and SNP Statistics

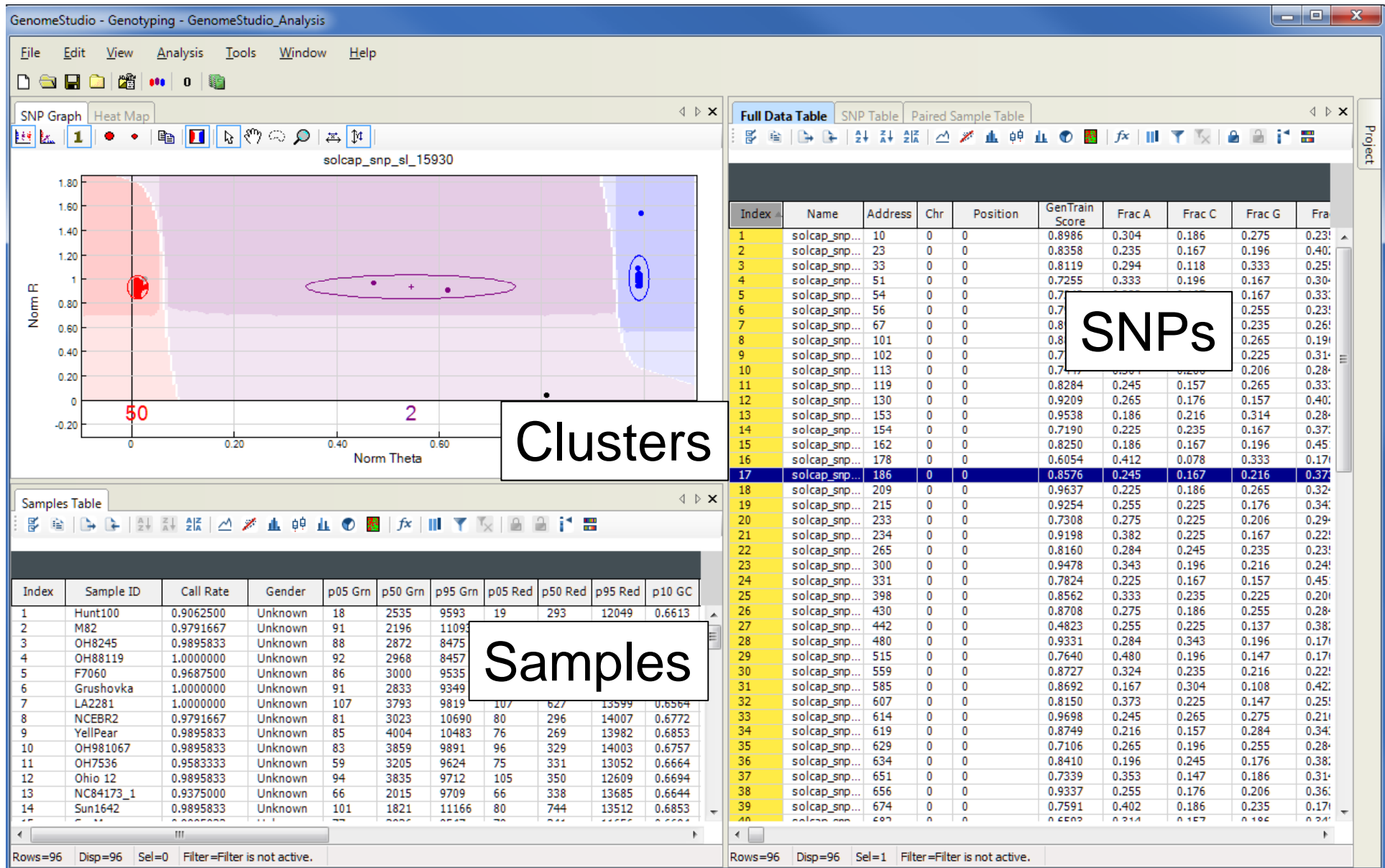
☐ Calculate Heritability

Gen Call Threshold

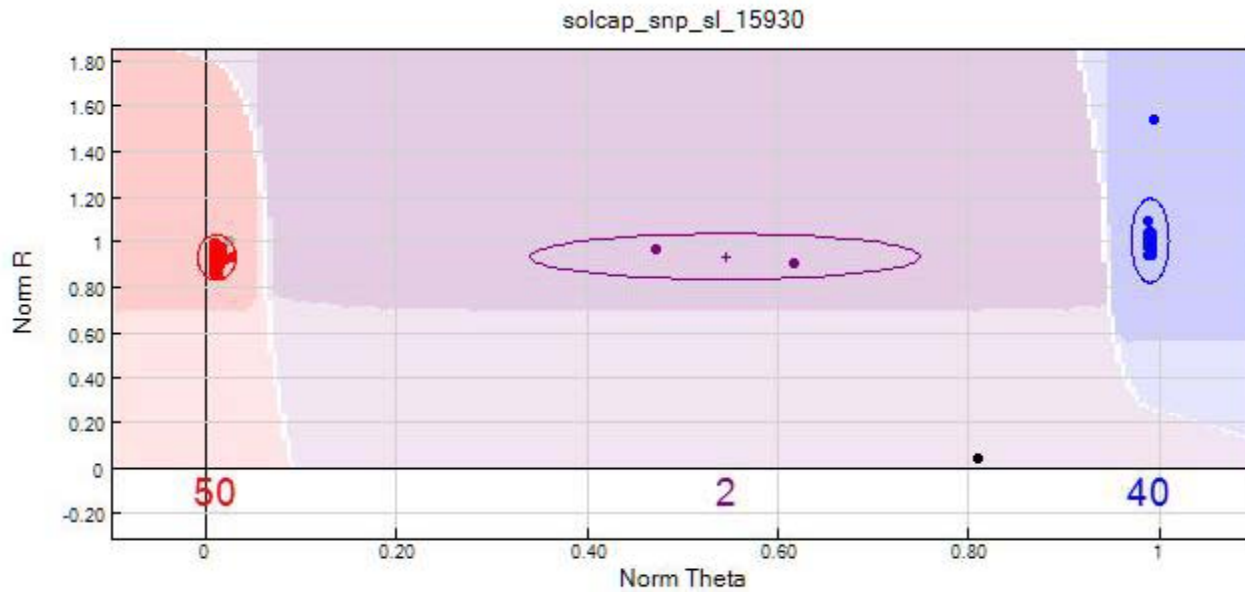
Optional Script File



The workbench

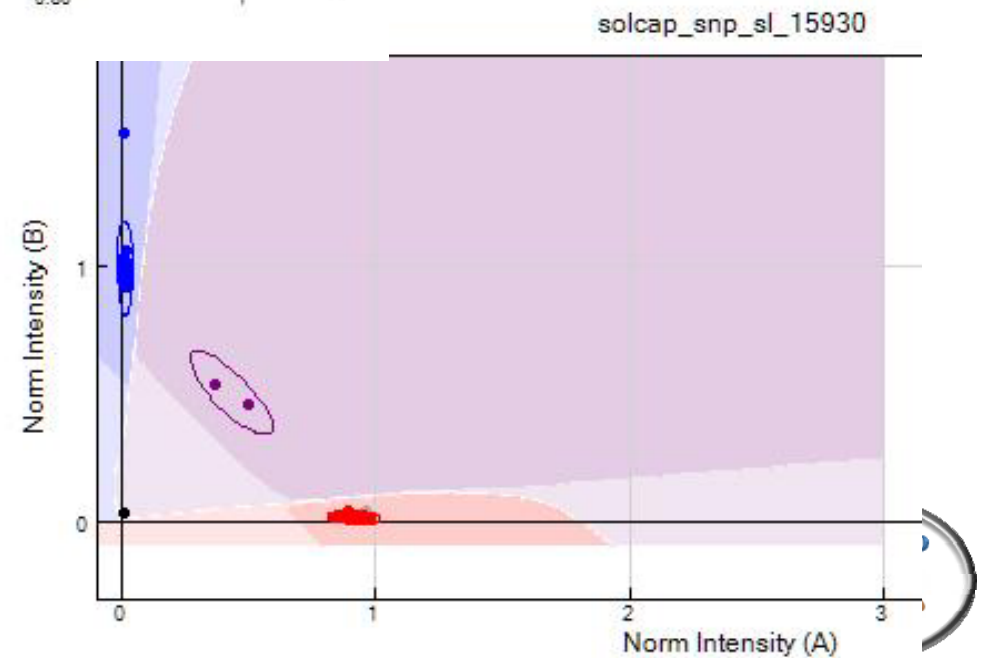


Views

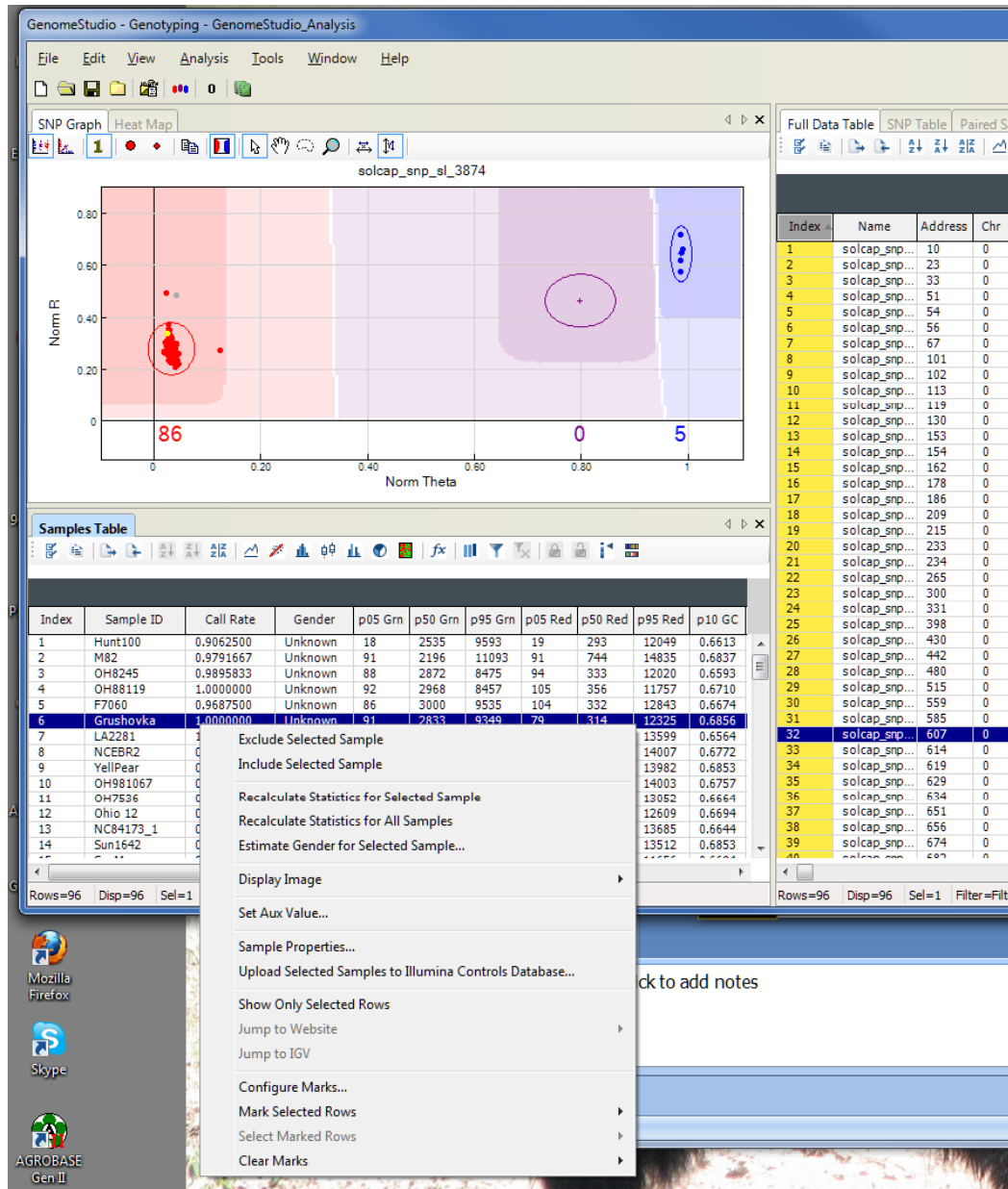


Polar

Cartesian



Managing samples



- Display
- Call rate-graph
- Sort
- Exclude
- Configure



Load additional samples

GenomeStudio - Genotyping - GenomeStudio_Analysis

File Edit View Analysis Tools Window Help

- New Project
- Open Project Ctrl+O
- Save Project Ctrl+S
- Save Project Copy As... Ctrl+Shift+A
- Close Project Ctrl+Shift+C
- Load Additional Samples...**
- Import Cluster Positions...
