Online Supplemental Material

Genetics of Hypertension and Cardiovascular Disease and their Interconnected Pathways:

Lessons from Large Studies

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Supplemental Table 1. The top ranked associations in HyperGEN African Americans for BP-factor.

HyperGEN African Americans														
No	rsName	FValue	ProbF (n=908)	Estimate	StdErr	RSquare	Chrom	Alleles	Position(bp)	Al1	Al2	MAF	Role	Hugo
1	rs9672615	25.5	5.27E-07	-0.43	0.09	0.041	15	A/C	30298847	3	4	7.5		(CHRNA7)
2	rs17105726	23.4	1.58E-06	-0.42	0.09	0.039	10	G/T	125397926	2	1	7.3		(GPR26)
3	rs2147200	22.6	2.41E-06	-0.27	0.06	0.045	6	G/T	14086833	1	2	25.6	utr-3	RNF182
4	rs1434755	22.0	3.21E-06	-0.24	0.05	0.037	8	A/C	69205464	1	2	30.4	intron	DEPDC2
5	rs7025910	21.6	3.86E-06	0.26	0.06	0.037	9	A/G	79511878	3	1	21.0		(GNA14/GNAQ)
6	rs17099213	21.6	3.93E-06	-1.14	0.25	0.037	1	C/T	85310294	3	1	0.8	intron	WDR63
7	rs7923251	21.5	4.13E-06	-0.22	0.05	0.037	10	C/G	98212565	3	2	38.3	intron	TLL2
8	rs17105700	21.3	4.40E-06	-0.41	0.09	0.037	10	A/G	125384794	4	2	7.5		(GPR26)
9	rs6560608	20.9	5.40E-06	-0.22	0.05	0.036	9	C/T	79442234	1	3	38.5	intron	GNA14
10	rs6667534	20.5	6.98E-06	0.27	0.06	0.042	1	C/T	80642597	4	2	24.8		(LOC100129325)
11	rs1411855	20.4	7.24E-06	-0.26	0.06	0.036	6	A/C	66327875	3	4	20.3	intron	EGFL11
12	rs2447409	20.4	7.43E-06	0.24	0.05	0.042	8	A/G	140584954	2	4	35.7		(KCNK9)
13	rs1006330	20.1	8.08E-06	-0.25	0.06	0.036	11	G/T	101131811	3	4	21.7		(LOC100129471)
14	rs1490800	20.0	8.64E-06	-0.23	0.05	0.035	5	A/G	67202303	2	4	27.0		(PIK3R1)

*rsName= SNP name; Fvalue=F test value; ProbF=p-value; Estimate=beta coefficient; StdErr=standard error; Rsquare=R square; Chrom=chromosome; bp= base pairs; Al1-minor allele; MAF=Minor allele frequency (%); Role=role of the SNP; Hugo= gene name, if in parenthesis, then the SNP is located nearby gene(s)

Supplemental Table 2. The top ranked associations in HyperGEN whites for BP-factor.

HyperGEN whites														
No	rsName	FValue	ProbF (n=1025)	Estimate	StdErr	RSquare	Chrom	Alleles	Position(bp)	Al1	Al2	MAF	Role	Hugo
1	rs17031343	32.3	1.72E-08	-0.61	0.11	0.033	3	C/T	3445460	4	2	3.4		(CRBN/IL5RA)
2	rs10512418	23.2	1.65E-06	0.24	0.05	0.025	9	C/T	133864464	2	4	18.1	intron	MED27
3	rs872204	22.8	2.02E-06	0.23	0.05	0.025	18	A/T	45824779	1	4	19.9	intron	MYO5B
4	rs11136081	22.8	2.07E-06	-0.29	0.06	0.024	8	A/C	29491049	4	3	11.7		(DUSP4)
5	rs9379132	22.4	2.54E-06	0.23	0.05	0.024	6	A/G	773403	4	2	21.4		(EXOC2)
6	rs899022	22.1	2.98E-06	-0.20	0.04	0.024	10	A/T	71063502	1	4	32.4	near-gene	C10orf35
7	rs1132075	22.0	3.17E-06	-0.20	0.04	0.023	10	A/G	71063031	1	3	32.3	utr-3	C10orf35
8	rs604735	21.5	4.00E-06	-0.18	0.04	0.023	1	A/T	235441114	1	4	48.9	intron	RYR2
9	rs844177	21.3	4.50E-06	-0.19	0.04	0.023	5	C/T	8425932	1	3	34.6		(MTRR/SEMA5A)
10	rs12140698	20.5	6.52E-06	-0.28	0.06	0.023	1	C/T	175713539	4	2	12.1	intron	LOC400796
11	rs7244899	20.5	6.56E-06	0.22	0.05	0.022	18	A/G	45808781	3	1	20.6	intron	MYO5B
12	rs12455913	20.5	6.66E-06	0.22	0.05	0.023	18	C/T	45811443	3	1	20.0	intron	MYO5B
13	rs11672894	20.5	6.81E-06	0.19	0.04	0.022	19	C/T	50493791	1	3	30.8	intron	MARK4
14	rs12131748	20.2	7.58E-06	-0.19	0.04	0.022	1	C/T	175200403	2	4	29.3	intron	ASTN1
15	rs2317222	20.2	7.71E-06	0.22	0.05	0.022	6	A/G	778579	3	1	21.0		(EXOC2)
16	rs1781417	19.9	9.22E-06	-1.63	0.37	0.021	1	C/T	149974389	1	3	0.3		(LOC100270670)
17	rs2710244	19.7	9.85E-06	0.18	0.04	0.022	7	C/T	152415484	2	4	40.1		(ACTR3B)
18	rs453202	19.7	9.99E-06	0.19	0.04	0.021	5	G/T	126883404	2	1	35.3	intron	PRRC1

*rsName= SNP name; Fvalue=F test value; ProbF=p-value; Estimate=beta coefficient; StdErr=standard error; Rsquare=R square; Chrom=chromosome; bp= base pairs; Al1-minor allele; MAF=Minor allele frequency (%); Role=role of the SNP; Hugo= gene name, if in parenthesis, then the SNP is located nearby gene(s)

Supplemental Table 3. Blood pressure/ hypertension large GWAS results

No	Reported Gene	Associated SNPs	Region	Disease_Trait	Strongest SNP Risk Allele	Risk allele frequency	P_Value	Trait Change	Initial_Sample_Size	Replication_Sample_Size	PUBMEDID
1	ACE	rs4343	17q23.3	Angiotensin-converting enz	rs4343-G	0.31	3.00E-25	[NR] % variance	400 Han Chinese hyperte	623 Han Chinese hypertensives	20066004
2	ABO	rs495828	9q34.2	Angiotensin-converting enz	rs495828-A	0.17	3.00E-08	[NR] % variance	400 Han Chinese hyperte	623 Han Chinese hypertensives	20066004
3	ADH7	rs991316	4q23	Hypertension	rs991316-T	0.45	5.00E-06	[NR]	509 African American cas	366 West African cases, 614 West A	19609347
4	ALDH1A2	rs1550576	15q22.1	Hypertension	rs1550576-?	0.86	3.00E-06	[NR]	509 African American cas	366 West African cases, 614 West A	19609347
5	SLC24A4	rs11160059	14q32.12	Systolic blood pressure	rs11160059-?	0.08	1.54E-08	[NR]	509 African American cas	366 West African cases, 614 West A	19609347
6	CSK, ULK3	rs6495122	15q24.1	Diastolic blood pressure	rs6495122-A	0.42	2.00E-10	[0.28-0.52] mm Hg increase	29,136 individuals	34,433 individuals	19430479
7	ULK4	rs9815354	3p22.1	Diastolic blood pressure	rs9815354-A	0.17	3.00E-09	[0.33-0.65] mm Hg increase	29,136 individuals	34,433 individuals	19430479
8	SH2B3	rs3184504	12q24.12	Diastolic blood pressure	rs3184504-T	0.48	3.00E-14	[0.36-0.60] mm Hg increase	29,136 individuals	34,433 individuals	19430479
9	TBX3, TBX5	rs2384550	12q24.21	Diastolic blood pressure	rs2384550-A	0.35	4.00E-08	[0.23-0.47] mm Hg decrease	29,136 individuals	34,433 individuals	19430479
10	PLEKHA7	rs11024074	11p15.1	Diastolic blood pressure	rs11024074-T	0.72	1.00E-06	[0.19-0.47] mm Hg decrease	29,136 individuals	34,433 individuals	19430479
11	ATP2B1	rs2681472	12q21.33	Diastolic blood pressure	rs2681472-A	0.83	1.00E-09	[0.34-0.66] mm Hg increase	29,136 individuals	34,433 individuals	19430479
12	CACNB2	rs11014166	10p12.33	Diastolic blood pressure	rs11014166-A	0.66	1.00E-08	[0.25-0.49] mm Hg increase	29,136 individuals	34,433 individuals	19430479
13	CACNB2	rs11014166	10p12.33	Hypertension	rs11014166-A	0.66	6.00E-08	[0.05-0.13] increase in log odds	29,136 individuals	34,433 individuals	19430479
14	MSRA	rs11775334	8p23.1	Hypertension	rs11775334-A	0.32	4.00E-06	[0.04-0.12] increase in log odds	29,136 individuals	34,433 individuals	19430479
15	ZNF831, EDN3	rs16982520	20q13.32	Hypertension	rs16982520-A	0.88	2.00E-07	[0.09-0.17] decrease in log odds	29,136 individuals	34,433 individuals	19430479
16	ATP2B1	rs2681472	12q21.33	Hypertension	rs2681472-A	0.83	2.00E-11	[0.11-0.19] increase in log odds	29,136 individuals	34,433 individuals	19430479
17	CACNB2	rs11014166	10p12.33	Systolic blood pressure	rs11014166-A	0.66	7.00E-07	[0.30-0.70] mm Hg increase	29,136 individuals	34,433 individuals	19430479
18	CASZ1	rs12046278	1p36.22	Systolic blood pressure	rs12046278-T	0.64	5.00E-06	[0.29-0.77] mm Hg decrease	29,136 individuals	34,433 individuals	19430479
19	SH2B3	rs3184504	12q24.12	Systolic blood pressure	rs3184504-T	0.48	5.00E-09	[0.38-0.78] mm Hg increase	29,136 individuals	34,433 individuals	19430479
20	CYP17A1	rs1004467	10q24.32	Systolic blood pressure	rs1004467-A	0.9	1.00E-10	[0.74-1.36] mm Hg increase	29,136 individuals	34,433 individuals	19430479
21	PLEKHA7	rs381815	11p15.1	Systolic blood pressure	rs381815-T	0.26	2.00E-09	[0.43-0.87] mm Hg increase	29,136 individuals	34,433 individuals	19430479
22	MDS1	rs448378	3q26.2	Systolic blood pressure	rs448378-A	0.52	1.00E-07	[0.31-0.71] mm Hg decrease	29,136 individuals	34,433 individuals	19430479
23	ATP2B1	rs2681492	12q21.33	Systolic blood pressure	rs2681492-T	0.8	4.00E-11	[0.60-1.10] mm Hg increase	29,136 individuals	34,433 individuals	19430479
24	FGF5, PRDM8, c4orf22	rs16998073	4q21.21	Diastolic blood pressure	rs16998073-T	0.21	1.00E-21	[0.40-0.60] mm Hg increase	34,433 individuals	Up to 100,347 white individuals, up	19430483
25	CYP1A1, CYP1A2, CSK, LMAN1L, CPLX3, ARID3B	rs1378942	15q24.1	Diastolic blood pressure	rs1378942-C	0.36	1.00E-23	[0.35-0.51] mm Hg increase	34,433 individuals	Up to 100,347 white individuals, up	19430483
26	ZNF652, PHB	rs16948048	17q21.32	Diastolic blood pressure	rs16948048-G	0.39	5.00E-09	[0.21-0.41] mm Hg increase	34,433 individuals	Up to 100,347 white individuals, up	19430483
27	c10orf107, TMEM26, RTKN2, RHOBTB1, ARID5B	rs1530440	10q21.2	Diastolic blood pressure	rs1530440-T	0.19	1.00E-09	[0.27-0.51] mm Hg decrease	34,433 individuals	Up to 100,347 white individuals, up	19430483

