Summary of Genetic Assays in CHS

List includes both completed and approved assays
Proposed variants that are under review are not listed

Updated September 15, 2008

NOTE: Information on assay completion is from last progress report or relevant contact with the PI. Contact the CC for further updates or PI contact information.

Genetic Assays	Investigator	Study Type	Ancillary study #	Cohort (Full/ Partial)	Assay complete?
Studies that have sent some or all of their genotype data to the CC					
apo E	CHS substudy	Main		Full	yes
paraoxonase	Kuller, Kamboh	Ancillary	28	Partial	yes
Factor VII (Arg_{353}-->Gln)	CHS substudy	Main		Partial	yes
Fibrinogen (-455, BclI)	CHS substudy	Main		Partial	yes
platelet glycoprotein Ib	CHS substudy	Main		Partial	yes
PAI-1 (4G-->5G)	CHS substudy	Main		Partial	yes
Factor V_L	Tracy	Ancillary	23, 8	Partial	yes
MTHFR	Schwartz, Siscovick	Ancillary	31	Partial	yes
Vit. D Receptor	Ferrell, Kuller	Ancillary	30	Partial	yes
ion channel genes (KVLQT1, HERG, MinK, MirP-1, SCN5A)	Towbin, Siscovick	Substudy		Partial	yes
MinK (D85N)	Siscovick, Towbin	Substudy		Full	partial
Angiotensin II type I receptor (A1166C)	Heckbert, Tracy	Ancillary	53	Partial	Yes
G protein beta-subunit (C825T)	Heckbert, Tracy	Ancillary	53	Partial	Yes
beta-2 andrenergic receptor (Arg16Gly, Gln27Glu)	Heckbert, Tracy	Ancillary	53	Partial	Yes
alpha-adducin (Gly460Trp)	Heckbert, Tracy	Ancillary	53	Partial	Yes
amiloride-sensitive Na Channel (T594M)	Heckbert, Tracy	Ancillary	53	Partial	Yes
Androgen receptor	Zmuda, Ferrell, Kuller	Main	50	Partial	yes
CRP TG repeat	Tracy	Ancillary	8	Partial	yes
E-selectin (-98G-->T)	CHS substudy	Main		Partial	yes
Prothrombin (20210)	Tracy	Ancillary	48	Partial	yes
Factor V (-426G-->A, 481G-->A)	Tracy	Ancillary	8, 33	Full	yes
Factor V (7 polymorphisms)	Tracy	Ancillary		Partial	yes
HLA-DQ, HLA-DR	Pietropaolo, Kuller	Ancillary	44, 67	Partial	pilot-yes
IL-6 promoter polymorphism	Humphries, Tracy	Ancillary	41	Partial	yes
Transthyretin ILE_{122}	Buxbaum	Ancillary	26	Partial	yes
TAFI promoter	Tracy	Ancillary	8, 33	Partial	yes
TAFI gene	Koschinsky	Ancillary	83	Full	yes
HFE[1] (hemochromotosis gene)	CHS Substudy	Main		Partial	yes
Stroke-SNPs from Chromosome 1	Ellsworth, Ferrell	Main		Full	yes
Platelet activating factor receptor (C696A, A1279G)	Ferrell	substudy			yes
Transforming growth factor receptor 3 (G -563A)	Ferrell	substudy			yes
Endothelin converting enzyme (Introns 16 G/A, 7 A/G)	Ferrell	substudy			yes
Endothelin 2 (3'-UTR A/G)	Ferrell	substudy			yes
Atrial natriuretic peptide (T2238C)	Ferrell	substudy			yes
Methylene tetrahydrofolate reductase (C677T)	Ferrell	substudy			yes
IGF-1 [(CA)n]	Weiss	Ancillary	70	Partial	yes