- Export Cluster Positions
- Export Cluster Positions to LIMS
- Export Manifest Data...
- Create LIMS Sample Sheet...
- Update Project from LIMS
- Import Phenotype Information from File...
- Page Setup Ctrl+Shift+U
- Print Preview Ctrl+Shift+V
- Print... Ctrl+P
- Recent Project
- Exit Alt+F4

solcap_snp_sl_14165

Norm Theta

1 78

Samples Table

Index	Sample ID	Call Rate	Gender	p05 Grn	p50 Grn	p95 Grn	p05 Red	p50 Red	p95 Red	p10 GC
1	Hunt100	0.9062500	Unknown	18	2535	9593	19	293	12049	0.6613
2	M82	0.9791667	Unknown	91	2196	11093	91	744	14835	0.6837
3	OH8245	0.9895833	Unknown	88	2872	8475	94	333	12020	0.6593
4	OH88119	1.0000000	Unknown	92	2968	8457	105	356	11757	0.6710
5	F7060	0.9687500	Unknown	86	3000	9535	104	332	12843	0.6674
6	Grushovka	1.0000000	Unknown	91	2833	9349	79	314	12325	0.6856
7	LA2281	1.0000000	Unknown	107	3793	9819	107	627	13599	0.6564
8	NCEBR2	0.9791667	Unknown	81	3023	10690	80	296	14007	0.6772
9	YellPear	0.9895833	Unknown	85	4004	10483	76	269	13982	0.6853
10	OH981067	0.9895833	Unknown	83	3859	9891	96	329	14003	0.6757
11	OH7536	0.9583333	Unknown	59	3205	9624	75	331	13052	0.6664
12	Ohio 12	0.9895833	Unknown	94	3835	9712	105	350	12609	0.6694
13	NC84173_1	0.9375000	Unknown	66	2015	9709	66	338	13685	0.6644
14	Sun1642	0.9895833	Unknown	101	1821	11166	80	744	13512	0.6853

Rows=96 Disp=96 Sel=1 Filter=Filter is not active.