Supplemental Table 3 (Continued). Blood pressure/ hypertension large GWAS results

No	Reported Gene	Associated SNPs	Region	Disease_Trait	Strongest SNP Risk Allele	Risk allele frequency	P_Value	Trait Change	Initial_Sample_Size	Replication_Sample_Size	PUBMEDID
28	MDS1	rs1918974	3q26.2	Diastolic blood pressure	rs1918974-T	0.54	8.00E-08	[0.17-0.37] mm Hg decrease	34,433 individuals	Up to 100,347 white individuals, up	19430483
29	ATXN2, SH2B3	rs653178	12q24.12	Diastolic blood pressure	rs653178-T	0.53	3.00E-18	[0.36-0.56] mm Hg decrease	34,433 individuals	Up to 100,347 white individuals, up	19430483
30	MTHFR, NPPA, CLCN6, NPPB, AGTRAP	rs17367504	1p36.22	Systolic blood pressure	rs17367504-G	0.14	2.00E-13	[0.63-1.07] mm Hg decrease	34,433 individuals	Up to 100,347 white individuals, up	19430483
31	CYP17A1, AS3MT, CNNM2, NT5C2	rs11191548	10q24.32	Systolic blood pressure	rs11191548-T	0.91	7.00E-24	[0.92-1.40] mm Hg increase	34,433 individuals	Up to 100,347 white individuals, up	19430483
32	PLCD3, ACBD4, HEXIM1, HEXIM2	rs12946454	17q21.31	Systolic blood pressure	rs12946454-T	0.28	1.00E-08	[0.37-0.77] mm Hg increase	34,433 individuals	Up to 100,347 white individuals, up	19430483
33	LOC344371, MYADML, FAM98A, RASGRP3	rs9308945,rs6711736,rs	2p22.3	Hypertension (young onset	4-SNP-haplotype	NR	3.00E-10	NR	175 Han Chinese cases, 17	833 Han Chinese cases, 833 Han Ch	19421330
34	LOC644502	rs12110693	6q22.31	Quantitative traits	rs12110693-A	0.49	2.00E-09	[0.45-0.87] beats per minute increase	8,842 Korean individuals	7,861 Korean individuals	19396169
35	ATP2B1	rs17249754	12q21.33	Quantitative traits	rs17249754-A	0.37	1.00E-07	[0.67-1.45] mm Hg decrease	8,842 Korean individuals	7,861 Korean individuals	19396169
36	ATP2B1	rs17249754	12q21.33	Quantitative traits	rs17249754-A	0.37	3.00E-06	[0.37-0.89] mm Hg decrease	8,842 Korean individuals	7,861 Korean individuals	19396169
37	CD46, LOC148696	rs12731740	1q32.2	Quantitative traits	rs12731740-T	0.1	3.00E-09	[0.72-1.44] beats per minute increase	8,842 Korean individuals	7,861 Korean individuals	19396169
38	CDH13	rs11646213	16q23.3	Hypertension	rs11646213-T	0.6	8.00E-06	[1.15-1.43]	364 cases, 590 controls	1,043 cases, 1,769 controls	19304780
39	CACNB2	rs7069923	10p12.33	Quantitative traits	rs7069923-C	0.49	1.00E-06	[NR] mm Hg increase	Up to 2,906 Micronesian i	NR	19197348
40	Intergenic	rs254893	5q35.1	Quantitative traits	rs254893-A	0.06	6.00E-06	[NR] mm Hg decrease	Up to 2,906 Micronesian i	NR	19197348
41	UBE3C	rs2527866	7q36.3	Quantitative traits	rs2527866-C	0.23	3.00E-06	[NR] mm Hg decrease	Up to 2,906 Micronesian i	NR	19197348
42	CUBN	rs10508517	10p13	Quantitative traits	rs10508517-A	0.43	6.00E-06	[NR] mm Hg decrease	Up to 2,906 Micronesian i	NR	19197348
43	STK39	rs6749447	2q24.3	Blood pressure	rs6749447-G	0.28	2.00E-07	[1.2-2.6] mm Hg increase in DBP	542 individuals	6,583 individuals	19114657
44	LYZ, YEATS4, FRS2	rs317689,rs315135,rs72	12q15	Response to diuretic therap	3-SNP haplotype	NR	6.00E-06	NR	194 blacks, 195 whites	NR	18591461
45	Intergenic	rs1963982	8q13.3	Blood pressure	rs1963982-?	NR	3.00E-06	NR	644-1,327 individuals, de	NR	17903302
46	CAMK4	rs10491334	5q22.1	Blood pressure	rs10491334-?	NR	4.00E-06	NR	644-1,327 individuals, de	NR	17903302
47	CDH13	rs3096277	16q23.3	Blood pressure	rs3096277-?	NR	1.00E-09	NR	644-1,327 individuals, de	NR	17903302
48	Intergenic	rs2509458	6q15	Blood pressure	rs2509458-?	NR	7.00E-06	NR	644-1,327 individuals, de	NR	17903302
49	CNTN4	rs4370013	3p26.3	Blood pressure	rs4370013-?	NR	4.00E-06	NR	644-1,327 individuals, de	NR	17903302
50	CCL20, WDR69	rs7591163	2q36.3	Blood pressure	rs7591163-?	NR	3.00E-07	NR	644-1,327 individuals, de	NR	17903302
51	Intergenic	rs10493340	1p31.3	Blood pressure	rs10493340-?	NR	2.00E-06	NR	644-1,327 individuals, de	NR	17903302
52	Intergenic	rs935334	14q24.3	Blood pressure	rs935334-?	NR	3.00E-06	NR	644-1,327 individuals, de	NR	17903302
53	C14orf118	rs2121070	14q24.3	Blood pressure	rs2121070-?	NR	5.00E-06	NR	644-1,327 individuals, de	NR	17903302
54	RYR2,CHRM3,ZP4	rs2820037	1q43	Hypertension	rs2820037-T	0.14	8.00E-07	[1.03-2.31]	1,952 cases,2,938 controls	NR	17554300
55	Intergenic	rs2398162	15q26.2	Hypertension	rs2398162-A	0.74	6.00E-06	[1.03-1.67]	1,952 cases,2,938 controls	NR	17554300

Footnote: More recent information on GWAS of BP is available from Hindorff LA, Junkins HA, Hall PN, Mehta JP, and Manolio TA. A Catalog of Published Genome-Wide Association Studies, at: www.genome.gov/gwastudies.