IGFIR [(AGG)n, 2 base pair deletion]	Weiss	Ancillary	70	Partial	yes
IGFBP-3 [(A-202C)]	Weiss	Ancillary	70	Partial	yes
androgen receptor: *AR* $(CAG)_n$	Sieh, Kronmal	Ancillary	71	Partial	yes
gene for prostate specific antigen (*PSA* G-252A, *PSA* G-158A)	Sieh, Kronmal	Ancillary	71	Partial	yes
Omit: steroid 5 alpha-reductase	Sieh, Kronmal	Ancillary	71	Partial	dropped
Omit: 3-alpha-hydroxysteroid dehydrogenase	Sieh, Kronmal	Ancillary	71	Partial	dropped
CYP3A5 (*3 allele)	Sieh, Kronmal	Ancillary	71	Partial	no
CYP1B1 (A119S, L432V, and N453S alleles)	Sieh, Kronmal	Ancillary	71	Partial	no
[Longevity Consortium, genes to be named]	Cummings, Newman	Ancillary	62		no
Prot C promoter	Folsom, Tracy	Ancillary	33	Partial	not done
Factor **XIII** val341leu	Folsom, Tracy	Ancillary	33	Partial	yes
MTHFR	Folsom, Tracy	Ancillary	33	Partial	yes
fibrinogen	Folsom, Tracy	Ancillary	33	Partial	yes
V Leiden	Folsom, Tracy	Ancillary	33	Partial	yes
thrombomodulin (TMA455V)	Folsom, Tracy	Ancillary	33	Partial	yes
HAE 3	Tracy	Ancillary	8?	Partial	yes
BLCI	Tracy	Ancillary	8?	Partial	yes
Prothrombin FII nt20210	Folsom	Ancillary	33 or 84 (LITE)	partial	yes
TAFI (another variant)	Folsom	Ancillary	84	partial	no
endothelial protein C receptor	Folsom	Ancillary	84	partial	no
Bauer's factor VII	Folsom	Ancillary	84	partial	no
gamma fibrinogen (maybe)	Folsom	Ancillary	84	partial	no
sequence VII or VIII gene (maybe)	Folsom	Ancillary	84	partial	no
TAFI (another variant)	Tracy, Jenny	Substudy		partial	yes
lipoprotein-related receptor proteins	Kuller, Tracy, Kamboh	Ancillary	79	Partial	no
alpha-2 macroglobulins	Kuller, Tracy, Kamboh	Ancillary	79	Partial	no
[see appendix 1]	Reiner, Psaty	Ancillary	87	full	partial
CRP (crp_snp790 crp_snp1919 crp_snp2667 crp_snp3872 crp_snp5237 crp_hapbest1 crp_hapbest2)	Reiner	ancillary	87 or 99	full	yes
FGA (FGA_snp251 FGA_snp2224 FGA_snp3807 FGA_snp3845 FGA_snp5498 FGA_snp6534 FGA_snp8834 FGA_snp9205 fga_hapbest1 fga_hapbest2)	Reiner	ancillary	87 or 99	full	yes
IL6 -174 G->C promoter	Psaty, Tracy	substudy +ancillary	95	full	in progress
other IL-6 SNPs (1510 G/C, 6021 C/T, 3437 C/G, 4638 G/C, 2298 G/A, 4175 G/A, 2002 C/T)	Psaty, Tracy	substudy +ancillary	95	full	in progress
Insulin/IGF-1 signaling genes (I02, I18, IDL11, IDL18, IDL21, IDL22)	Reiner, Ziv	ancillary	99	full	yes
[see appendix 2]	Reiner, Tracy	ancillary	99	full	partial
[DNA to determine telomere restriction fragment length]	Fitzpatrick	ancillary	106, 156	partial	yes
IGF-I promoter variable CA repeats	Kaplan, Pollack	ancillary	109	full	no
IGFBP-3 promoter: 5 polymorphisms	Kaplan, Pollack	ancillary	109	full	no
GH1: 1 polymorphism	Kaplan, Pollack	ancillary	109	full	no
renin	Sotoodehnia, Tracy	ancillary	111	full	in progress
angiotensinogen (AGT)	Sotoodehnia, Tracy	ancillary	111	full	in progress
angiotensin converting enzyme (ACE)	Sotoodehnia, Tracy	ancillary	111	full	in progress
angiotensin converting enzyme 2 (ACE2)	Sotoodehnia, Tracy	ancillary	111	full	in progress
angiotensin-II type 1 receptor (AT1) *	Sotoodehnia, Tracy	ancillary	111	full	in progress
angiotensin-II type 2 receptor (AT2)	Sotoodehnia, Tracy	ancillary	111	full	in progress
aldosterone synthase	Sotoodehnia, Tracy	ancillary	111	full	in progress
Beta1-adrenergic receptor (B1AR)	Sotoodehnia, Tracy	ancillary	111	full	in progress
beta2-adrenergic receptor (B2AR) *	Sotoodehnia, Tracy	ancillary	111	full	in progress
beta3-adrenergic receptor (B3AR)	Sotoodehnia, Tracy	ancillary	111	full	in progress
alpha1-adrenergic receptor	Sotoodehnia, Tracy	ancillary	111	full	in progress
alpha2-adrenergic receptor (multiple subtypes)	Sotoodehnia, Tracy	ancillary	111	full	in progress
cardiac muscarinic receptors	Sotoodehnia, Tracy	ancillary	111	full	in progress

