Online Resource 1. Minor allele frequencies in *ADIPOQ*, *LEP*, and *LEPR* SNPs, adjusted for sampling probabilities[a].

		Minor allele frequency (%)	
SNP	Allele	Non-African American	African American
ADIPOQ			
rs16861194	G	9	23
rs16861205	A	8	18
rs822391	C	23	4
rs16861210	A	9	17
rs822396	G	22	22
rs12495941	T	36	34
rs7649121	T	17	15
rs9877202	G	0	15
rs2241766	G	11	4
rs1501299	A	25	37
rs3821799	T	42	56
rs6444174	C	1	16
rs6773957	A	37	55
rs1063537	T	11	2
rs9842733	T	0	9
rs1403697	C	0	13
LEP			
rs6976701	A	1	11
rs4236625	T	8	17
rs12706832	A	44	78
rs10244329	T	46	50
rs11763517	C	46	21
rs7795794	A	7	14
rs11760956	A	36	18
rs10954173	A	36	18
rs3793162	A	1	17
rs3828942	A	48	20
rs17151919	A	0	9
rs17151922	T	1	25
rs10954174	A	0	7
rs11761556	C	44	85
LEPR		27	42
rs3806318	G	27	9
rs1327118	C	42	45
rs12145690	C	42	45
rs9436738	A	12	12
rs9436297	C	12	13
rs9436740	T	31	53
rs9436299	C	32	17
rs17127608	T	0	15
rs3790433	A	22	71

		Minor allele frequency (%)	
SNP	Allele	Non-African American	African American
rs17127618	G	14	21
rs7534511	A	30	22
rs9436301	C	24	41
rs1887285	C	9	14
rs17097182	T	3	27
rs17412175	A	50	10
rs970467	A	10	24
rs9436746	A	37	60
rs9436748	T	49	18
rs6657868	A	36	48
rs17127655	T	1	20
rs6588147	G	32	15
rs7531110	G	38	55
rs7555955	A	32	16
rs6704167	T	47	24
rs7529650	G	40	60
rs2025804	C	32	20
rs7518849	C	5	16
rs10158579	C	12	38
rs11808888	A	12	51
rs17127677	T	12	25
rs17127686	G	0	16
rs6694528	T	12	42
rs11208654	C	32	20
rs10889556	G	27	41
rs7526141	T	50	9
rs1171275	A	16	27
rs1475397	T	24	62
rs1627238	T	16	44
rs11208662	C	8	17
rs1171279	T	24	62
rs1751492	C	28	31
rs6697315	C	33	41
rs1171267	T	33	36
rs1782763	C	32	29
rs1409802	A	25	19
rs10157610	T	0	13
rs3790431	C	21	27
rs1137100	G	25	19
rs3790429	T	20	11
rs3790426	T	21	24
rs1343982	A	26	32
rs10493380	C	22	9
rs1938489	G	21	27

		Minor allele frequency (%)	
SNP	Allele	Non-African American	African American
rs10889563	G	46	54
rs12042877	T	26	29
rs10749754	A	42	52
rs12564626	A	42	43
rs1137101	G	43	56
rs4655537	A	37	37
rs3828034	C	20	5
rs12405556	T	25	16
rs3762274	G	38	55
rs11585329	T	15	4
rs11801408	T	23	41
rs8179183	C	20	21
rs6678033	A	41	56
rs4655555	A	19	17
rs10889569	T	41	58
rs6693573	C	0	6
rs17127807	G	2	13
rs6700896	T	41	49
rs17127826	G	2	24
rs17127828	G	2	15
rs6413506	G	0	5

[a] counts (N) reflect raw data; percentages are adjusted for study sampling probabilities.

Online resource 2. Number of cases and controls by genotype for selected *ADIPOQ*, *LEP*, and *LEPR* SNPs associated with breast cancer in the CBCS.

	Controls	All cases	Luminal A cases	Basal-like cases
	N	N	N	N
ADIPOQ				
rs16861194				
GG	63	53	14	8
AG	380	443	144	42
AA	1332	1476	521	150
rs16861205				
AA+AG	395	445	150	39
GG	1381	1527	529	161
rs3821799				
CC	482	548	191	58
CT	854	942	323	80
TT	440	482	165	62
LEP				
rs6976701				
AA+AG	145	184	69	23
GG	1630	1786	610	177
rs3793162				
AA+AG	221	197	64	29
GG	1555	1775	615	171
rs17151922				
TT	42	51	12	7
GT	259	334	111	40
GG	1475	1587	556	153
rs10954174				
AA+AG	106	128	35	23
GG	1670	1844	644	177
LEPR				
rs9436299				
CC	126	173	69	10
AC	681	733	251	84
AA	969	1066	359	106
rs17412175				
AA	264	253	92	14
AT+TT	1512	1719	587	186
rs9436746				
CC	542	555	197	37