Supplemental Table 4. Cardiovascular disease large studies GWAS results

No	Reported Gene	Associated SNPs	Region	Disease_Trait	Trait	Strongest SNP Risk Allele	Risk allele frequency	P_Value	Initial_Sampl	Replication_Sam	PUBMEDID	First Author
1	GJA1	rs9398652	6q22.31	Resting heart rate		rs9398652-A	0.1	4.00E-15	38,991 European	NR	20639392	Eijgelsheim
2	MYH6	rs452036	14q11.2	Resting heart rate		rs452036-A	0.36	4.00E-14	38,991 European	NR	20639392	Eijgelsheim
3	MYH7,NDNG	rs223116	14q11.2	Resting heart rate		rs223116-A	0.24	3.00E-08	38,991 European	NR	20639392	Eijgelsheim
4	Intergenic	rs17287293	12p12.1	Resting heart rate		rs17287293-G	0.15	2.00E-10	38,991 European	NR	20639392	Eijgelsheim
5	CD34	rs2745967	1q32.2	Resting heart rate		rs2745967-G	0.37	7.00E-08	38,991 European	NR	20639392	Eijgelsheim
6	SLC35F1	rs281868	6q22.31	Resting heart rate		rs281868-G	0.5	4.00E-10	38,991 European	NR	20639392	Eijgelsheim
7	SLC12A9	rs314370	7q22.1	Resting heart rate		rs314370-C	0.19	6.00E-10	38,991 European	NR	20639392	Eijgelsheim
8	UfSp1	rs12666989	7q22.1	Resting heart rate		rs12666989-C	0.18	2.00E-08	38,991 European	NR	20639392	Eijgelsheim
9	FADS1	rs174547	11q12.2	Resting heart rate		rs174547-C	0.33	2.00E-09	38,991 European	NR	20639392	Eijgelsheim
10	GJA1	rs11154022	6q22.31	Resting heart rate		rs11154022-A	0.33	7.00E-08	38,991 European	NR	20639392	Eijgelsheim
11	TBC1D4	rs548097	13q22.2	Heart failure	(EA)	rs548097-?	0.02	6.00E-07	20,926 European	NR	20445134	Smith
12	GNA15	rs11880198	19p13.3	Heart failure	(EA)	rs11880198-?	0.13	6.00E-06	20,926 European	NR	20445134	Smith
13	LOC100129376	rs11118620	1q41	Heart failure	(EA)	rs11118620-?	0.29	7.00E-06	20,926 European	NR	20445134	Smith
14	BCHE	rs1523288	3q26.1	Heart failure	(EA)	rs1523288-?	0.65	6.00E-06	20,926 European	NR	20445134	Smith
15	PRICKLE1	rs1520832	12q12	Heart failure	(EA)	rs1520832-?	0.04	1.00E-06	20,926 European	NR	20445134	Smith
16	LOC339760	rs13418717	2q14.3	Heart failure	(AA)	rs13418717-?	0.2	3.00E-06	20,926 European	NR	20445134	Smith
17	SH3GL2	rs2210327	9p22.2	Heart failure	(AA)	rs2210327-?	0.19	7.00E-07	20,926 European	NR	20445134	Smith
18	RPUSD4	rs563519	11q24.2	Heart failure	(AA)	rs563519-?	0.66	3.00E-06	20,926 European	NR	20445134	Smith
19	TMTC1	rs2046383	12p11.22	Heart failure	(AA)	rs2046383-?	0.3	3.00E-06	20,926 European	NR	20445134	Smith
20	BTG1	rs17019682	12q21.33	Heart failure	(AA)	rs17019682-?	0.17	2.00E-06	20,926 European	NR	20445134	Smith
21	USP3	rs10519210	15q22.31	Heart failure	(EA)	rs10519210-?	0.03	1.00E-08	20,926 European	NR	20445134	Smith
22	LRIG3	rs11172782	12q14.1	Heart failure	(AA)	rs11172782-?	0.29	7.00E-08	20,926 European	NR	20445134	Smith
23	EVX1	rs13225783	7p15.2	Heart failure	(EA)	rs13225783-?	0.05	7.00E-06	20,926 European	NR	20445134	Smith
24	SNX16	rs6473383	8q21.13	Heart failure	(EA)	rs6473383-?	0.15	3.00E-06	20,926 European	NR	20445134	Smith
25	MOBKL2B	rs10812610	9p21.2	Heart failure	(EA)	rs10812610-?	0.5	5.00E-06	20,926 European	NR	20445134	Smith
26	CH25H	rs11203032	10q23.31	Heart failure	(EA)	rs11203032-?	0.1	8.00E-06	20,926 European	NR	20445134	Smith
27	CMTM7	rs12638540	3p22.3	Mortality among heart failure pa	(EA)	rs12638540-G	0.043	3.00E-07	2,526 European a	NR	20400778	Morrison
28	LPHN1	rs4528684	19p13.12	Mortality among heart failure pa	(EA)	rs4528684-T	0.094	1.00E-06	2,526 European a	NR	20400778	Morrison
29	OTUD7A	rs2125623	15q13.3	Mortality among heart failure pa	(EA)	rs2125623-C	0.71	1.00E-06	2,526 European a	NR	20400778	Morrison
30	LOC338797	rs7965445	12q24.33	Mortality among heart failure pa	(EA)	rs7965445-A	0.098	2.00E-06	2,526 European a	NR	20400778	Morrison
31	GPM6A	rs7687921	4q34.2	Mortality among heart failure pa	(EA)	rs7687921-T	0.039	4.00E-06	2,526 European a	NR	20400778	Morrison
32	LOC400804	rs12733856	1q41	Mortality among heart failure pa	(AA)	rs12733856-A	0.382	3.00E-06	2,526 European a	NR	20400778	Morrison
33	IFRD1	rs17159640	7q31.1	Mortality among heart failure pa	(EA)	rs17159640-T	0.048	9.00E-06	2,526 European a	NR	20400778	Morrison
34	ADAMTS12	rs6868223	5p13.3	Mortality among heart failure pa	(AA)	rs6868223-A	0.338	2.00E-06	2,526 European a	NR	20400778	Morrison
35	KCNK13	rs8017423	14q32.11	Mortality among heart failure pa	(AA)	rs8017423-T	0.62	7.00E-06	2,526 European a	NR	20400778	Morrison
36	KCNMA1	rs4979906	10q22.3	Mortality among heart failure pa	(EA)	rs4979906-G	0.186	7.00E-06	2,526 European a	NR	20400778	Morrison
37	PARVA	rs7120489	11p15.3	Mortality among heart failure pa	(EA)	rs7120489-A	0.069	7.00E-06	2,526 European a	NR	20400778	Morrison

Supplemental Table 4 (Continued). Cardiovascular disease large studies GWAS results

No	Reported Gene	Associated SNPs	Region	Disease_Trait	Trait	Strongest SNP Risk Allele	Risk allele frequency	P_Value	Initial_Sampl	Replication_Sam	PUBMEDID	First Author
38	KCNN3	rs13376333	1q21.3	Atrial fibrillation		rs13376333-T	0.3	2.00E-21	1,335 European d	1,164 European desce	20173747	Ellinor
39	NR	rs13038095	20q13.13	Atrial fibrillation		rs13038095-?	NR	2.00E-07	1,335 European d	1,164 European desce	20173747	Ellinor
40	PITX2	rs6843082	4q25	Atrial fibrillation		rs6843082-G	0.26	3.00E-28	1,335 European d	1,164 European desce	20173747	Ellinor
41	KCNH2	rs4725982	7q36.1	Electrocardiographic traits	(QTc interval)	rs4725982-A	NR	3.00E-06	6,543 Indian Asia	6,243 Indian Asians, 5,	20062061	Chambers
42	NOS1AP	rs1415259	1q23.3	Electrocardiographic traits	(QTc interval)	rs1415259-A	0.39	7.00E-10	6,543 Indian Asia	6,243 Indian Asians, 5,	20062061	Chambers
43	SCN10A	rs6795970	3p22.2	Electrocardiographic traits	(PR interval)	rs6795970-A	0.36	3.00E-15	6,543 Indian Asia	6,243 Indian Asians, 5,	20062061	Chambers
44	DKK1	rs1733724	10q21.1	Electrocardiographic traits	(QRS duration)	rs1733724-T	0.21	7.00E-08	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
45	ARHGAP24	rs7660702	4q21.23	Electrocardiographic traits	(PR interval)	rs7660702-T	0.74	3.00E-17	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
46	MYH6	rs365990	14q11.2	Electrocardiographic traits	(HR)	rs365990-G	0.34	9.00E-11	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
47	SCN10A	rs6795970	3p22.2	Electrocardiographic traits	(QRS duration)	rs6795970-A	0.36	4.00E-09	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
48	CAV1	rs3807989	7q31.2	Electrocardiographic traits	(PR interval)	rs3807989-A	0.4	7.00E-13	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
49	KCNE1	rs727957	21q22.12	Electrocardiographic traits	(QT interval)	rs727957-T	0.19	2.00E-12	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
50	CDKN1A	rs1321311	6p21.2	Electrocardiographic traits	(QRS duration)	rs1321311-T	0.21	3.00E-10	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
51	TBX5	rs3825214	12q24.21	Electrocardiographic traits	(QRS duration)	rs3825214-G	0.22	3.00E-13	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
52	SCN5A	rs11129795	3p22.2	Electrocardiographic traits	(QRS complex)	rs11129795-G	0.77	5.00E-10	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
53	SCN10A	rs6795970	3p22.2	Electrocardiographic traits	(PR interval)	rs6795970-A	0.36	1.00E-58	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
54	NDRG4	rs37062	16q21	Electrocardiographic traits	(QT interval)	rs37062-A	0.72	1.00E-06	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
55	KCNQ1	rs12296050	11p15.5	Electrocardiographic traits	(QT interval)	rs12296050-T	0.15	8.00E-11	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
56	KCNH2	rs3807375	7q36.1	Electrocardiographic traits	(QT interval)	rs3807375-T	0.35	5.00E-11	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
57	NOS1AP	rs10494366	1q23.3	Electrocardiographic traits	(QT interval)	rs10494366-G	0.39	5.00E-22	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
58	SCN5A	rs12053903	3p22.2	Electrocardiographic traits	(PR interval)	rs12053903-T	0.72	1.00E-07	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
59	TBX5	rs3825214	12q24.21	Electrocardiographic traits	(QT interval)	rs3825214-G	0.22	1.00E-07	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
60	TBX5	rs3825214	12q24.21	Electrocardiographic traits	(PR interval)	rs3825214-G	0.22	3.00E-12	Up to 12,670 Icela	Up to 10,352 Icelandic	20062063	Holm
61	CAV1, CAV2	rs3807989	7q31.2	PR interval		rs3807989-A	0.4	4.00E-28	28,517 European	NR	20062060	Pfeufer
62	NKX2-5, C5orf41	rs251253	5q35.1	PR interval		rs251253-C	0.4	9.00E-13	28,517 European	NR	20062060	Pfeufer
63	TBX5, TBX3	rs1896312	12q24.21	PR interval		rs1896312-C	0.28	3.00E-17	28,517 European	NR	20062060	Pfeufer
64	SOX5, C12orf67	rs11047543	12p12.1	PR interval		rs11047543-A	0.15	3.00E-13	28,517 European	NR	20062060	Pfeufer
65	MEIS1	rs11897119	2p14	PR interval		rs11897119-C	0.39	5.00E-11	28,517 European	NR	20062060	Pfeufer
66	WNT11	rs4944092	11q13.5	PR interval		rs4944092-G	0.32	3.00E-08	28,517 European	NR	20062060	Pfeufer
67	SCN10A	rs6800541	3p22.2	PR interval		rs6800541-C	0.4	2.00E-74	28,517 European	NR	20062060	Pfeufer
68	ARHGAP24	rs7692808	4q21.23	PR interval		rs7692808-A	0.31	6.00E-20	28,517 European	NR	20062060	Pfeufer
69	SCN5A	rs11708996	3p22.2	PR interval		rs11708996-C	0.15	6.00E-26	28,517 European	NR	20062060	Pfeufer