[update – see appendix 12, part A]	Sotoodehnia, Tracy	ancillary	111	full	not yet
[update – see appendix 12, part B]	Sotoodehnia, Siscovick	ancillary	111	partial	no
[see appendix 3]	Gorin, Kuller, Klein	ancillary	123	partial	partial
Hepatic Lipase Gene (LIPC polymorphisms: -250 G>A and –514 C>T)	Kuller, Miljkovic-Gacic	ancillary	134	partial	yes
Endothelial Lipase Gene	Kuller, Miljkovic-Gacic	ancillary	134	partial	no
additional multi-marker haplotype analysis of hepatic lipase and endothelial lipase genes	Kuller, Miljkovic-Gacic	ancillary	134	partial	no
[CHS to validate SNPs identified in discovery phase from whole genome analysis done elsewhere.]	Bare	ancillary	159	yes	yes
CYP11B2 (rs1799998 rs6471580 rs4544 rs7828967 rs7386154 rs4736360 rs3097 rs7844961 rs10108843 rs4736319 rs4379428 rs7831617 rs4736354 rs4736356 rs3802228 rs4545 rs7460125)	Daniel	ancillary	161	partial	yes
EPCR (protein C receptor) coding region variant 6936 A>G (Ser219Gly)	Kurosawa	ancillary	168	partial	yes
[see appendix 9]	Chakravarti, Post	ancillary	169	partial	yes
Approved ancillary studies that have not sent any genotype data to the CC (some are underway, others are awaiting start)					
["Genetic and Risk Factor Interrelationships and Low Risk of CVD", >15 genes proposed]	Newman, Kuller, Ferrell, Tracy	Ancillary	66	Partial	no
β_1-adrenoceptor	Smith, Rea, Psaty	Ancillary	76	Full	dropped
β_2-adrenoceptor	Smith, Rea, Psaty	Ancillary	76	Full	dropped
Angiotensin II receptor type 1	Smith, Rea, Psaty	Ancillary	76	Full	dropped
Angiotensin II receptor type 2	Smith, Rea, Psaty	Ancillary	76	Full	dropped
Angiotensinogen	Smith, Rea, Psaty	Ancillary	76	Full	dropped
angiotensin-converting enzyme (1 and 2)	Smith, Rea, Psaty	Ancillary	76	Full	dropped
aldosterone synthase	Smith, Rea, Psaty	Ancillary	76	Full	dropped
mineralocorticoid receptor	Smith, Rea, Psaty	Ancillary	76	Full	dropped
G-protein β_3 sub unit	Smith, Rea, Psaty	Ancillary	76	Full	dropped
adrenergic receptors: $\alpha_{2a,b, \text{ and } c}$	Smith, Rea, Psaty	Ancillary	76	Full	dropped
[updates – see appendix 14]	Smith, Psaty	Ancillary	76	Full	no
Neuropeptide Y	Blumenthal, Beamer, Walston, Fried	Ancillary	78	Full	no
myeloperoxidase (MPO)	Aviles, Hazen	Ancillary	88	Partial	no
thrombospondin (TSP)	Aviles, Hazen	Ancillary	88	Partial	no
integrin genes, from the I-domain of the beta-2 subunit	Aviles, Hazen	Ancillary	88	Partial	no
ferritin H gene	Torti	ancillary	100	partial	no
Cardiac sodium channel gene SCN5A	Sotoodehnia, Tracy	ancillary	120	African-Am	no
Ser1102Tyr variant	Sotoodehnia, Tracy	ancillary	120	African-Am	no
C-reactive protein gene	Jenny, Tracy	ancillary	128	partial	no

serum amyloid P gene	Jenny, Tracy	ancillary	128	partial	no
pentraxin 3	Jenny, Tracy	ancillary	128	partial	no
[see appendix 4]	Johnston, Longstreth	ancillary	131	partial	no
CYP3A5	Masica, Stein	ancillary	136	partial	no
[see appendix 5]	Pare, He, Tracy	ancillary	138	full	no
CYP2C8	Psaty, Heckbert, Tracy	ancillary	141	partial	no
UGT1A1	Psaty, Heckbert, Tracy	ancillary	141	partial	no
UGT1A3	Psaty, Heckbert, Tracy	ancillary	141	partial	no
[see appendix 6]	Johnston, Psaty, Longstreth	ancillary	143	partial	no
Protein tyrosine phosphatase 1B (PTP1B)	Bowden, Burke	ancillary	144	partial	no
[see appendix 15] [validation genes to be assayed in an outside study]	Psaty, Heckbert, et al	ancillary	158	partial	no
[see appendix 8]	Walston	ancillary	167	full	no
5-Lipoxygenase (aka 5-LO) [see appendix 7 for SNP list]	Allayee	ancillary	172	full	no
candidate genes functionally-related to EPHX2 [see appendix 10]	Fornage	ancillary	180	full	no
SIRT 1-7, PBEF1, NMNAT1, NCOR1, NCOR2/SMRT, PPARγ, RXRα, PGC-1α, HNF4α, □□PEPCK, G6Pase, LPK, GCK, ATP-synthetase, cytochrome-c, GDH, ANT1 and IDE	Tranah	ancillary	181	full	no
[whole genome analysis – see appendix 11]	Psaty	ancillary	187	partial	in progress
6 common variants on chromosome 9p21	Psaty	ancillary	187	partial	in progress
APOE, PPARg, CRP [see appendix 13 for list of SNPs]	Chakravarti	ancillary	190	full	in progress
[All mitochondrial encoded genes]	Arking	ancillary	193	full	in progress
[admixture mapping study in African Americans: ~1500 ancestry informative markers]	Ziv, Pawlikowska	ancillary	194	partial	no
[a particular locus on chromosome 11]	Ziv, Pawlikowska	ancillary	194	partial	no
Interleukin-1: alpha (IL1A), beta (IL1B), and receptor antagonist (IL1RN) [will coordinate with Reiner, AS #87]	Benke	ancillary	195	partial	no
[whole genome; Illumina platform. Modified 2008: will use Psaty WGA data supplemented with LITE participants who were excluded from Psaty study.]	Folsom	Ancillary	198	partial	no
[see appendix 16]	Fornage	ancillary	205	full	no
[CARE pilot study; see appendix 17]	Tracy	Ancillary	206	full	in progress
[The study will examine genetic variants identified as potentially causally associated with complex diseases in GWA and other genetic studies. The SNPs will be identified during the course of the study. Once the SNPs are identified, this information will be shared with CHS investigators.]	Jenny	Ancillary	213	full	no