	Controls	All cases	Luminal A cases	Basal-like cases
	N	N	N	N
AA+AC	1230	1410	481	161
rs9436748				
TT	262	244	88	14
GG+GT	1511	1728	591	186
rs6657868				
AA	309	364	132	36
AG	840	919	310	110
GG	626	689	237	54
rs17127655				
TT+CT	248	236	70	29
CC	1524	1729	606	170
rs6588147				
GG	129	165	66	8
AG	663	735	260	86
AA	984	1072	353	106
rs6704167				
TT	256	249	91	16
AT	773	876	297	94
AA	745	845	291	89
rs7529650				
AA	485	550	196	39
AG	877	930	307	112
GG	413	490	176	49
rs2025804				
CC	132	185	73	13
CT	704	755	269	85
TT	940	1032	337	102
rs11808888				
AA	194	208	67	20
AG	562	647	206	76
GG	1020	1117	406	104
rs11208654				
CC	133	180	69	12
CT	706	772	277	88
TT	931	1015	331	100
rs10889556				
GG	168	218	78	23
AG	759	815	287	98
AA	848	939	314	79

	Controls	All cases	Luminal A cases	Basal-like cases
	N	N	N	N
rs7526141				
TT	267	266	103	17
CT	664	746	270	68
CC	843	959	306	115
rs1751492				
CC	131	179	59	17
CT	722	810	290	85
TT	923	983	330	98
rs1171267				
TT	186	248	85	25
GG+GT	1589	1718	593	174
rs1782763				
CC	159	226	78	21
TT+CT	1615	1746	601	179
rs1409802				
AA	76	120	42	8
AG	619	685	254	72
GG	1081	1167	383	120
rs1137100 (K109R)				
GG	79	122	45	8
AG	615	673	248	70
AA	1082	1175	384	122
rs1343982				
AA	123	183	62	19
GG+AG	1653	1789	617	181
rs10889563				
AA	434	490	157	42
AG	926	971	331	105
GG	416	510	191	52
rs12042877				
TT	116	174	60	20
CC+CT	1660	1797	619	180
rs10749754				
AA	387	472	177	48
AG	890	945	319	106
GG	499	555	183	46
rs1137101 (Q223R)				
GG	485	526	182	53
AG	874	952	327	99

	Controls	All cases	Luminal A cases	Basal-like cases
	N	N	N	N
AA	416	494	170	48
rs4655537				
AA	249	281	79	27
AG	839	913	312	93
GG	688	778	288	80
rs3828034				
CC	39	44	14	5
CT	390	382	152	28
TT	1347	1546	513	167
rs12405556				
TT	84	123	47	9
GT	581	637	231	62
GG	1111	1212	401	129
rs3762274				
GG	351	426	161	49
AG	880	921	311	93
AA	545	623	205	58
rs11801408				
TT	163	163	48	16
CC+CT	1613	1809	631	184
rs4655555				
AA	52	66	27	5
AT	488	544	196	52
TT	1236	1361	455	143
rs17127826				
GG	41	35	8	6
AA+AG	1735	1937	671	194
rs6413506				
AG+GG	58	85	29	11
AA	1718	1887	650	189

Online Resource 3. Estimated haplotype frequencies in CBCS participants, by case status.

Haplotype	Controls	All cases	Luminal A cases	Basal-like cases
LEP				
1: A-T-T-G	0.12	0.13	0.12	0.17
2a: G-G-A-G-G	0.07	0.05	0.05	0.08
2b: G-G-G-G-T	0.10	0.11	0.10	0.13
3: T-G-C	0.07	0.09	0.08	0.09
LEPR				
4a: A-C-T	0.31	0.29	0.31	0.23
4b: T-A-G	0.46	0.48	0.48	0.55
5a: A-T-A	0.21	0.23	0.24	0.21
5b: G-C-G	0.50	0.48	0.47	0.46
6a: G-A	0.51	0.49	0.47	0.46
6b: T-A	0.05	0.06	0.06	0.06
6c: T-G	0.16	0.16	0.18	0.14
7a: T-C-T	0.10	0.10	0.08	0.15
7b: T-T-T	0.42	0.40	0.42	0.34

Online Resource 4a-4d . Pairwise r^2 among *LEPR* intron 2 SNPs associated with basal-like breast cancer in CBCS cases and controls.