Supplemental Table 4 (Continued). Cardiovascular disease large studies GWAS results

No	Reported Gene	Associated SNPs	Region	Disease_Trait	Trait	Strongest SNP Risk Allele	Risk allele frequency	P_Value	Initial_Sampl	Replication_Sam	PUBMEDID	First Author
70	TTN	rs12476289	2q31.2	QT interval		rs12476289-A	0.07	2.00E-06	2,325 European ir	NR	20031603	Marroni
71	Intergenic	rs7601713	2q24.1	QT interval		rs7601713-A	0.23	2.00E-06	2,325 European ir	NR	20031603	Marroni
72	PDE3A	rs1348582	12p12.2	QT interval		rs1348582-G	0.18	1.00E-06	2,325 European ir	NR	20031603	Marroni
73	ELMO1	rs10488031	7p14.2	QT interval		rs10488031-A	0.07	2.00E-06	2,325 European ir	NR	20031603	Marroni
74	NOS1AP	rs2880058	1q23.3	QT interval		rs2880058-G	0.32	2.00E-10	2,325 European ir	NR	20031603	Marroni
75	TCL6	rs8015016	14q32.13	QT interval		rs8015016-G	0.2	5.00E-07	2,325 European ir	NR	20031603	Marroni
76	LOC100132805	rs789852	3q29	QT interval		rs789852-A	0.08	7.00E-07	2,325 European ir	NR	20031603	Marroni
77	PTPRG	rs652889	3p14.2	QT interval		rs652889-A	0.36	8.00E-07	2,325 European ir	NR	20031603	Marroni
78	Intergenic	rs7728043	5p15.32	QT interval		rs7728043-G	0.48	1.00E-06	2,325 European ir	NR	20031603	Marroni
79	Intergenic	rs2478333	13q14.2	QT interval		rs2478333-A	0.33	4.00E-08	2,325 European ir	NR	20031603	Marroni
80	Intergenic	rs2650951	3q21.1	QT interval		rs2650951-A	0.05	1.00E-06	2,325 European ir	NR	20031603	Marroni
81	Intergenic	rs1533317	4p15.1	QT interval		rs1533317-A	0.46	2.00E-06	2,325 European ir	NR	20031603	Marroni
82	ARHGAP10	rs6845865	4q31.23	QT interval		rs6845865-G	0.21	7.00E-07	2,325 European ir	NR	20031603	Marroni
83	Intergenic	rs4318720	4q26	QT interval		rs4318720-A	0.09	8.00E-07	2,325 European ir	NR	20031603	Marroni
84	Intergenic	rs744016	22q12.1	RR interval (heart rate)		rs744016-A	0.2	5.00E-06	2,325 European ir	NR	20031603	Marroni
85	Intergenic	rs1024020	4q28.3	RR interval (heart rate)		rs1024020-A	0.21	4.00E-07	2,325 European ir	NR	20031603	Marroni
86	Intergenic	rs12554086	9q21.31	RR interval (heart rate)		rs12554086-A	0.39	4.00E-07	2,325 European ir	NR	20031603	Marroni
87	Intergenic	rs7318731	13q12.11	RR interval (heart rate)		rs7318731-A	0.48	1.00E-06	2,325 European ir	NR	20031603	Marroni
88	Intergenic	rs1484948	11p12	RR interval (heart rate)		rs1484948-G	0.32	2.00E-06	2,325 European ir	NR	20031603	Marroni
89	AKT3	rs4132509	1q44	RR interval (heart rate)		rs4132509-A	0.21	2.00E-06	2,325 European ir	NR	20031603	Marroni
90	Intergenic	rs10496166	2p13.3	RR interval (heart rate)		rs10496166-A	0.13	4.00E-06	2,325 European ir	NR	20031603	Marroni
91	Intergenic	rs13300284	9p21.3	RR interval (heart rate)		rs13300284-A	0.04	4.00E-06	2,325 European ir	NR	20031603	Marroni
92	Intergenic	rs10514995	5q12.3	RR interval (heart rate)		rs10514995-G	0.36	1.00E-06	2,325 European ir	NR	20031603	Marroni
93	GPR133	rs885389	12q24.33	RR interval (heart rate)		rs885389-A	0.3	4.00E-08	2,325 European ir	NR	20031603	Marroni
94	Intergenic	rs2717128	18q23	RR interval (heart rate)		rs2717128-G	0.14	1.00E-06	2,325 European ir	NR	20031603	Marroni
95	Intergenic	rs3117035	6p21.32	RR interval (heart rate)		rs3117035-A	0.48	1.00E-06	2,325 European ir	NR	20031603	Marroni
96	FRMD4A	rs1541010	10p13	RR interval (heart rate)		rs1541010-A	0.28	1.00E-06	2,325 European ir	NR	20031603	Marroni
97	RASGRF1	rs3743200	15q25.1	RR interval (heart rate)		rs3743200-A	0.27	2.00E-06	2,325 European ir	NR	20031603	Marroni
98	Intergenic	rs4352210	2p22.2	RR interval (heart rate)		rs4352210-A	0.37	2.00E-06	2,325 European ir	NR	20031603	Marroni
99	Intergenic	rs2670321	3q12.1	RR interval (heart rate)		rs2670321-C	0.27	2.00E-06	2,325 European ir	NR	20031603	Marroni
100	Intergenic	rs12552736	9p21.3	RR interval (heart rate)		rs12552736-G	0.06	2.00E-06	2,325 European ir	NR	20031603	Marroni
101	Intergenic	rs17706439	1q32.3	RR interval (heart rate)		rs17706439-A	0.17	3.00E-06	2,325 European ir	NR	20031603	Marroni
102	Intergenic	rs3110127	8q12.1	RR interval (heart rate)		rs3110127-A	0.33	4.00E-06	2,325 European ir	NR	20031603	Marroni
103	Intergenic	rs1447537	2p11.2	RR interval (heart rate)		rs1447537-A	0.31	4.00E-06	2,325 European ir	NR	20031603	Marroni
104	PITX2	rs17042171	4q25	Atrial fibrillation		rs17042171-A	0.12	4.00E-63	3,413 cases, 37,1(	2,145 cases, 4,073 cont	19597492	Benjamin
105	MTHFR, NPPA	rs17375901	1p36.22	Atrial fibrillation		rs17375901-T	0.053	6.00E-07	3,413 cases, 37,1(	2,145 cases, 4,073 cont	19597492	Benjamin
106	ZFHX3	rs2106261	16q22.3	Atrial fibrillation		rs2106261-T	0.174	2.00E-15	3,413 cases, 37,1(	2,145 cases, 4,073 cont	19597492	Benjamin

Supplemental Table 4 (Continued). Cardiovascular disease large studies GWAS results