* note: partial genotyping already done in AS #53, Heckbert PI

Appendices

Appendix 1

AS #87 (TGEN), Reiner

i) from original proposal:

Table: Proposed Candidate Genes	Gene	Size (kb)	Location on PGA List[1]	Variants associated with intermed □type* or with athero-thrombotic disease‡	Genotype or intermed □type assoc. w/ subclin. athero.
Coagulation					
1. □-fibrinogen	FGA	10	A	TaqI*, T312A‡	+
2. □-fibrinogen	FGB	10	A	-455G/A*‡, -854*, 3' BclI*	+
3. □-fibrinogen	FGG	10	A		+
4. Factor II (prothrombin)	F2	27	A	G20210A*‡	
5. Factor VII	F7	13	A	R353Q*‡, -323I/D*‡, -401*	-
6. Factor IX	F9	34	B		
7. Factor X	F10	27	A		
8. Factor XI	F11	25	B		
9. Factor III (Tissue factor)	F3	12	C	5' 1208*‡	+
10. Factor XIIIA (?)	F13A	176	A	V34L*‡, Y204F*, P564L*	+
11. Anithrombin III	SERPIN C1	15	A		
Fibrinolysis					
12. TAFI	TAFI		C		
13. PAI-1	SERPIN E1	12	A	4G/5G*‡ , HindIII*	+
14. Tissue plasminogen activator	PLAT	32	C	intron h I/D	
15. Protein C	PROC	14	A	-1654*‡ -1641*‡	-
16. Protein S	PROS1	8	C		
17. Plasminogen	THBD	4	D	A455V‡, A25T‡	+
Platelet Receptors					
18. GP Ib□	GP1BA	6	A	-5T/C*, T145M‡, VNTR‡	
19. GP IIb	ITGA2B	17	C	I843S*‡	
20. GP IIIa	ITGB3	58	C	L33P*‡	+
21. GPV			D		
22. PAR-1	F2R	20	A	-506D/I‡	+
23. PAR-2	F2RL1	15	A		
24. PAR-4	F2RL3	12	A		
Inflammatory Mediators and MMPs					
25. □L-1□	ILIB	8	C	-31C/T	
26. IL-6	IL6	8	A	-174G/C and others in 5'UTR	+
27. TNF	TNF	2	A	-308G/A, -238G/A, & others	+
28. IFN-□□	IFNG	8	A	Intron 1 CA repeat	
29. TGF-□	TGFB1	23	C	-509C/T, codon 10, codon 25	
30. CRP					
31. MMP-3	MMP3	12	A	5A/6A	
32. MMP-1	MMP1		D		

[1]Code for PGA list: A = Completed; B = In progress; C = Other targets; D = not on PGA list.

B) Added Jan2005: MMP-1 (interstitial collagenase) and MMP-3 (stromelysin-1)

ii) approved by NHLBI 10/07

Plans "to perform additional follow-up genotyping of interesting candidate genes or genomic regions identified through the course of the study" on full consenting cohort.

"A list of candidate thrombosis genes derived from our current ancillary study or through the NHLBI CARE study [follows]. We will continue to refine this list as we finalize the grant proposal."