4a. Pairwise r^2 in African American controls

	rs17412175	rs9436746	rs9436748
rs17412175	1		
rs9436746	0.32	1	
rs9436748	0.03	0.01	1

4b. Pairwise r^2 in White controls

	rs17412175	rs9436746	rs9436748
rs17412175	1		
rs9436746	0.86	1	
rs9436748	0.12	0.10	1

4c. Pairwise r^2 in African American cases

	rs17412175	rs9436746	rs9436748
rs17412175	1		
rs9436746	0.17	1	
rs9436748	0.29	0.34	1

4d. Pairwise r^2 in White cases

	rs17412175	rs9436746	rs9436748
rs17412175	1		
rs9436746	0.09	1	
rs9436748	0.06	0.45	1

Online Resource 5. Candidate SNP odds ratios and 95% confidence intervals for the CBCS, with comparisons to previously published studies.

		CBCS OR(95% CI) [a]						
		All Cases	Luminal A	Basal-like	Kaklamani et al. [27]			
ADIPOQ								
rs2241766	GG+GT	1.00 (0.84, 1.21)	0.99 (0.77, 1.27)	1.18 (0.78, 1.77)	0.64 (0.49, 0.83)			
+45 T/G	TT	Referent	Referent	Referent	Referent			
	G vs. T	1.00 (0.85, 1.18)	1.01 (0.82, 1.26)	1.16 (0.81, 1.66)				
rs1501299	GG	1.13 (0.89, 1.45)	1.22 (0.86, 1.73)	0.84 (0.52, 1.37)	1.80 (1.14, 2.85)			
+276 G/T	GT	1.10 (0.86, 1.41)	1.14 (0.81, 1.63)	0.72 (0.44, 1.19)	1.59 (1.03, 2.48)			
	TT	Referent	Referent	Referent	Referent			
	G vs. T	1.05 (0.95, 1.17)	1.09 (0.94, 1.26)	1.13 (0.95, 1.35)				
		All Cases	Luminal A	Basal-like	Snoussi et al. [28]	Woo et al. [29]	Han et al. [22]	Cleveland et al. [26]
LEPR								
rs1137101	GG	1.10 (0.91, 1.34)	1.35 (1.04, 1.75)	1.10 (0.72, 1.69)	2.26 (1.31, 3.90)	0.59 (0.19, 1.81)	Referent	1.04 (0.81, 1.34)
Q223R	AG	0.99 (0.84, 1.16)	1.07 (0.86, 1.35)	1.01 (0.70, 1.47)	1.68 (1.12, 2.50)	Referent[3]	1.30 (1.03, 2.70)	1.00 (0.78, 1.27)
	AA	Referent	Referent	Referent	Referent		7.14 (1.92, 25.60)	Referent
	G vs. A	1.05 (0.95, 1.16)	1.16 (1.02, 1.32)	1.05 (0.85, 1.30)				
rs1137100	GG	1.45 (1.06, 1.97)	1.64 (1.10, 2.45)	1.02 (0.48, 2.21)		1.08 (0.40, 2.93)		
K109R	AG	1.00 (0.87, 1.16)	1.10 (0.91, 1.34)	1.04 (0.75, 1.42)		Referent [b]		
	AA	Referent	Referent	Referent				
	G vs. A	1.09 (0.97, 1.22)	1.18 (1.01, 1.38)	1.03 (0.79, 1.33)				
rs8179183	CC	0.70 (0.48, 1.03)	0.70 (0.41, 1.20)	0.78 (0.34, 1.77)				
K656N	CG	0.90 (0.77, 1.04)	1.05 (0.86, 1.28)	0.84 (0.60, 1.18)		0.63 (0.14, 2.81)		
	GG	Referent	Referent	Referent		Referent		
	C vs. G	0.87 (0.77, 0.99)	0.97 (0.82, 1.14)	0.86 (0.65, 1.13)				

[a] odds ratio, 95% confidence interval adjusted for age, self-identified race, African ancestry, offset term

[b] no subjects with AA genotype in study

Online resource 6. Relationship between breast cancer-associated SNPs and WHR[1] in CBCS controls.

SNP	OR (95% CI)[2]	P-value[3]
ADIPOQ rs16861194		0.02
GG	1.97 (1.03, 3.80)	
AG	0.76 (0.56, 1.04)	
AA	Referent	
LEPR rs12042877		0.04
TT	0.93 (0.56, 1.53)	
CT	1.34 (1.05, 1.72)	
CC	Referent	

[1] waist-hip ratio, ≥ 0.77 vs. < 0.77

[2] OR, CI – odds ratio and 95% confidence interval, adjusted for BMI, age, race, ancestry, and offset term

[3] overall association between SNP and WHR

Online Resource 7. CBCS genotype associations with breast cancer for SNPs included in haplotype analyses.