Full Data Table SNP Table Paired Sample Table

Index	Name	Address	Chr	Position	GenTrain Score	Frac A	Frac C	Frac G	Fra
1	solcap_snp...	10	0	0	0.8986	0.304	0.186	0.275	0.23
2	solcap_snp...	23	0	0	0.8358	0.235	0.167	0.196	0.40
3	solcap_snp...	33	0	0	0.8119	0.294	0.118	0.333	0.25
4	solcap_snp...	51	0	0	0.7255	0.333	0.196	0.167	0.30
5	solcap_snp...	54	0	0	0.7343	0.333	0.167	0.167	0.33
6	solcap_snp...	56	0	0	0.7996	0.363	0.147	0.255	0.23
7	solcap_snp...	67	0	0	0.8941	0.284	0.216	0.235	0.26
8	solcap_snp...	101	0	0	0.8819	0.343	0.196	0.265	0.19
9	solcap_snp...	102	0	0	0.7719	0.255	0.206	0.225	0.31
10	solcap_snp...	113	0	0	0.7447	0.304	0.206	0.206	0.28
11	solcap_snp...	119	0	0	0.8284	0.245	0.157	0.265	0.33
12	solcap_snp...	130	0	0	0.9209	0.265	0.176	0.157	0.40
13	solcap_snp...	153	0	0	0.9538	0.186	0.216	0.314	0.28
14	solcap_snp...	154	0	0	0.7190	0.225	0.235	0.167	0.37
15	solcap_snp...	162	0	0	0.8250	0.186	0.167	0.196	0.45
16	solcap_snp...	178	0	0	0.6054	0.412	0.078	0.333	0.17
17	solcap_snp...	186	0	0	0.8576	0.245	0.167	0.216	0.37
18	solcap_snp...	209	0	0	0.9637	0.225	0.186	0.265	0.32
19	solcap_snp...	215	0	0	0.9254	0.255	0.225	0.176	0.34
20	solcap_snp...	233	0	0	0.7308	0.275	0.225	0.206	0.29
21	solcap_snp...	234	0	0	0.9198	0.382	0.225	0.167	0.22
22	solcap_snp...	265	0	0	0.8160	0.284	0.245	0.235	0.23
23	solcap_snp...	300	0	0	0.9478	0.343	0.196	0.216	0.24
24	solcap_snp...	331	0	0	0.7824	0.225	0.167	0.157	0.45
25	solcap_snp...	398	0	0	0.8562	0.333	0.235	0.225	0.20
26	solcap_snp...	430	0	0	0.8708	0.275	0.186	0.255	0.28
27	solcap_snp...	442	0	0	0.4823	0.255	0.225	0.137	0.38
28	solcap_snp...	480	0	0	0.9331	0.284	0.343	0.196	0.17
29	solcap_snp...	515	0	0	0.7640	0.480	0.196	0.147	0.17
30	solcap_snp...	559	0	0	0.8727	0.324	0.235	0.216	0.22
31	solcap_snp...	585	0	0	0.8692	0.167	0.304	0.108	0.42
32	solcap_snp...	607	0	0	0.8150	0.373	0.225	0.147	0.25
33	solcap_snp...	614	0	0	0.9698	0.245	0.265	0.275	0.21
34	solcap_snp...	619	0	0	0.8749	0.216	0.157	0.284	0.34
35	solcap_snp...	629	0	0	0.7106	0.265	0.196	0.255	0.28
36	solcap_snp...	634	0	0	0.8410	0.196	0.245	0.176	0.38
37	solcap_snp...	651	0	0	0.7339	0.353	0.147	0.186	0.31
38	solcap_snp...	656	0	0	0.9337	0.255	0.176	0.206	0.36
39	solcap_snp...	674	0	0	0.7591	0.402	0.186	0.235	0.17
40	solcap_snp...	693	0	0	0.6503	0.314	0.167	0.186	0.34

Rows=96 Disp=96 Sel=1 Filter=Filter is not active.

Import clusters

GenomeStudio - Genotyping - GenomeStudio_Analysis

File Edit View Analysis Tools Window Help

New Project
Open Project Ctrl+O
Save Project Ctrl+S
Save Project Copy As... Ctrl+Shift+A
Close Project Ctrl+Shift+C
Load Additional Samples...
Import Cluster Positions...
Export Cluster Positions
Export Cluster Positions to LIMS
Export Manifest Data...
Create LIMS Sample Sheet...
Update Project from LIMS
Import Phenotype Information from File...
Page Setup Ctrl+Shift+U
Print Preview Ctrl+Shift+V
Print... Ctrl+P
Recent Project
Exit Alt+F4