No	Reported Gene	Associated SNPs	Region	Disease_Trait	Trait	Strongest SNP Risk Allele	Risk allele frequency	P_Value	Initial_Sampl	Replication_Sam	PUBMEDID	First Author
107	ZFHX3	rs7193343	16q22.3	Atrial fibrillation		rs7193343-T	NR	1.00E-10	2,385 European c	up to 2,427 European c	19597491	Gudbjartsson
108	Intergenic	rs2200733	4q25	Atrial fibrillation		rs2200733-?	0.12	1.00E-14	2,385 European c	up to 2,427 European c	19597491	Gudbjartsson
109	OLFML2B, NOS1AP	rs12143842	1q23.3	QT interval		rs12143842-T	0.25	1.00E-83	3,558 Caucasian i	29,527 Caucasian indiv	19587794	Nolte
110	SLC35F1, C6orf204, PLN	rs11153730	6q22.31	QT interval		rs11153730-C	0.5	2.00E-29	3,558 Caucasian i	29,527 Caucasian indiv	19587794	Nolte
111	PALMD	rs7543130	1p21.2	Aortic root size		rs7543130-A	0.49	1.00E-07	12,612 European	4,094 European ancest	19584346	Vasan
112	LOXL1	rs893817	15q24.1	Aortic root size		rs893817-G	0.34	3.00E-06	12,612 European	4,094 European ancest	19584346	Vasan
113	CCDC100, PPIC	rs17470137	5q23.2	Aortic root size		rs17470137-A	0.29	1.00E-11	12,612 European	4,094 European ancest	19584346	Vasan
114	PDE3A	rs10770612	12p12.2	Aortic root size		rs10770612-G	0.19	2.00E-08	12,612 European	4,094 European ancest	19584346	Vasan
115	HMGA2	rs4026608	12q14.3	Aortic root size		rs4026608-C	0.38	2.00E-09	12,612 European	4,094 European ancest	19584346	Vasan
116	SMG6, SRR, TSR1, SGSM2	rs10852932	17p13.3	Aortic root size		rs10852932-T	0.36	2.00E-11	12,612 European	4,094 European ancest	19584346	Vasan
117	WWOX	rs2059238	16q23.1	Cardiac structure and function	(LV wall thickness)	rs2059238-A	0.22	3.00E-06	12,612 European	4,094 European ancest	19584346	Vasan
118	GRID1	rs7910620	10q23.1	Cardiac structure and function	(LV wall thickness)	rs7910620-G	0.01	7.00E-07	12,612 European	4,094 European ancest	19584346	Vasan
119	SLC25A46	rs17132261	5q22.1	Cardiac structure and function	(LV wall thickness)	rs17132261-T	0.02	9.00E-07	12,612 European	4,094 European ancest	19584346	Vasan
120	SLC35F1, C6orf204, PLN	rs89107	6q22.31	Cardiac structure and function	(LV internal diastoli	rs89107-G	0.5	1.00E-09	12,612 European	4,094 European ancest	19584346	Vasan
121	CD36	rs10499859	7q21.11	Left ventricular mass	(Caucasian)	rs10499859-?	0.45	3.00E-06	101 Caucasian cas	704 Caucasian siblings	19454037	Arnett
122	RAI14	rs409045	5p13.2	Left ventricular mass	(Caucasian)	rs409045-?	0.38	8.00E-07	101 Caucasian cas	704 Caucasian siblings	19454037	Arnett
123	LITAF,CLEC16A, SNN, ZC3H7A, TNFRSF17	rs8049607	16p13.13	QT interval		rs8049607-T	0.49	5.00E-15	13,685 individual	15,854 individuals	19305408	Newton-Cheh
124	NOS1AP	rs12143842	1q23.3	QT interval		rs12143842-T	0.26	2.00E-78	13,685 individual	15,854 individuals	19305408	Newton-Cheh
125	RNF207,NPHP4, CHDS, ACOT7, PLEKHG5, KLH21	rs846111	1p36.31	QT interval		rs846111-C	0.28	1.00E-16	13,685 individual	15,854 individuals	19305408	Newton-Cheh
126	KCNH2	rs4725982	7q36.1	QT interval		rs4725982-T	0.22	5.00E-16	13,685 individual	15,854 individuals	19305408	Newton-Cheh
127	KCNH2	rs2968864	7q36.1	QT interval		rs2968864-C	0.25	8.00E-16	13,685 individual	15,854 individuals	19305408	Newton-Cheh
128	KCNQ1	rs12576239	11p15.5	QT interval		rs12576239-T	0.13	1.00E-15	13,685 individual	15,854 individuals	19305408	Newton-Cheh
129	c6orf204,SLC35F1, PLN, ASF1A	rs11756438	6q22.31	QT interval		rs11756438-A	0.47	5.00E-22	13,685 individual	15,854 individuals	19305408	Newton-Cheh
130	CNOT1,GINS3, NDRG4, SLC38A7, GOT2	rs37062	16q21	QT interval		rs37062-G	0.24	3.00E-25	13,685 individual	15,854 individuals	19305408	Newton-Cheh
131	LIG3,RFFL	rs2074518	17q12	QT interval		rs2074518-T	0.46	6.00E-12	13,685 individual	15,854 individuals	19305408	Newton-Cheh
132	SCN5A	rs12053903	3p22.2	QT interval		rs12053903-C	0.34	1.00E-14	13,685 individual	15,854 individuals	19305408	Newton-Cheh
133	NOS1AP	rs16857031	1q23.3	QT interval		rs16857031-G	0.14	1.00E-34	13,685 individual	15,854 individuals	19305408	Newton-Cheh
134	NOS1AP	rs12029454	1q23.3	QT interval		rs12029454-A	0.15	3.00E-45	13,685 individual	15,854 individuals	19305408	Newton-Cheh
135	KCNQ1	rs2074238	11p15.5	QT interval		rs2074238-T	0.06	3.00E-17	13,685 individual	15,854 individuals	19305408	Newton-Cheh
136	ATP1B1	rs10919071	1q24.2	QT interval		rs10919071-A	0.87	1.00E-15	15,842 individual	up to 13,602 individua	19305409	Pfeufer
137	PLN	rs11970286	6q22.31	QT interval		rs11970286-T	0.44	2.00E-24	15,842 individual	up to 13,602 individua	19305409	Pfeufer
138	NDRG4	rs7188697	16q21	QT interval		rs7188697-A	0.74	7.00E-25	15,842 individual	up to 13,602 individua	19305409	Pfeufer
139	NOS1AP	rs12143842	1q23.3	QT interval		rs12143842-T	0.24	2.00E-78	15,842 individual	up to 13,602 individua	19305409	Pfeufer
140	KCNJ2	rs17779747	17q24.3	QT interval		rs17779747-T	0.35	6.00E-12	15,842 individual	up to 13,602 individua	19305409	Pfeufer
141	RNF207	rs846111	1p36.31	QT interval		rs846111-C	0.29	4.00E-16	15,842 individual	up to 13,602 individua	19305409	Pfeufer
142	NOS1AP	rs4657178	1q23.3	QT interval		rs4657178-T	0.33	7.00E-33	15,842 individual	up to 13,602 individua	19305409	Pfeufer
143	SCN5A	rs11129795	3p22.2	QT interval		rs11129795-A	0.23	5.00E-14	15,842 individual	up to 13,602 individua	19305409	Pfeufer
144	KCNH2	rs2968863	7q36.1	QT interval		rs2968863-T	0.29	2.00E-15	15,842 individual	up to 13,602 individua	19305409	Pfeufer
145	KCNQ1	rs12296050	11p15.5	QT interval		rs12296050-T	0.2	3.00E-17	15,842 individual	up to 13,602 individua	19305409	Pfeufer
146	PLN	rs12210810	6q22.31	QT interval		rs12210810-C	0.06	2.00E-17	15,842 individual	up to 13,602 individua	19305409	Pfeufer
147	LITAF	rs8049607	16p13.13	QT interval		rs8049607-T	0.46	6.00E-15	15,842 individual	up to 13,602 individua	19305409	Pfeufer
148	SCN5A	rs7638909	3p22.2	Electrocardiographic conduction	(PR interval)	rs7638909-G	0.4	2.00E-06	1,262 Kosraen inc	NR	19389651	Smith
149	NR	rs283566	6p12.2	Electrocardiographic conduction	(P wave duration)	rs283566-?	0.16	9.00E-06	1,262 Kosraen inc	NR	19389651	Smith
150	SCN5A	rs2070488	3p22.2	Electrocardiographic conduction	(PR interval)	rs2070488-A	0.33	4.00E-06	1,262 Kosraen inc	NR	19389651	Smith
151	MSX1	rs2008242	4p16.1	Electrocardiographic conduction	(PR segment)	rs2008242-?	0.15	3.00E-06	1,262 Kosraen inc	NR	19389651	Smith
152	NR	rs17030434	4q31.3	Electrocardiographic conduction	(P wave duration)	rs17030434-?	0.43	5.00E-06	1,262 Kosraen inc	NR	19389651	Smith
153	Intergenic	rs2461751	2q31.1	Electrocardiographic conduction	(PR interval)	rs2461751-G	0.44	8.00E-06	1,262 Kosraen inc	NR	19389651	Smith
154	NR	rs7512898	1q32.1	Electrocardiographic conduction	(PR segment)	rs7512898-?	0.41	5.00E-06	1,262 Kosraen inc	NR	19389651	Smith

Supplemental Table 4 (Continued). Cardiovascular disease large studies GWAS results