			All		Luminal A		Basal-like	
	Genotype	Controls	Cases	OR (95% CI)[a]	Cases	OR (95% CI)	Cases	OR (95% CI)
LEP								
Haplotype 1	rs12706832							
	GG	358	401	0.99 (0.81, 1.22)	143	0.98 (0.74, 1.29)	33	0.91 (0.56, 1.46)
	AG	764	865	1.05 (0.89, 1.23)	301	1.01 (0.81, 1.26)	77	0.91 (0.64, 1.29)
	AA	652	705	Referent	234	Referent	90	Referent
	rs10244329							
	AA	426	473	1.00 (0.83, 1.21)	159	0.98 (0.76, 1.28)	48	1.01 (0.66, 1.55)
	AT	874	995	1.06 (0.90, 1.25)	343	1.05 (0.84, 1.31)	101	1.07 (0.75, 1.54)
	TT	475	504	Referent	177	Referent	51	Referent
	rs11763517							
	CC	321	312	0.86 (0.69, 1.06)	118	0.86 (0.65, 1.15)	24	0.88 (0.53, 1.48)
	CT	762	854	0.97 (0.83, 1.14)	292	0.92 (0.75, 1.14)	87	1.11 (0.79, 1.55)
	TT	690	806	Referent	269	Referent	89	Referent
	rs7795794							
	AA	12	21		6		4	
	AG	286	316	1.00 (0.84, 1.20)	105	0.97 (0.76, 1.25)	37	1.08 (0.74, 1.57)
	GG	1478	1634	Referent	568	Referent	159	Referent
Haplotype 2	rs11760956							
	AA	201	185	0.86 (0.68, 1.09)	67	0.86 (0.62, 1.19)	13	0.77 (0.41, 1.43)
	AG	705	802	1.04 (0.90, 1.21)	280	1.02 (0.84, 1.25)	83	1.20 (0.87, 1.65)
	GG	870	984	Referent	331	Referent	104	Referent
	rs10954173							
	AA	201	185	0.86 (0.67, 1.09)	67	0.86 (0.62, 1.19)	13	0.76 (0.41, 1.42)
	AG	705	800	1.04 (0.90, 1.20)	280	1.02 (0.84, 1.25)	82	1.17 (0.85, 1.61)
	GG	870	986	Referent	331	Referent	105	Referent

			All		Luminal A		Basal-like	
	Genotype	Controls	Cases	OR (95% CI)[a]	Cases	OR (95% CI)	Cases	OR (95% CI)
	rs3793162							
	AA	19	19		6		3	
	AG	202	178	0.75 (0.59, 0.95)	58	0.82 (0.58, 1.14)	26	0.79 (0.50, 1.26)
	GG	1555	1775	Referent	615	Referent	171	Referent
	rs3828942							
	AA	230	267	1.08 (0.87, 1.35)	97	1.08 (0.80, 1.45)	18	0.81 (0.46, 1.42)
	AG	718	848	1.14 (0.98, 1.32)	284	1.04 (0.85, 1.28)	82	1.11 (0.80, 1.55)
	GG	824	855	Referent	297	Referent	100	Referent
	rs17151922							
	TT	42	51	1.17 (0.75, 1.83)	12	0.89 (0.44, 1.77)	7	0.98 (0.41, 2.34)
	GT	259	334	1.30 (1.05, 1.62)	111	1.41 (1.04, 1.92)	40	1.01 (0.65, 1.55)
	GG	1475	1587	Referent	556	Referent	153	Referent
Haplotype 3	rs17151922							
	TT	42	51	1.17 (0.75, 1.83)	12	0.89 (0.44, 1.77)	7	0.98 (0.41, 2.34)
	GT	259	334	1.30 (1.05, 1.62)	111	1.41 (1.04, 1.92)	40	1.01 (0.65, 1.55)
	GG	1475	1587	Referent	556	Referent	153	Referent
	rs10954174							
	AA	8	6		0		1	
	AG	98	122	1.13 (0.84, 1.50)	35	1.01 (0.66, 1.54)	22	1.66 (0.99, 2.78)
	GG	1670	1844	Referent	644	Referent	177	Referent
	rs11761556							
	AA	352	384	0.97 (0.79, 1.20)	139	0.97 (0.73, 1.29)	32	1.00 (0.61, 1.64)
	AC	716	825	1.05 (0.89, 1.24)	288	1.01 (0.81, 1.27)	71	0.95 (0.66, 1.36)
	CC	704	759	Referent	251	Referent	95	Referent
LEPR								
Haplotype 4	rs17412175							