solcap_snp_sl_14165

Norm Theta

1 78

Full Data Table SNP Table Paired Sample Table

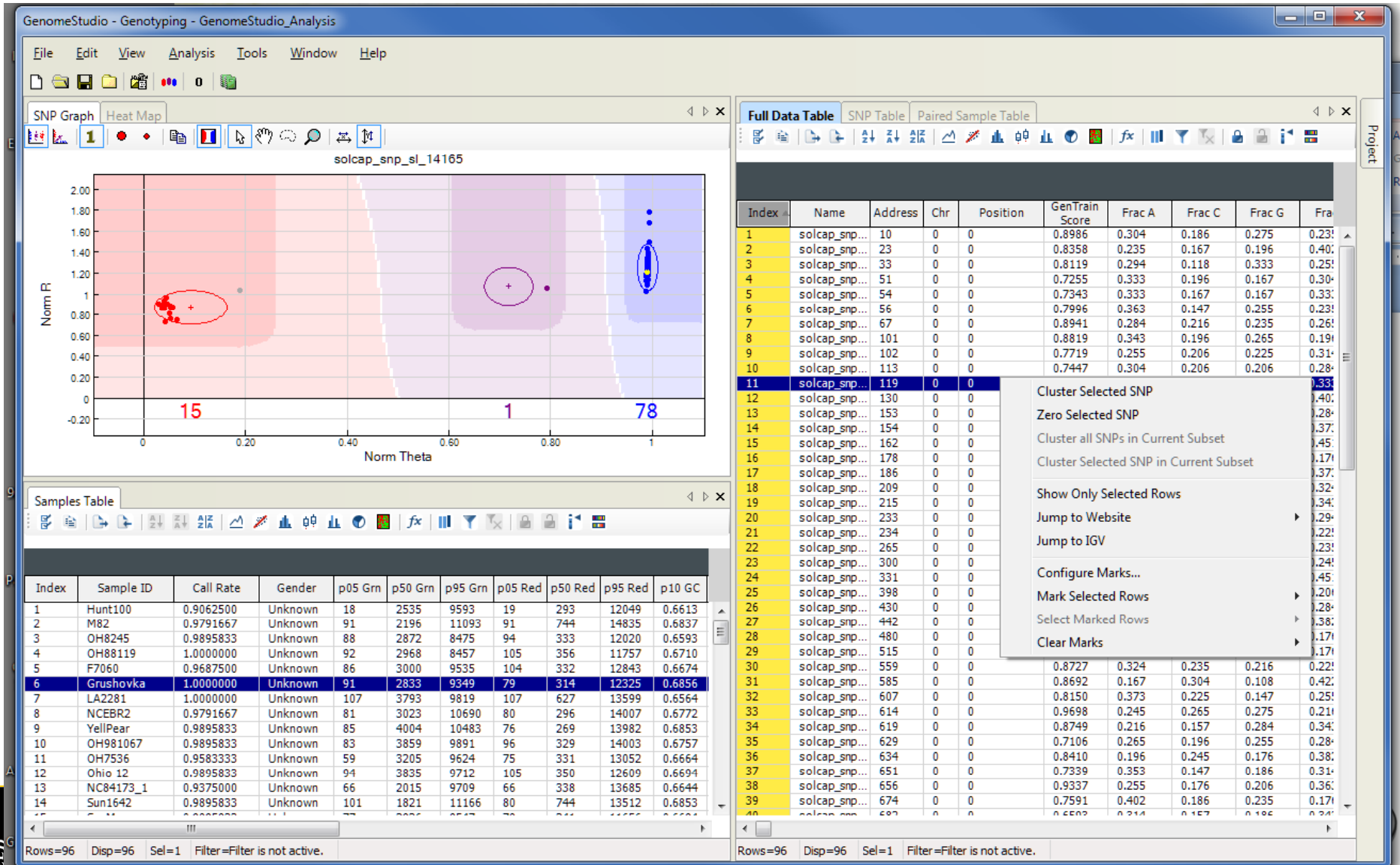
Index	Name	Address	Chr	Position	GenTra Score
1	solcap_snp...	10	0	0	0.8986
2	solcap_snp...	23	0	0	0.8358
3	solcap_snp...	33	0	0	0.8119
4	solcap_snp...	51	0	0	0.7255
5	solcap_snp...	54	0	0	0.7343
6	solcap_snp...	56	0	0	0.7996
7	solcap_snp...	67	0	0	0.8941
8	solcap_snp...	101	0	0	0.8819
9	solcap_snp...	102	0	0	0.7719
10	solcap_snp...	113	0	0	0.7447
11	solcap_snp...	119	0	0	0.8284
12	solcap_snp...	130	0	0	0.9209
13	solcap_snp...	153	0	0	0.9538
14	solcap_snp...	154	0	0	0.7190
15	solcap_snp...	162	0	0	0.8250
16	solcap_snp...	178	0	0	0.6054
17	solcap_snp...	186	0	0	0.8576
18	solcap_snp...	209	0	0	0.9637
19	solcap_snp...	215	0	0	0.9254
20	solcap_snp...	233	0	0	0.7308
21	solcap_snp...	234	0	0	0.9198
22	solcap_snp...	265	0	0	0.8160
23	solcap_snp...	300	0	0	0.9478
24	solcap_snp...	331	0	0	0.7824
25	solcap_snp...	398	0	0	0.8562
26	solcap_snp...	430	0	0	0.8708
27	solcap_snp...	442	0	0	0.4823
28	solcap_snp...	480	0	0	0.9331
29	solcap_snp...	515	0	0	0.7640
30	solcap_snp...	559	0	0	0.8727
31	solcap_snp...	585	0	0	0.8692
32	solcap_snp...	607	0	0	0.8150
33	solcap_snp...	614	0	0	0.9698

Samples Table

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7	LA2281	1.0000000	Unknown	107	3793	9819	107	627	13599	0.6564
8	NCEBR2	0.9791667	Unknown	81	3023	10690	80	296	14007	0.6772