No	Reported Gene	Associated SNPs	Region	Disease_Trait	Trait	Strongest SNP Risk Allele	Risk allele frequency	P_Value	Initial_Sampl	Replication_Sam	PUBMEDID	First Author
155	MRAS	rs9818870	3q22.3	Coronary heart disease		rs9818870-T	0.15	7.00E-13	6,990 cases, 8,95	12,417 cases, 12,411 cc	19198612	Erdmann
156	HNF1A,C12orf43	rs2259816	12q24.31	Coronary heart disease		rs2259816-T	0.36	5.00E-07	6,990 cases, 8,95	12,417 cases, 12,411 cc	19198612	Erdmann
157	LDLR	rs1122608	19p13.2	Myocardial infarction (early onset)		rs1122608-G	0.75	2.00E-09	2,967 cases, 3,07	9,746 cases, 9,746 cont	19198609	Kathiresan
158	PHACTR1	rs12526453	6p24.1	Myocardial infarction (early onset)		rs12526453-C	0.65	1.00E-09	2,967 cases, 3,07	9,746 cases, 9,746 cont	19198609	Kathiresan
159	WDR12	rs6725887	2q33.1	Myocardial infarction (early onset)		rs6725887-C	0.14	1.00E-08	2,967 cases, 3,07	9,746 cases, 9,746 cont	19198609	Kathiresan
160	PCSK9	rs11206510	1p32.3	Myocardial infarction (early onset)		rs11206510-T	0.81	1.00E-08	2,967 cases, 3,07	9,746 cases, 9,746 cont	19198609	Kathiresan
161	MIA3	rs17465637	1q41	Myocardial infarction (early onset)		rs17465637-C	0.72	1.00E-09	2,967 cases, 3,07	9,746 cases, 9,746 cont	19198609	Kathiresan
162	CXCL12	rs1746048	10q11.21	Myocardial infarction (early onset)		rs1746048-C	0.84	7.00E-09	2,967 cases, 3,07	9,746 cases, 9,746 cont	19198609	Kathiresan
163	SLC5A3, MRPS6, KCNE2	rs9982601	21q22.11	Myocardial infarction (early onset)		rs9982601-T	0.13	6.00E-11	2,967 cases, 3,07	9,746 cases, 9,746 cont	19198609	Kathiresan
164	CELSR2, PSRC1, SORT1	rs646776	1p13.3	Myocardial infarction (early onset)		rs646776-T	0.81	8.00E-12	2,967 cases, 3,07	9,746 cases, 9,746 cont	19198609	Kathiresan
165	CDKN2A, CDKN2B	rs4977574	9p21.3	Myocardial infarction (early onset)		rs4977574-G	0.56	3.00E-44	2,967 cases, 3,07	9,746 cases, 9,746 cont	19198609	Kathiresan
166	SLC22A3,LPAL2,LPA	rs2048327,rs3127599,rs77	6q25.3	Coronary heart disease	(CTTG)	4-SNP haplotype-1	0.16	1.00E-09	1,926 cases, 2,93	7,073 cases, 7,325 cont	19198611	Tregouet
167	SLC22A3,LPAL2,LPA	rs2048327,rs3127599,rs77	6q25.3	Coronary heart disease	(CCTC)	4-SNP haplotype-2	0.02	4.00E-15	1,926 cases, 2,93	7,073 cases, 7,325 cont	19198611	Tregouet
168	Intergenic	rs10498345	14q21.1	Coronary spasm		rs10498345-T	0.3	9.00E-07	50 Japanese fem	151 Japanese female c	18075462	Suzuki
169	Intergenic	rs4776472	15q23	Atrial fibrillation		rs4776472-?	NR	8.00E-06	1,341-1,345 indiv	NR	17903304	Larson
170	CNTN5	rs10501920	11q22.1	Atrial fibrillation		rs10501920-?	NR	9.00E-06	1,341-1,345 indiv	NR	17903304	Larson
171	Intergenic	rs958546	13q14.12	Atrial fibrillation		rs958546-?	NR	5.00E-06	1,341-1,345 indiv	NR	17903304	Larson
172	KIAA1598	rs740363	10q25.3	Heart failure		rs740363-?	NR	9.00E-06	1,341-1,345 indiv	NR	17903304	Larson
173	Intergenic	rs499818	6p24.1	Major CVD	(major CVD)	rs499818-?	NR	7.00E-06	1,341-1,345 indiv	NR	17903304	Larson
174	RPL21	rs10507380	13q12.2	Electrocardiographic traits	(QT interval)	rs10507380-?	NR	8.00E-06	548-1,175 individ	NR	17903306	Newton-Cheh
175	Intergenic	rs882300	2q22.1	Electrocardiographic traits	(PR interval)	rs882300-?	NR	3.00E-07	548-1,175 individ	NR	17903306	Newton-Cheh
176	NEIL3	rs1395479	4q34.3	Heart rate variability traits	(LF/HF)	rs1395479-?	NR	7.00E-06	548-1,175 individ	NR	17903306	Newton-Cheh
177	DCAMKL1	rs9315385	13q13.3	Heart rate variability traits	(total power)	rs9315385-?	NR	8.00E-06	548-1,175 individ	NR	17903306	Newton-Cheh
178	NUMB	rs10483853	14q24.2	Coronary artery calcification		rs10483853-?	NR	6.00E-06	673-984 individua	NR	17903303	O'Donnell
179	Intergenic	rs2390582	1p22.2	Coronary artery calcification		rs2390582-?	NR	1.00E-06	673-984 individua	NR	17903303	O'Donnell
180	DRIM	rs10507130	12q23.2	Coronary artery calcification		rs10507130-?	NR	7.00E-06	673-984 individua	NR	17903303	O'Donnell
181	CXCL12	rs501120	10q11.21	Coronary heart disease		rs501120-T	0.87	9.00E-08	1,926 cases,2,938	875 cases,1,644 contro	17634449	Samani
182	MIA3	rs17465637	1q41	Coronary heart disease		rs17465637-C	0.71	1.00E-06	1,926 cases,2,938	875 cases,1,644 contro	17634449	Samani
183	MTHFD1L	rs6922269	6q25.1	Coronary heart disease		rs6922269-A	0.25	3.00E-08	1,926 cases,2,938	875 cases,1,644 contro	17634449	Samani
184	pseudogene	rs2943634	2q36.3	Coronary heart disease		rs2943634-C	0.65	2.00E-07	1,926 cases,2,938	875 cases,1,644 contro	17634449	Samani
185	Intergenic	rs1333049	9p21.3	Coronary heart disease		rs1333049-C	0.47	3.00E-19	1,926 cases,2,938	875 cases,1,644 contro	17634449	Samani
186	PSRC1	rs599839	1p13.3	Coronary heart disease		rs599839-A	0.77	4.00E-09	1,926 cases,2,938	875 cases,1,644 contro	17634449	Samani
187	SMAD3	rs17228212	15q22.33	Coronary heart disease		rs17228212-C	0.3	2.00E-07	1,926 cases,2,938	875 cases,1,644 contro	17634449	Samani
188	PITX2,ENPEP	rs2200733	4q25	Atrial fibrillation/atrial flutter		rs2200733-T	0.11	3.00E-41	550 cases,4,476 c	3,363 cases,17,616 con	17603472	Gudbjartsson
189	PITX2,ENPEP	rs10033464	4q25	Atrial fibrillation/atrial flutter		rs10033464-T	0.08	7.00E-11	550 cases,4,476 c	3,363 cases,17,616 con	17603472	Gudbjartsson
190	CDKN2A,CDKN2B	rs1333049	9p21.3	Coronary heart disease		rs1333049-C	0.47	1.00E-13	1,926 cases,2,938	(see Samani 2007)	17554300	WTCCC
191	Intergenic	rs17672135	1q43	Coronary heart disease		rs17672135-T	0.87	2.00E-06	1,926 cases,2,938	(see Samani 2007)	17554300	WTCCC
192	Intergenic	rs8055236	16q23.3	Coronary heart disease		rs8055236-G	0.8	6.00E-06	1,926 cases,2,938	(see Samani 2007)	17554300	WTCCC
193	Intergenic	rs688034	22q12.1	Coronary heart disease		rs688034-T	0.31	4.00E-06	1,926 cases,2,938	(see Samani 2007)	17554300	WTCCC
194	CDKN2A,CDKN2B	rs10757278	9p21.3	Myocardial infarction		rs10757278-G	0.45	1.00E-20	1,607 cases,6,728	2,980 cases,6,309 cont	17478679	Helgadottir
195	NOS1AP	rs10494366	1q23.3	QT interval		rs10494366-?	0.36	1.00E-10	100 > 445ms,100 <	200 > 85th pct,200 < 15	16648850	Arking

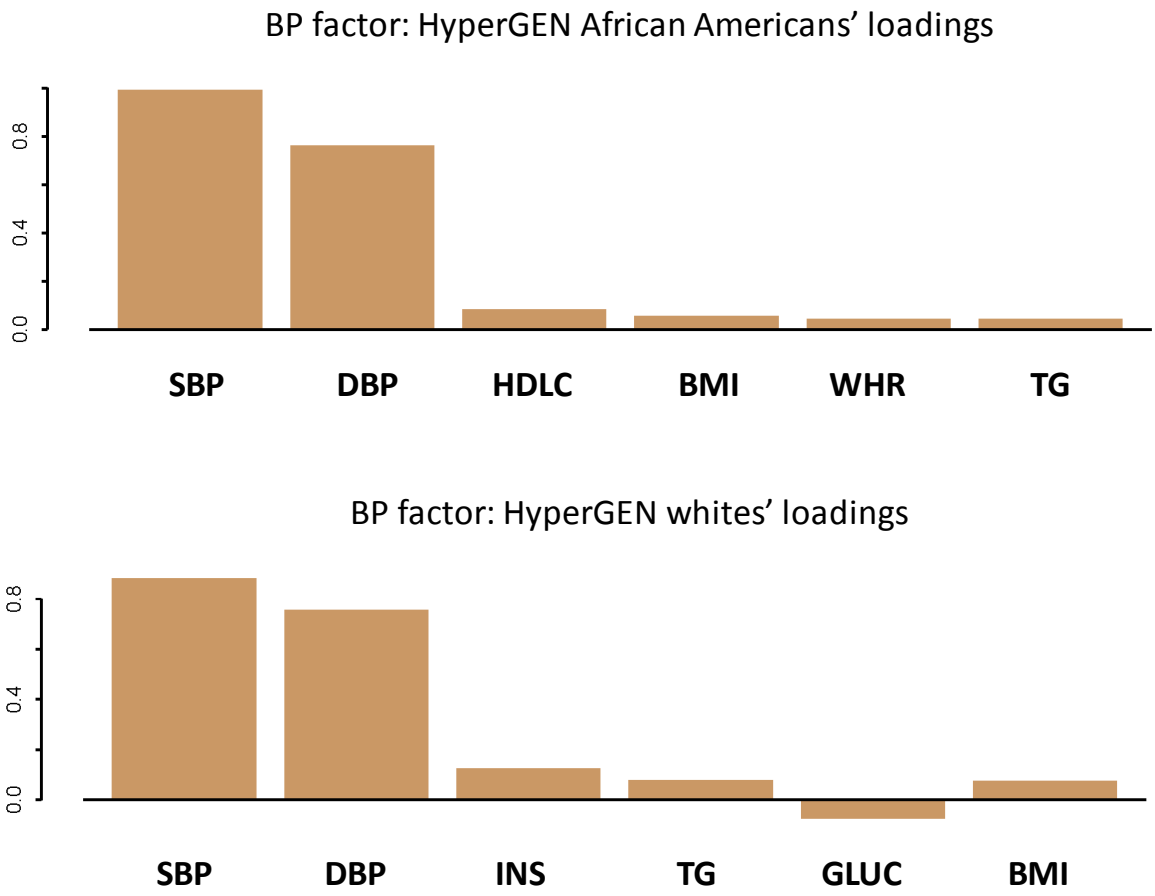
Footnote: More recent information on GWAS for CVD is available from Hindorff LA, Junkins HA, Hall PN, Mehta JP, and Manolio TA. A Catalog of Published Genome-Wide Association Studies, at: www.genome.gov/gwastudies.

Supplemental Table 5. A summary of statistical analysis and other information from large BP studies.