Table: Proposed Candidate Genes

Gene name	# tags	Gene description
CPB2	35	carboxypeptidase B2 (plasma)
EPHX1	17	epoxide hydrolase 1, microsomal (xenobiotic)
EPHX2	41	epoxide hydrolase 2, cytoplasmic
F10	19	coagulation factor X
F11	18	coagulation factor XI (plasma thromboplastin antecedent)
F11R	10	F11 receptor
F12	1	coagulation factor XII (Hageman factor)
F13A1	228	coagulation factor XIII, A1 polypeptide
F13B	12	coagulation factor XIII, B polypeptide
F2	6	coagulation factor II (thrombin)
F2R	14	coagulation factor II (thrombin) receptor
F2RL1	10	coagulation factor II (thrombin) receptor-like 1
F2RL2	16	coagulation factor II (thrombin) receptor-like 2
F2RL3	5	coagulation factor II (thrombin) receptor-like 3
F3	4	coagulation factor III (thromboplastin, tissue factor)
F5	81	coagulation factor V (proaccelerin, labile factor)
F7	7	coagulation factor VII (serum prothrombin conversion accelerator)
F8	17	coagulation factor VIII, procoagulant component (hemophilia A)
F9	18	coagulation factor IX (plasma thromboplastic component, Christmas disease, hemophilia B)
FGA	7	fibrinogen alpha chain
FGB	4	fibrinogen beta chain
FGF2	37	fibroblast growth factor 2 (basic)
FGF8	NA	fibroblast growth factor 8 (androgen-induced)
FGG	3	fibrinogen gamma chain
FGL1	65	fibrinogen-like 1
GGCX	7	gamma-glutamyl carboxylase
GP1BA	4	glycoprotein Ib (platelet), alpha polypeptide
GP1BB	NA	glycoprotein Ib (platelet), beta polypeptide
GP5	2	glycoprotein V (platelet)
GP6	33	glycoprotein VI (platelet)
ICAM1	11	intercellular adhesion molecule 1 (CD54), human rhinovirus receptor
ICAM2	5	intercellular adhesion molecule 2
ICAM3	6	intercellular adhesion molecule 3
ICAM4	11	intercellular adhesion molecule 4 (Landsteiner-Wiener blood group)
ITGA1	228	integrin, alpha 1
ITGA2	113	integrin, alpha 2 (CD49B, alpha 2 subunit of VLA-2 receptor)
ITGA2B	2	integrin, alpha 2b (platelet glycoprotein IIb of IIb/IIIa complex, antigen CD41)
ITGA4	39	integrin, alpha 4 (antigen CD49D, alpha 4 subunit of VLA-4 receptor)
ITGA6	60	integrin, alpha 6
ITGAL	22	integrin, alpha L (antigen CD11A (p180), lymphocyte function-associated antigen 1; alpha polypeptide)
ITGAM	15	integrin, alpha M (complement component 3 receptor 3 subunit)
ITGAV	22	integrin, alpha V (vitronectin receptor, alpha polypeptide, antigen CD51)

ITGB1	17	integrin, beta 1 (fibronectin receptor, beta polypeptide, antigen CD29 includes MDF2, MSK12)
ITGB2	34	integrin, beta 2 (complement component 3 receptor 3 and 4 subunit)
ITGB3	25	integrin, beta 3 (platelet glycoprotein IIIa, antigen CD61)
ITGB4	14	integrin, beta 4
ITGB5	106	integrin, beta 5
ITGB6	18	integrin, beta 6
ITGB7	8	integrin, beta 7
ITGB8	70	integrin, beta 8
ITGBL1	273	integrin, beta-like 1 (with EGF-like repeat domains)
KLF2	3	Kruppel-like factor 2 (lung)
MGP	3	matrix Gla protein
MMP1	17	matrix metallopeptidase 1 (interstitial collagenase)
MMP10	11	matrix metallopeptidase 10 (stromelysin 2)
MMP11	5	matrix metallopeptidase 11 (stromelysin 3)
MMP12	8	matrix metallopeptidase 12 (macrophage elastase)
MMP13	8	matrix metallopeptidase 13 (collagenase 3)
MMP14	12	matrix metallopeptidase 14 (membrane-inserted)
MMP15	9	matrix metallopeptidase 15 (membrane-inserted)
MMP16	131	matrix metallopeptidase 16 (membrane-inserted)
MMP17	12	matrix metallopeptidase 17 (membrane-inserted)
MMP19	4	matrix metallopeptidase 19
MMP2	29	matrix metallopeptidase 2 (gelatinase A, 72kDa gelatinase, 72kDa type IV collagenase)
MMP20	37	matrix metallopeptidase 20 (enamelysin)
MMP23B	NA	matrix metallopeptidase 23B
MMP24	15	matrix metallopeptidase 24 (membrane-inserted)
MMP25	6	matrix metallopeptidase 25
MMP26	9	matrix metallopeptidase 26
MMP27	17	matrix metallopeptidase 27
MMP28	4	matrix metallopeptidase 28
MMP3	7	matrix metallopeptidase 3 (stromelysin 1, progelatinase)
MMP7	11	matrix metallopeptidase 7 (matrilysin, uterine)
MMP8	11	matrix metallopeptidase 8 (neutrophil collagenase)
MMP9	13	matrix metallopeptidase 9 (gelatinase B, 92kDa gelatinase, 92kDa type IV collagenase)
PCSK1	28	proprotein convertase subtilisin/kexin type 1
PCSK4	3	proprotein convertase subtilisin/kexin type 4
PCSK5	277	proprotein convertase subtilisin/kexin type 5
PCSK6	277	proprotein convertase subtilisin/kexin type 6
PCSK9	23	proprotein convertase subtilisin/kexin type 9
PF4	8	platelet factor 4 (chemokine (C-X-C motif) ligand 4)
PF4V1	2	platelet factor 4 variant 1
PLAT	13	plasminogen activator, tissue
PLAU	7	plasminogen activator, urokinase
PLAUR	18	plasminogen activator, urokinase receptor
PPARA	35	peroxisome proliferator-activated receptor alpha
PROC	7	protein C (inactivator of coagulation factors Va and VIIIa)
PROCR	4	protein C receptor, endothelial (EPCR)
PROK1	10	prokineticin 1
PROK2	8	prokineticin 2