	Genotype	Controls	All Cases	OR (95% CI)[a]	Luminal A Cases	OR (95% CI)	Basal-like Cases	OR (95% CI)
	AA	264	253	0.87 (0.69, 1.09)	92	0.85 (0.62, 1.16)	14	0.60 (0.32, 1.14)
	AT	657	749	1.00 (0.85, 1.19)	264	0.98 (0.78, 1.24)	73	1.11 (0.77, 1.62)
	TT	855	970	Referent	323	Referent	113	Referent
	rs9436746							
	CC	542	555	0.86 (0.71, 1.05)	197	0.79 (0.60, 1.03)	37	0.60 (0.38, 0.96)
	AC	817	926	0.98 (0.82, 1.16)	310	0.87 (0.69, 1.11)	104	1.07 (0.75, 1.54)
	AA	413	484	Referent	171	Referent	57	Referent
	rs9436748							
	TT	262	244	0.82 (0.66, 1.03)	88	0.82 (0.61, 1.11)	14	0.49 (0.26, 0.89)
	GT	730	841	1.02 (0.88, 1.19)	295	1.04 (0.84, 1.28)	79	0.96 (0.68, 1.34)
	GG	781	887	Referent	296	Referent	107	Referent
Haplotype 5	rs10749754							
	AA	387	472	1.11 (0.91, 1.34)	177	1.35 (1.04, 1.74)	48	1.21 (0.78, 1.87)
	AG	890	945	0.92 (0.79, 1.08)	319	0.97 (0.78, 1.21)	106	1.15 (0.79, 1.67)
	GG	499	555	Referent	183	Referent	46	Referent
	rs12042877							
	TT	116	174	1.45 (1.12, 1.89)	60	1.57 (1.11, 2.22)	20	1.59 (0.93, 2.70)
	CT	713	787	1.04 (0.91, 1.20)	281	1.12 (0.92, 1.36)	81	1.05 (0.77, 1.44)
	CC	947	1010	Referent	338	Referent	99	Referent
	rs12564626							
	AA	328	386	1.09 (0.90, 1.32)	144	1.29 (0.99, 1.68)	37	0.97 (0.63, 1.49)
	AG	874	954	0.96 (0.83, 1.12)	334	1.06 (0.86, 1.31)	94	0.86 (0.61, 1.20)
	GG	574	631	Referent	201	Referent	69	Referent
Haplotype 6	rs12405556							
	TT	84	123	1.35 (1.00, 1.83)	47	1.58 (1.06, 2.33)	9	1.02 (0.49, 2.12)
	GT	581	637	1.00 (0.86, 1.15)	231	1.06 (0.87, 1.30)	62	0.97 (0.70, 1.35)
	GG	1111	1212	Referent	401	Referent	129	Referent

			All		Luminal A		Basal-like	
	Genotype	Controls	Cases	OR (95% CI)[a]	Cases	OR (95% CI)	Cases	OR (95% CI)
	rs3762274							
	GG	351	426	1.09 (0.89, 1.33)	161	1.40 (1.07, 1.82)	49	1.08 (0.71, 1.67)
	AG	880	921	0.90 (0.77, 1.05)	311	0.96 (0.77, 1.20)	93	0.87 (0.61, 1.25)
	AA	545	623	Referent	205	Referent	58	Referent
Haplotype 7	rs2025804							
	CC	132	185	1.31 (1.02, 1.69)	73	1.51 (1.08, 2.09)	13	1.11 (0.59, 2.06)
	CT	704	755	0.96 (0.83, 1.11)	269	1.02 (0.84, 1.24)	85	1.20 (0.88, 1.65)
	TT	940	1032	Referent	337	Referent	102	Referent
	rs7518849							
	CC	30	31	0.88 (0.51, 1.49)	11	0.94 (0.45, 1.96)	5	1.15 (0.43, 3.10)
	CT	299	329	1.00 (0.84, 1.21)	93	0.83 (0.64, 1.08)	48	1.42 (0.98, 2.05)
	TT	1447	1612	Referent	575	Referent	147	Referent
	rs10158579							
	CC	108	116	1.00 (0.74, 1.35)	41	1.09 (0.73, 1.64)	13	0.82 (0.43, 1.55)
	CT	534	612	1.04 (0.89, 1.21)	184	0.87 (0.70, 1.08)	68	1.02 (0.73, 1.43)
	TT	1134	1242	Referent	454	Referent	118	Referent

[a] odds ratio, 95% confidence interval, adjusted for age, self-identified race, African ancestry, and offset term