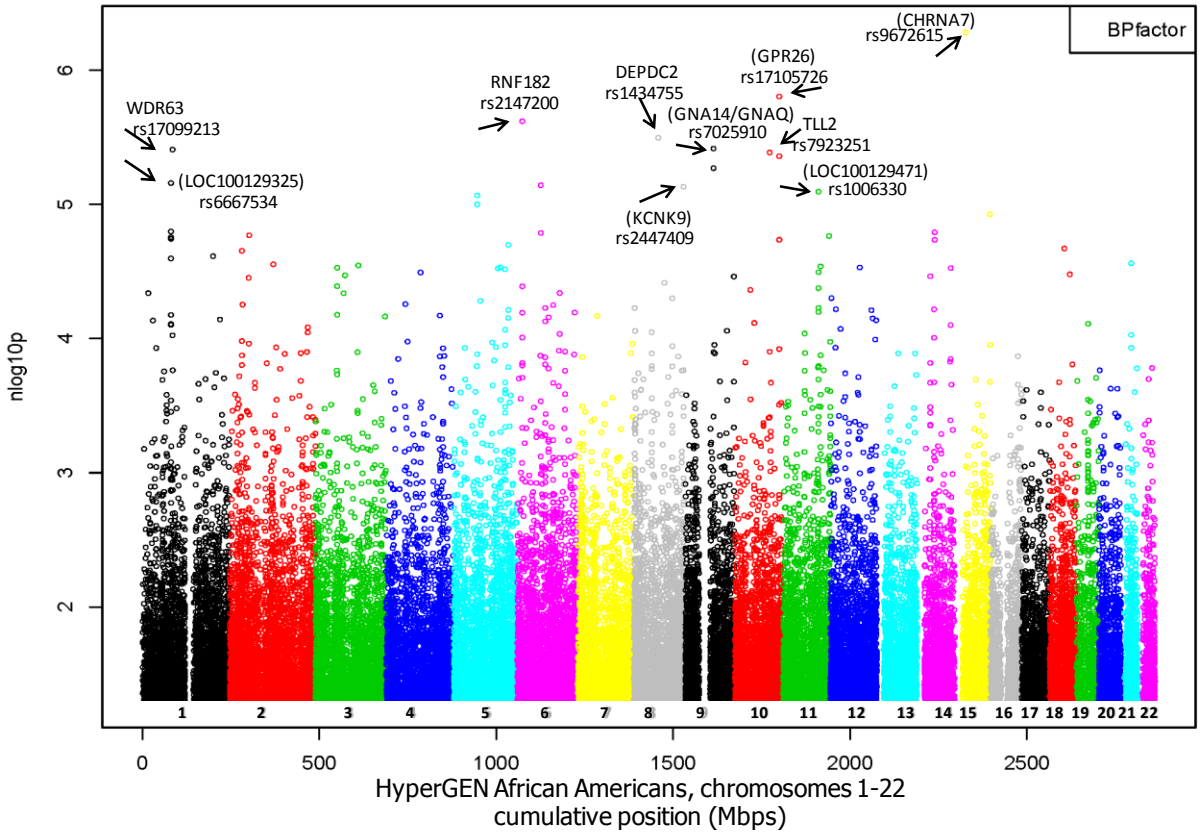
Reference	Trait	Genetic model	Statistics	Adjustment for ANTI-HT treatment	Association software	Software pathways	Number of SNPs	R^2 (%)	Exonic	Design
22**	HT, SBP, DBP	Additive	Regression, Meta-analysis	SBP+10, DBP+5mmHg	PLINK, R, LMEKIN ProbABEL	Gene Expression	10	1.0	1 missense	Family based
40	HT	Trend test	Bayes factor	NA†	NA	None	0	NA	NA	Case/control
43**	SBP, DBP, HT	Additive	Regression, Meta-analysis	SBP+15, DBP+10mmHG	SNPTEST, PLINK, ProbABEL,	None	8	0.55	None	Case/control
44	ACE activity	Additive	GLM, Stepwise reg	ACEI (0, 1)	NA	None	1	16.2	1 cds-synon	Case/control & family based
56	HT, SBP, DBP	Additive	Logisitc reg, Regression	YES (method NA*)	PLINK	GeneGO	10	NA	1 missense	Family based
60*	SBP, DBP	Additive	Trend test	NO adjustment	PLINK, SAS	None	1	NA	None	Family based
68*	SBP, DBP	Additive	Regression		PLINK/QFAM	None	2	4.3	None	Family based
70	SBP, DBP, HT	Add, Dom	Logistic reg, Regression	NO adjustment	PLINK	None	1	NA	None	Case/control
72	HT	Additive	Logisitc reg, Haplotype	NA	SAS, Helix tree	None	2	NA	None	Case/control & family based
73	SBP, DBP	Add, Dom, Rec	Regression, Meta-analysis	NO adjustment	FBAT, METAL	Gene Expression	2	NA	None	Family based
74	DBP	Additive	Regression	Measured effect	Helix tree	None	3	NA	None	Case/control
75	SBP, DBP, 10 year average	Additive	Regression	NO adjustment	FBAT	None	2	NA	None	Family based

†NA- not available; *, ** see the corresponding references in the text highlighted for their importance

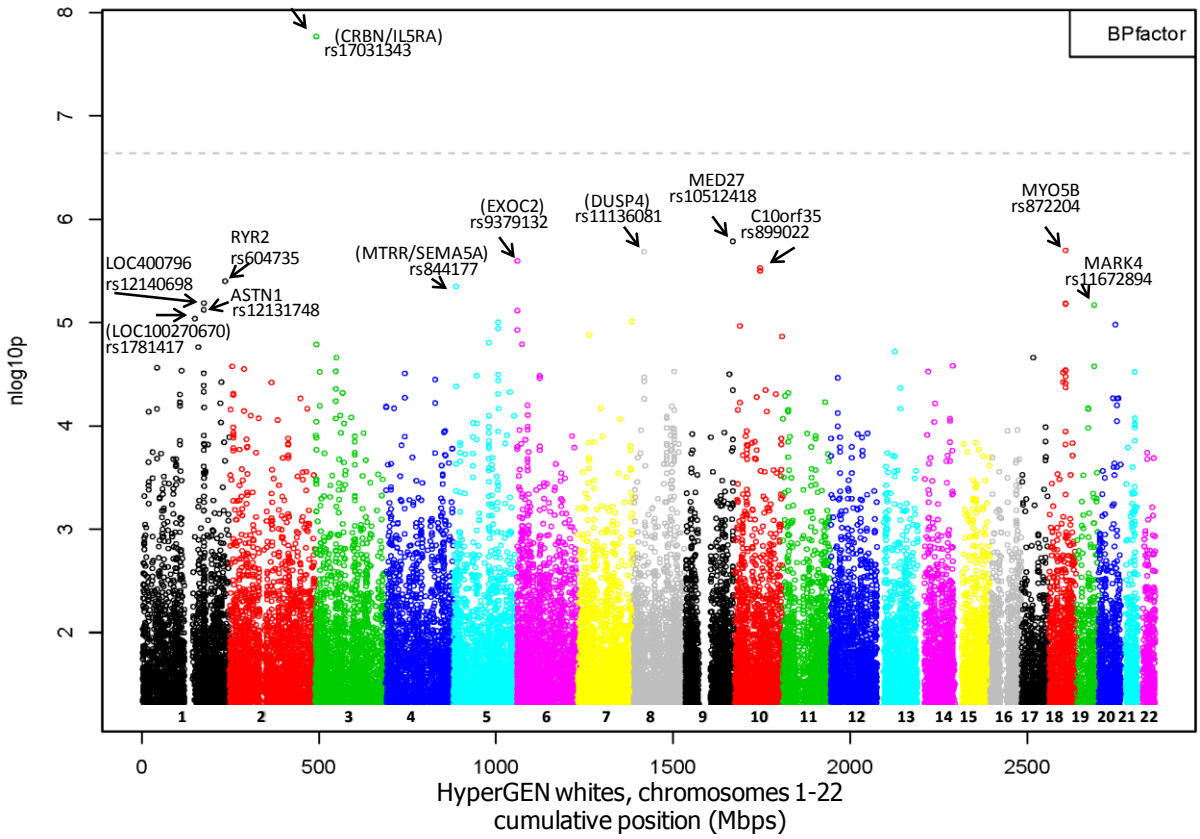
Supplemental Figure 1. Blood pressure factors for African Americans and whites in the HyperGEN study. We have reported 4 factor scores for metabolic syndrome by using multivariate factor analysis on 11 traits BMI, WC, WHR, PBF, INS, GLUC, LDLC, HDLC, TG, SBP, and DBP (see text and reference [31] for details). Factor loadings of standardized variables used in this analysis represent correlation coefficients of factor scores and original variables. The BP factors for two HyperGEN ethnicities are mainly contributions of SBP and DBP.



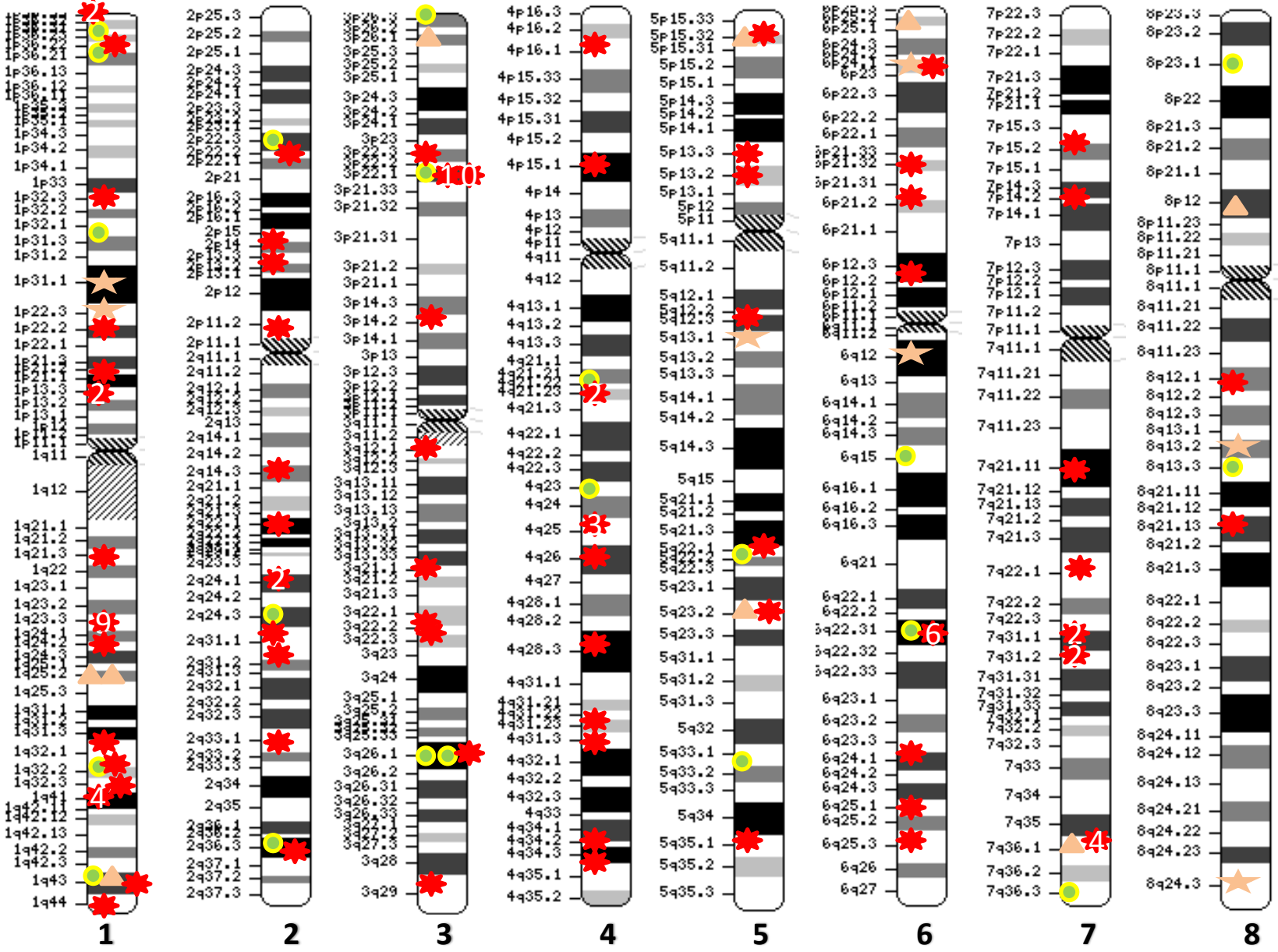
Supplemental Figure 2. HyperGEN African Americans genome wide association tests results between BP-factor and single SNPs under additive genetic model in a statistical mixed regression analysis accounting for familial relationship and genetic heterogeneity.