PROP1	3	prophet of Pit1, paired-like homeodomain transcription factor
PROS1	12	protein S (alpha)
PROZ	7	protein Z, vitamin K-dependent plasma glycoprotein
SELE	21	selectin E (endothelial adhesion molecule 1)
SELL	40	selectin L (lymphocyte adhesion molecule 1)
SELP	51	selectin P (granule membrane protein 140kDa, antigen CD62)
SELPLG	4	selectin P ligand
SEMA3C	80	sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (semaphorin) 3C
SERPINA1	22	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 1
SERPINA10	12	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 10
SERPINA2	17	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 2
SERPINA3	14	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 3
SERPINA4	17	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 4
SERPINA5	21	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 5
SERPINA6	19	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 6
SERPINB2	13	serpin peptidase inhibitor, clade B (ovalbumin), member 2
SERPINC1	6	serpin peptidase inhibitor, clade C (antithrombin), member 1
SERPIND1	8	serpin peptidase inhibitor, clade D (heparin cofactor), member 1
SERPINE1	6	serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1
SERPINF2	6	serpin peptidase inhibitor, clade F (alpha-2 antiplasmin, pigment epithelium derived factor), member 2
SERPING1	5	serpin peptidase inhibitor, clade G (C1 inhibitor), member 1, (angioedema, hereditary)
TBXA2R	3	thromboxane A2 receptor
TBXAS1	154	thromboxane A synthase 1 (platelet, cytochrome P450, family 5, subfamily A)
VKORC1	4	vitamin K epoxide reductase complex, subunit 1

Appendix 2

AS #99 (Longevity), Reiner

i) from original proposal:

Table 2. Candidate Genes of Primary Interest*

Gene	*Size (kb)*	***European Descent***		***African Descent***	
		Common Haplotypes	*Minimal set of SNPs*	*Common Haplotypes*	*Minimal set of SNPs*
Fibrinogen	30	15	9	12	11
Factor VII	12	3	9	6	7
PAI-1	13	7	9	6	9
Prothrombin	20	6	5	11	8
Protein C	13		4		9

Vitronectin	5	2	1	7	3
IL-6	8	6	2	9	7
TNF-	5	4	1	5	3
IL-10	8	6	4	6	4
Interferon-	7	5	3	7	5

*"Common" denotes minor allele frequency ≥10%. Minimal set of SNPs denotes # required to genotype to capture all common variants at a threshold r^2 >0.64.

This study also plans to look at ancestry-informative markers (AIMs) in a subset of ppts.

ii) Jul05 (with co-PI Ziv): FOXO3A

iii) Apr06 (with co-PI Ziv): Klotho

iv) Approved July, 2008

Genotyping in ~1,200 white participants who are not part of the STAMPEED genome-wide association study.

rs2843160
rs7548659
rs12568821
rs443523
rs8559
rs7521399
rs743015
rs11811998
rs4660438
rs720413
rs7551844
rs4614300
rs632853
rs1276303
rs12030971
rs1460948
rs1414411
rs2809823
rs1330225
rs697387
rs1935993
rs1680662
rs3007711
rs6676680
rs12407446
rs1394320
rs761076
rs2236876
rs6678209
rs1930293
rs2419063
rs7521746
rs2784101
rs6687300
rs7520580
rs126280
rs1065674

rs1970168
rs6586395
rs4568821
rs953597
rs4642918
rs950675
rs6734693
rs754798
rs4832680
rs1489688
rs693
rs2593434
rs605832
rs564310
rs2699187
rs1476873
rs717827
rs1437747
rs1157474
rs1345941
rs7590342
rs6727258
rs1448927
rs6705555
rs1916870
rs7598757
rs2685159
rs1435887
rs4832194
rs1364394
rs6542847
rs921656
rs3132069
rs6749268
rs277554
rs6726563
rs6727787
rs6730157
rs7591709
rs2077724
rs10171287
rs1074750
rs1870102
rs1227131
rs3813817
rs7558428
rs6751855
rs3752657
rs13395560
rs921970