Managing SNPs



SNP Table

Display
Stats
Select columns

Index	Name	ChiTest1	Het Excess	AA Freq	AB Freq	BB Freq	Call Freq	Minor Freq	SNP	# Calls	# no calls	Plus/Minus Strand
1	solcap_snp_sl_29669	0.0000	-0.9985	0.8989	0.0000	0.1011	0.9368	0.1011	[A/C]	89	6	
2	solcap_snp_sl_71152	1.0000	0.0000	1.0000	0.0000	0.0000	0.9158	0.0000	[T/C]	87	8	
3	solcap_snp_sl_24995	0.0000	-0.6344	0.9697	0.0000	0.0303	0.6947	0.0303	[A/G]	66	29	
4	solcap_snp_sl_47634	0.0000	-0.8834	0.0421	0.0105	0.9474	1.0000	0.0474	[T/C]	95	0	
5	solcap_snp_sl_31692	0.0000	-0.9649	0.8105	0.0105	0.1789	1.0000	0.1842	[A/G]	95	0	
6	solcap_snp_sl_7775	0.0000	-0.9743	0.7021	0.0106	0.2872	0.9895	0.2926	[T/C]	94	1	
7	solcap_snp_sl_27275	0.0000	-0.9969	0.9130	0.0000	0.0870	0.9684	0.0870	[T/G]	92	3	
8	solcap_snp_sl_29688	0.0000	-0.9722	0.9444	0.0000	0.0556	0.9474	0.0556	[A/G]	90	5	
9	solcap_snp_sl_27056	0.0000	-0.9967	0.9140	0.0000	0.0860	0.9789	0.0860	[T/C]	93	2	
10	solcap_snp_sl_42110	0.0000	-1.0000	0.0860	0.0000	0.9140	0.9789	0.0860	[T/C]	93	2	
11	solcap_snp_sl_14165	0.0000	-0.9614	0.1596	0.0106	0.8298	0.9895	0.1649	[A/G]	94	1	
12	solcap_snp_sl_10976	0.0000	-0.9662	0.7957	0.0108	0.1935	0.9789	0.1989	[T/C]	93	2	
13	solcap_snp_sl_23021	0.0000	-1.0000	0.0632	0.0000	0.9368	1.0000	0.0632	[T/C]	95	0	
14	solcap_snp_sl_12280	0.1943	0.1298	0.0106	0.3191	0.6702	0.9895	0.1702	[A/G]	94	1	
15	solcap_snp_sl_11699	0.0000	-0.9722	0.7283	0.0109	0.2609	0.9684	0.2663	[A/G]	92	3	
16	solcap_snp_sl_57590	0.0000	-0.9432	0.7222	0.0222	0.2556	0.9474	0.2667	[A/G]	90	5	
17	solcap_snp_sl_15930	0.0000	-0.9560	0.5435	0.0217	0.4348	0.9684	0.4457	[T/G]	92	3	
18	solcap_snp_sl_48922	0.0000	-1.0000	0.7234	0.0000	0.2766	0.9895	0.2766	[A/G]	94	1	
19	solcap_snp_sl_41069	0.0000	-0.9963	0.9158	0.0000	0.0842	1.0000	0.0842	[T/C]	95	0	
20	solcap_snp_sl_30675	0.0000	-0.9455	0.8830	0.0106	0.1064	0.9895	0.1117	[T/C]	94	1	
21	solcap_snp_sl_25960	0.0000	-1.0000	0.0211	0.0000	0.9789	1.0000	0.0211	[T/C]	95	0	
22	solcap_snp_sl_2515	0.0000	-0.8870	0.8817	0.0215	0.0968	0.9789	0.1075	[A/G]	93	2	
23	solcap_snp_sl_25951	0.0000	-1.0000	0.0220	0.0000	0.9780	0.9579	0.0220	[T/C]	91	4	
24	solcap_snp_sl_39954	0.0000	-0.9872	0.9348	0.0000	0.0652	0.9684	0.0652	[A/G]	92	3	
25	solcap_snp_sl_18442	0.0000	-0.8958	0.8652	0.0225	0.1124	0.9368	0.1236	[T/G]	89	6	
26	solcap_snp_sl_20743	0.0000	-0.9567	0.4255	0.0213	0.5532	0.9895	0.4362	[T/C]	94	1	
27	solcap_snp_sl_42471	0.0000	-0.8221	0.0526	0.0211	0.9263	1.0000	0.0632	[T/C]	95	0	
28	solcap_snp_sl_36203	0.0000	-1.0000	0.0421	0.0000	0.9579	1.0000	0.0421	[T/C]	95	0	
29	solcap_snp_sl_17857	0.0000	-0.8497	0.2000	0.0526	0.7474	1.0000	0.2263	[A/C]	95	0	
30	solcap_snp_sl_20835	0.0000	-0.9231	0.9149	0.0106	0.0745	0.9895	0.0798	[T/C]	94	1	
31	solcap_snp_sl_29481	0.0000	-0.9476	0.2826	0.0217	0.6957	0.9684	0.2935	[A/G]	92	3	
32	solcap_snp_sl_3874	0.0000	-0.9707	0.9451	0.0000	0.0549	0.9579	0.0549	[A/G]	91	4	
33	solcap_snp_sl_32817	0.0000	-0.9990	0.8901	0.0000	0.1099	0.9579	0.1099	[A/G]	91	4	
34	solcap_snp_sl_35770	0.0000	-1.0000	0.2526	0.0000	0.7474	1.0000	0.2526	[T/C]	95	0	
35	solcap_snp_sl_33961	0.0000	-0.6557	0.0213	0.0213	0.9574	0.9895	0.0319	[A/G]	94	1	
36	solcap_snp_sl_26345	0.0000	-1.0000	0.0957	0.0000	0.9043	0.9895	0.0957	[T/C]	94	1	
37	solcap_snp_sl_64502	0.0000	-0.9158	0.1413	0.0217	0.8370	0.9684	0.1522	[T/C]	92	3	
38	solcap_snp_sl_66033	0.0000	-1.0000	0.7474	0.0000	0.2526	1.0000	0.2526	[A/G]	95	0	
39	solcap_snp_sl_13516	0.0000	-0.9234	0.6703	0.0330	0.2967	0.9579	0.3132	[A/C]	91	4	
40	solcao sno sl 58921	0.0000	-1.0000	0.6087	0.0000	0.3913	0.9684	0.3913	[T/G]	92	3	



Selecting data to export

GenomeStudio - Genotyping - GenomeStudio_Analysis

File Edit View Analysis Tools Window Help

SNP Graph Heat Map

solcap_snp_sl_25960

Norm F

2

Norm

Samples Table

Index	Sample ID	Call Rate	G
1	Hunt100	0.9062500	Un
2	M82	0.9791667	Un
3	OH8245	0.9895833	Un
4	OH88119	1.0000000	Un
5	F7060	0.9687500	Un
6	Grushovka	1.0000000	Un
7	LA2281	1.0000000	Un
8	NCEBR2	0.9791667	Un
9	YellPear	0.9895833	Un
10	OH981067	0.9895833	Un
11	OH7536	0.9583333	Un
12	Ohio 12	0.9895833	Un
13	NC84173_1	0.9375000	Un
14	Sun1642	0.9895833	Un