Supplemental Figure 3. HyperGEN whites genome wide association tests results between BP-factor and single SNPs under additive genetic model in a statistical mixed regression analysis accounting for familial relationship.



Supplemental Figure 4. A presentation of a coarse cytogenetic ideogram for results of large studies on BP/ HT/ pulse rate, CVD/ quantitative heart traits, and HyperGEN study. (A number within red 8-point-star shape shows how many times the same cytogenetic location was replicated by several studies).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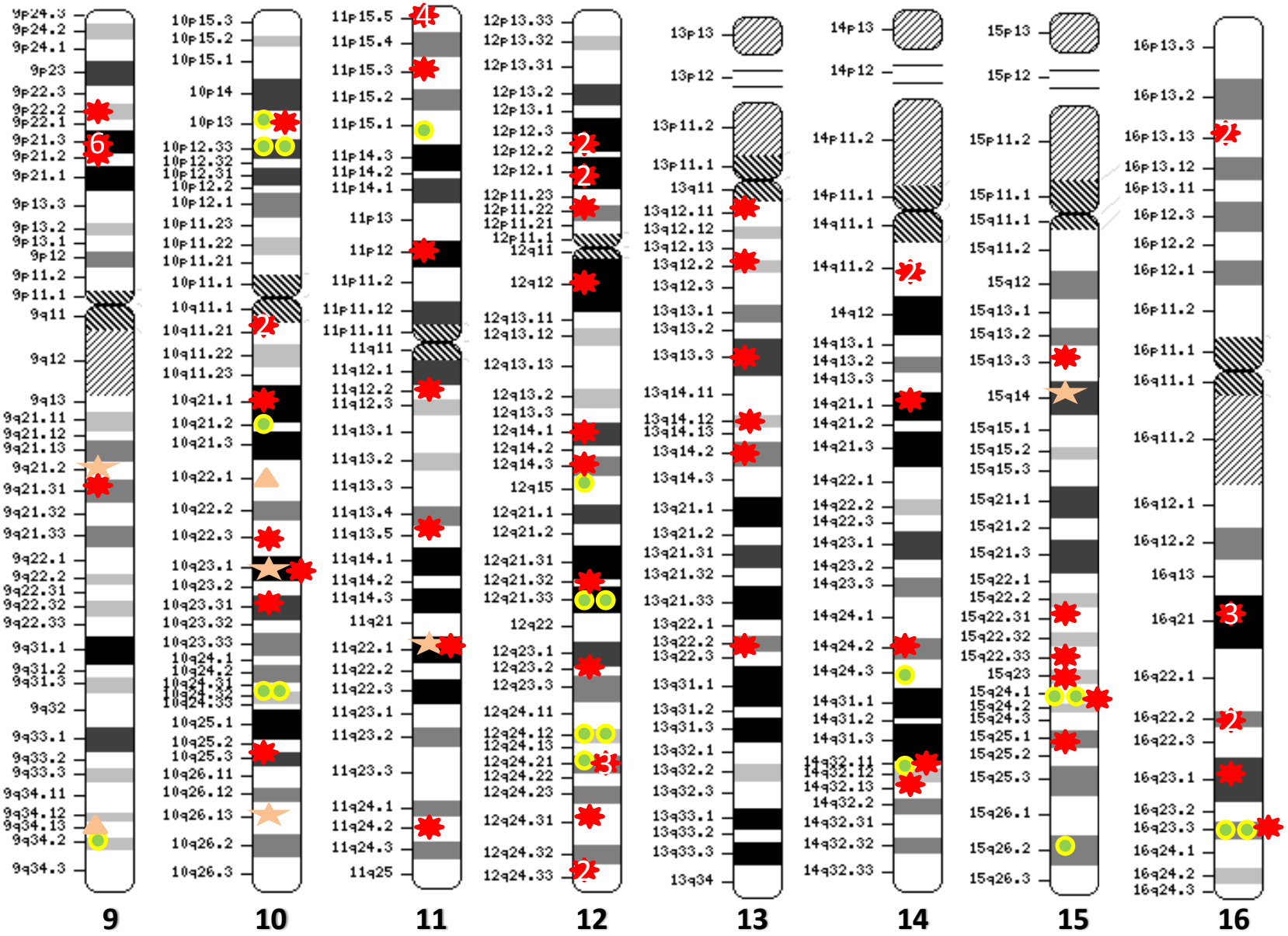
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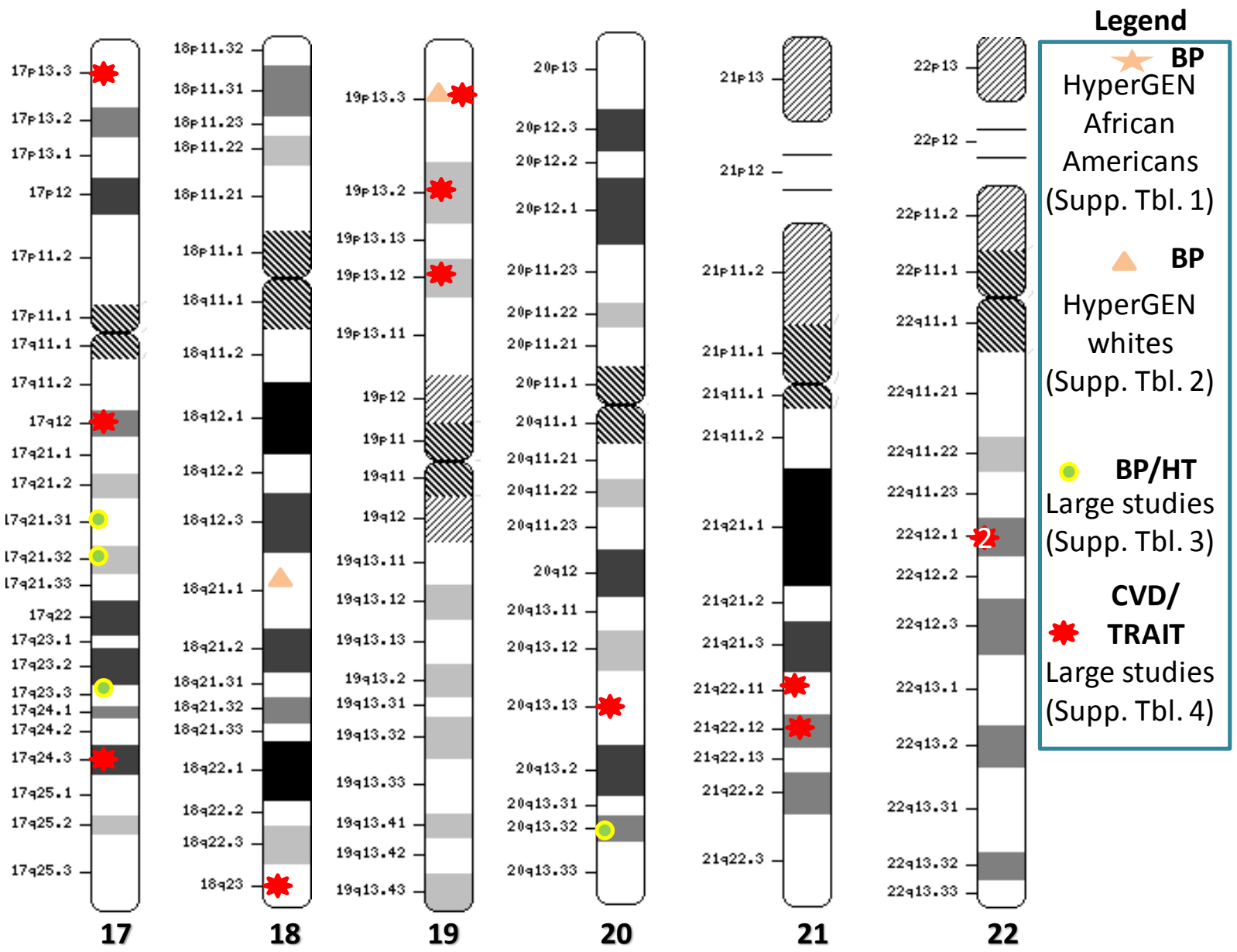
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17p13.2
17p13.1
17p12
17p11.2
17p11.1
17q11.1
17q11.2
17q12
17q21.1
17q21.2
17q21.31
17q21.32
17q21.33
17q22
17q23.1
17q23.2
17q23.3
17q24.1
17q24.2
17q24.3
17q25.1
17q25.2
17q25.3
17
18p11.32
18p11.31
18p11.23
18p11.22
18p11.21
18p11.1
18q11.1
18q11.2
18q12.1
18q12.2
18q12.3
18q21.1
18q21.2
18q21.31
18q21.32
18q21.33
18q22.1
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18q23
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19p13.2
19p13.13
19p13.12
19p13.11
19p12
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19q11
19q12
19q13.11
19q13.12
19q13.13
19q13.2
19q13.31
19q13.32
19q13.33
19q13.41
19q13.42
19q13.43
19
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20p12.3
20p12.2
20p12.1
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20q11.1
20q11.21
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22q12.3
22q13.1
22q13.2
22q13.31
22q13.32
22q13.33
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Legend
BP
HyperGEN African Americans (Supp. Tbl. 1)
BP
HyperGEN whites (Supp. Tbl. 2)
BP/HT
Large studies (Supp. Tbl. 3)
CVD/ TRAIT
Large studies (Supp. Tbl. 4)