rs13032261
rs1715826
rs6431565
rs958960
rs904827
rs1473379
rs1722850
rs1392702
rs1506746
rs9310279
rs951357
rs13084044
rs6551458
rs708233
rs10460810
rs9870411
rs7637171
rs4854647
rs4535199
rs201739
rs4607068
rs2567325
rs924247
rs1488106
rs13072667
rs1468924
rs2268933
rs4859259
rs9876221
rs6788537
rs11248060
rs838958
rs879420
rs2014303
rs6449375
rs13132286
rs6448770
rs9884706
rs6824105
rs7685881
rs270238
rs1430530
rs6841252
rs1922286
rs4693421
rs1532358
rs1495552
rs9993173
rs1503222
rs4699356

rs1374530
rs12645879
rs4574434
rs7671488
rs1320244
rs2840131
rs1866179
rs1373557
rs1472328
rs10520475
rs13111484
rs4391081
rs10032784
rs1024487
rs1966983
rs1363926
rs726941
rs173686
rs1976566
rs32441
rs174015
rs1439564
rs1363448
rs691057
rs4960257
rs7763768
rs926402
rs12660883
rs2261033
rs592229
rs2446653
rs966082
rs4509106
rs1743789
rs9294882
rs3846766
rs284509
rs4610536
rs9353982
rs1361168
rs1546963
rs9400317
rs9400660
rs11755703
rs9389124
rs6926578
rs728589
rs6939639
rs1032143
rs2803353

rs2171209
rs783149
rs3798315
rs727619
rs13221445
rs6974647
rs1469000
rs724291
rs10255965
rs150881
rs42985
rs2374983
rs11761305
rs12706465
rs1121030
rs719319
rs1104881
rs2109302
rs1039621
rs2617014
rs1424724
rs4565458
rs4242426
rs1561817
rs1531746
rs1528719
rs6993747
rs8718
rs7827918
rs7834280
rs906996
rs11784678
rs959284
rs2974279
rs6990507
rs3133719
rs1870590
rs9297395
rs6996185
rs1880014
rs2124036
rs1991718
rs6471139
rs1375062
rs6476962
rs1446255
rs10756761
rs1433831
rs1758734
rs7038314

rs1334811
rs2094703
rs879857
rs10869579
rs943855
rs3211663
rs1435260
rs4743564
rs1507511
rs2149998
rs4259484
rs6477998
rs1012823
rs950104
rs1124602
rs7854386
rs1414126
rs1901633
rs4750005
rs1537626
rs17389728
rs1473737
rs1409737
rs7081156
rs7900067
rs1411189
rs727345
rs1200826
rs2503848
rs10825992
rs1904406
rs3858126
rs877783
rs499437
rs11189831
rs1857459
rs7097946
rs725926
rs1270505
rs10885355
rs639813
rs2901100
rs10886671
rs4751890
rs4131048
rs4980162
rs11146457
rs1395558
rs953871
rs1011340

rs1397050
rs1945465
rs1563619
rs537938
rs1671497
rs751082
rs9435
rs875295
rs1492888
rs952562
rs720367
rs1895103
rs1012315
rs6490700
rs4770401
rs7983897
rs1161123
rs2149973
rs1984282
rs9576338
rs737645
rs1323608
rs11841049
rs1889085
rs2297319
rs1925391
rs1410418
rs1928027
rs14067
rs726364
rs2038281
rs731700
rs41227
rs763507
rs727022
rs1740696
rs1951207
rs7143784
rs3922665
rs12906896
rs276855
rs933857
rs951265
rs1867197
rs1075840
rs724015
rs741720
rs750740
rs216219
rs907942

rs872387
rs759563
rs527283
rs7351012
rs291785
rs1668145
rs273747
rs1025882
rs953224
rs881433
rs952785
rs11152343
rs1014824
rs3899630
rs2015066
rs1715093
rs959419
rs759048
rs725660
rs4815707
rs6116466
rs6133219
rs1321936
rs1884783
rs6119879
rs1981431
rs477627
rs6021183
rs2041317
rs618897
rs354731
rs6061663
rs977712
rs1514414
rs1236425
rs2832146
rs915574
rs1012959
rs2836604
rs4818059
rs2839392
rs5748760
rs969539
rs2331295
rs132549
rs2235338
rs2071750

Appendix 3

AS #123, PI Gorin

A) proposed:

GENE	*LOCATION*
Phosducin (PDC) Laminins (LAMC1 and LAMC2) RP12 Proline arginine-rich end leucine-rich repeat protein (PRELP)	1q25-q31
Glutathione peroxidase (GPX3) Annexin A6 Interleukin 17B	5q32
Very low density lipoprotein receptor (VLDLR) Interferon Beta-1 (INFB1) Interferon Alpha gene cluster Annexin (ANX2P2)	9p24-q21
Apolipoprotein H(ApoH) Angiotensin I-converting enzyme (ACE) Intercellular adhesion molecule (ICAM2)	17q21-qter

B) done (data sent to CC 10/05):

Marker	Allele	Amino Acid
rs10490924	G T	Ser69Ala
ELOVL4EX6	G A	
rs1061170	T C	Tyr402His
rs1045216	G A	Ala320Thr

Appendix 4

AS #131, PI C Johnston

The genes will be selected based on a planned cohort study outside of CHS... We will be testing 50 polymorphisms that have been associated with atherosclerosis or cognitive (see tables below). We are proposing to confirm associations in CHS of polymorphisms that are associated with high cognitive function in the Kaiser cohort study. We estimate that 10 polymorphisms, selected from the list below, will be evaluated in CHS.