Full Data Table SNP Table Paired Sample Table

Index	Name	GenTrain Score	GType	GType	GType	GType	GType	GType	GType	GType	GType	GType	GType	G
1	Hunt100		AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
2	M82		AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
3	OH8245		AA	AA	NC	AA	AA	AA	AA	AA	AA	AA	AA	A
4	OH88119		BB	BB	BB	BB	BB	BB	BB	BB	BB	BB	BB	B
5	F7060		AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
6	Grushovka		AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
7	LA2281		AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
8	NCEBR2		AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
9	YellPear		AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
10	OH9810		AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
11	OH7536		AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
12	Ohio 12		AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
13	NC84173_1		AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
14	Sun1642		AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
15	Grushovka 161		BB	BB	BB	BB	BB	BB	BB	BB	BB	BB	BB	B
16			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
17			BB	BB	BB	BB	BB	BB	BB	BB	BB	BB	BB	B
18			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
19			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
20			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
21			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
22			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
23			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
24			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
25			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
26			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
27			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
28			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
29			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
30			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
31			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
32			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
33			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
34			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
35			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
36			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
37			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
38			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
39			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
40			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
41			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
42			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
43			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
44			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
45			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
46			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
47			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
48			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
49			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
50			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
51			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
52			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
53			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
54			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
55			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
56			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
57			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
58			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
59			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
60			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
61			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
62			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
63			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
64			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
65			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
66			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
67			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
68			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
69			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
70			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
71			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
72			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
73			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
74			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
75			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
76			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
77			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
78			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
79			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
80			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
81			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
82			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
83			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
84			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
85			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
86			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
87			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
88			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
89			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
90			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
91			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
92			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
93			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
94			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
95			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A
96			AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	A

Column Chooser

You can drag-and-drop columns to re-arrange their display order. Also, you can drag them to/from the Hidden list to hide/show them.

Display-Locked Columns

Displayed Columns

Index
Name
GenTrain Score
Hunt100 [1]
M82 [2]
OH8245 [3]
OH88119 [4]
F7060 [5]
Grushovka 161

Displayed Subcolumns

GType

Hidden Columns

Address
Manifest
Chr
Position
Frac A
Frac C
Frac G
Frac I

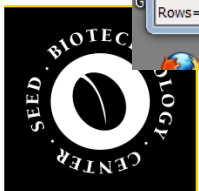
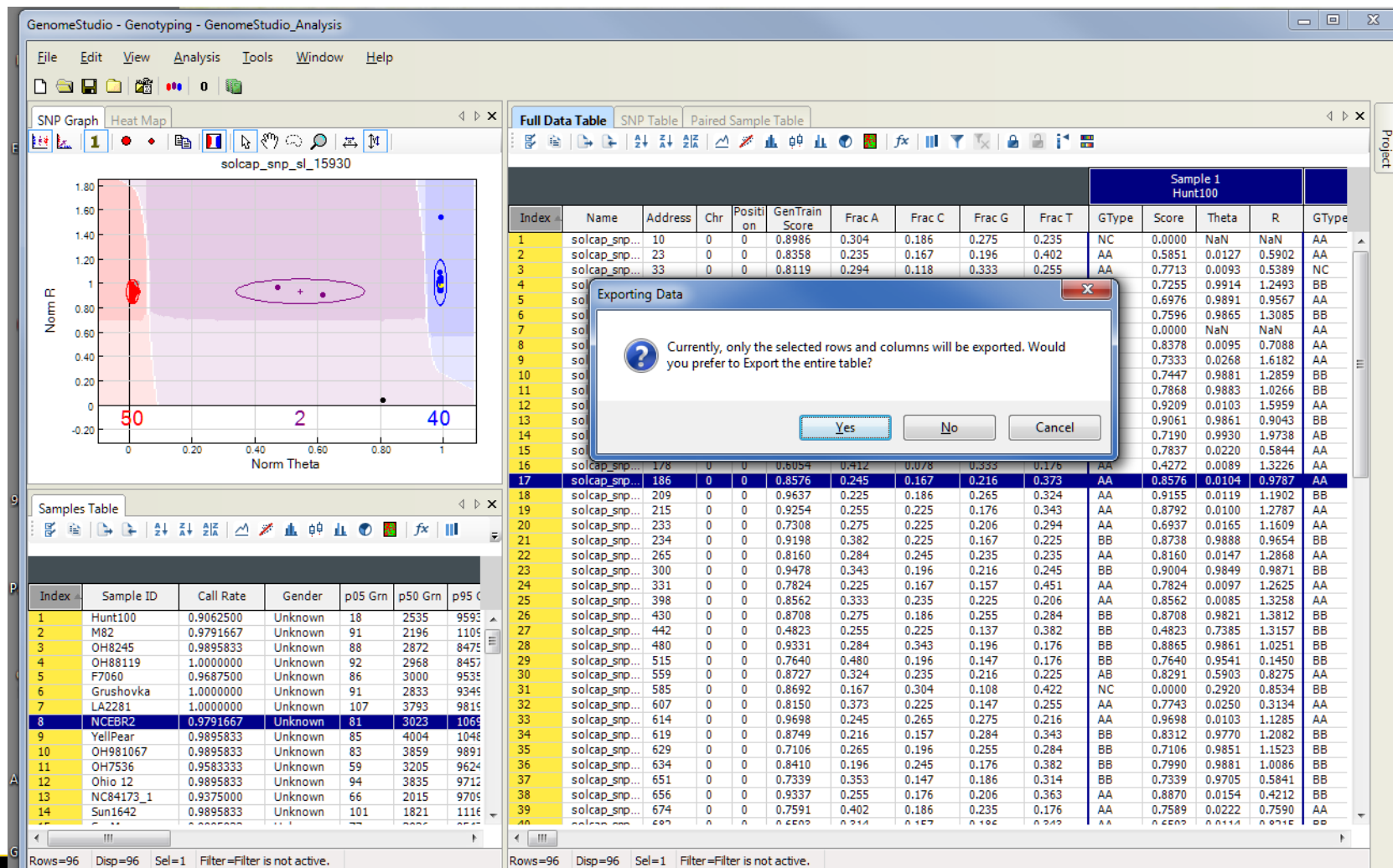
Hidden Subcolumns

X Raw
Y Raw
Score
Theta
R
X
Y
B Allele Freq
Log R Ratio
Top Alleles
Import Calls
Concordance

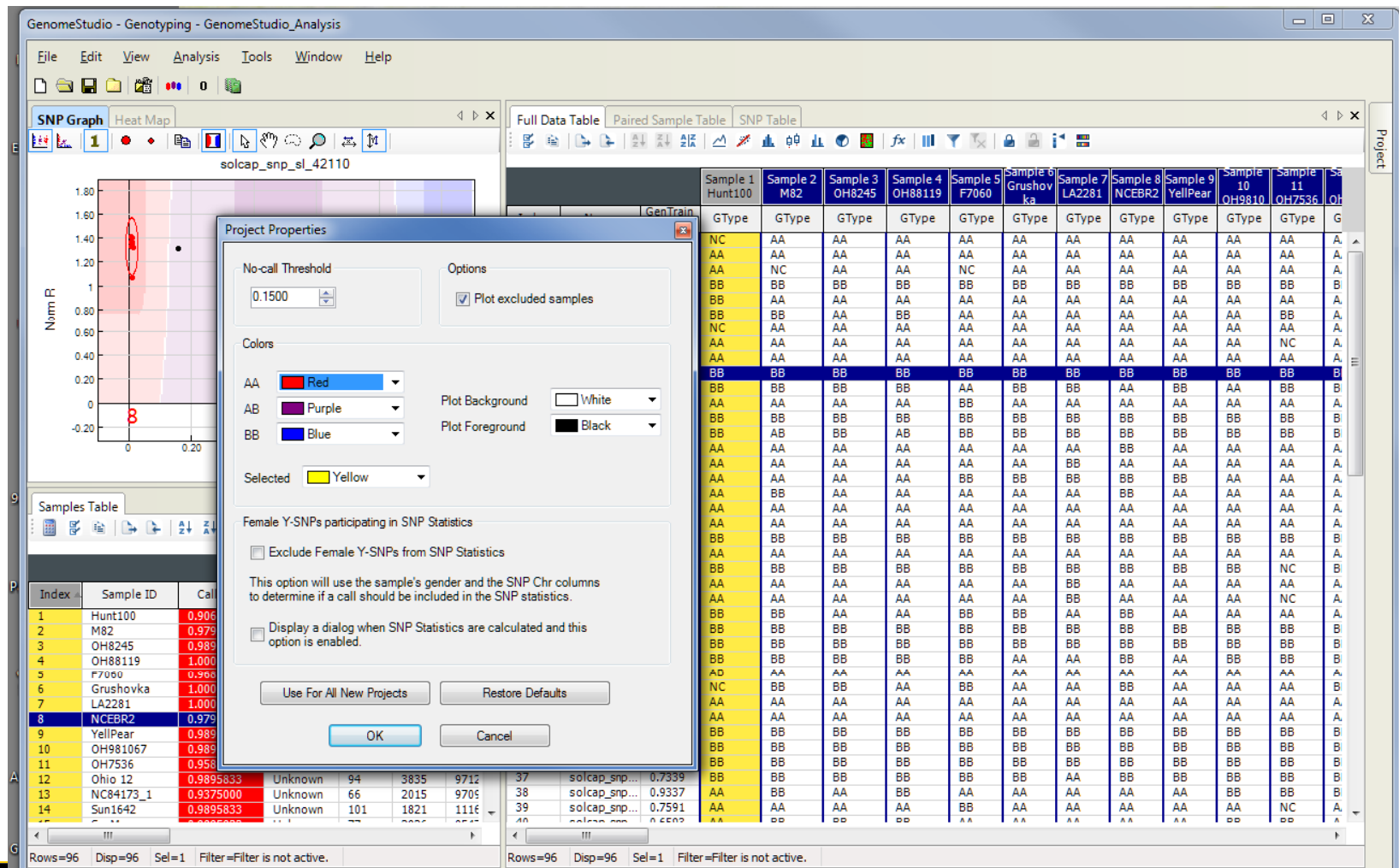
OK Cancel

Rows=96 Disp=96 Sel=1 Filter=Filter is not active.

Exporting Genotypes



Options



QC

- Sample
- SNPs
- Allele Frequency