Gene	Polymorph
Paraoxonase 1 (PON1)	Q192R
	L55M
Paraoxonase 2 (PON2)	C311S

p22phox (CYBA)	C242T
Manganese superoxide dismutase (MnSOD)	A16V
Myeloperoxidase	G129A
Mitochondrial ND2	C5178A
Toll-like receptor (TLR)-4	N299G
	T399I
IL-1 receptor antagonist (Ra)	VNTR intr 2
IL-6	G174C
CD14	C260T
E-selectin	AnHphI
CC Chemokine Receptor (CCR) 2	V64I
ICAM-1	E469K
Tumor necrosis factor (TNF) alpha	A308G
Transforming growth factor (TGF) beta 1	T29C
Peroxisome proliferator-activated receptor (PPAR) alpha	L162V
	Intron 7C
Peroxisone proliferator-activated receptor (PPAR) gamma	C161T
Hepatic lipase	C514T
Lipoprotein lipase	N291S
	S447X

5,10-methylenetetrahydrofolate reductase (MTHFR)	C677T
Cholesteryl ester transfer protein (CETP)	VNTR 1946-bp
APOE	e4
LBP-1c	Tetra repeat
Choline acetyl-transferase (CAT)	G4A
Dopamine receptor D2	Taq I

Appendix 5

AS #138, PI Pare

We will attempt to replicate associations we have found (and will find) in the Lung Health Study (LHS)... Table 1 shows the genes we are studying in the LHS cohort and those in bold are genes we have done. ...we reason that there will be ~ 15 genes for which replication will be needed.

List of 40 candidate genes for COPD genetic study in the Lung Health Study cohort

Gene	Name	Location	Gene	N
Colony stimulating factor 1	CSF1	11p21-p13	**Interleukin 8 receptor α**	IL
Colony stimulating factor 1 receptor	CSF1R	5q33.2-q33.3	**Interleukin 8 receptor β**	IL
Colony stimulating factor 2	CSF2	5q31.1	**Interleukin 10**	IL
Colony stimulating factor 2 receptor α	CSF2RA	Xp22.32	**Interleukin 10 receptor α**	IL
Colony stimulating factor 2 receptor β	CSF2RB	22q12.2-q13.1	Interleukin 10 receptor β	IL
Colony stimulating factor 2 receptor β2	CSF2RB2	22q13.1	Matrix metalloproteinase 3	M
Colony stimulating factor 3	CSF3	17q11.2-q12	**MMP12**	M
Colony stimulating factor 3 receptor	CSF3R	1p35-p34.3	**MMP9**	M
Colony stimulating factor 3 receptor	CSF3R	1p35-p34.3	**Plasminogen**	Pl
Cytochrome P450, subfamily IVA, polypeptide 11	CYP4A11	Chr. 1	Platelet derived growth factor α	Pl
Decorin	DCN	12q13.2	Platelet derived growth factor β	Pl
Interferon γ	IFNG	12q14	Platelet derived growth factor receptor α	Pl
Interleukin 1 α	IL1A	2q14	Platelet derived growth factor receptor β	Pl
Interleukin 1β	IL1B	2q14	Serine proteinase inhibitor, clade A, member 5 (protein C inhibitor)	Sl
Interleukin 1 receptor antagonist	IL1RN	2q14.2	Serine proteinase inhibitor, clade E, member 1 (plasminogen activator inhibitor type I)	Sl
Interleukin 1 receptor, type 1	IL1R1	2q12	Surfactant, pulmonary-associated protein B	Sl
Interleukin 1 receptor, type 2	IL1R2	2q12-q22	**Tissue plasminogen activator**	Pl

Interleukin 3	IL3	5q31.1	**Transforming growth factor β1**	T
Interleukin 3 receptor α	IL3RA	Xp22.3	**Tumor necrosis factor**	T
Interleukin 8	IL8	4q12-q13	Vascular endothelial growth factor	V

Appendix 6

AS #143, PI C Johnston

We will be testing 30 polymorphisms that have been associated with atherosclerosis or cognitive function (see tables below).

Gene	Polymorph
Paraoxonase 1 (PON1)	Q192R
	L55M
Paraoxonase 2 (PON2)	C311S
p22phox (CYBA)	C242T
Manganese superoxide dismutase (MnSOD)	A16V
Myeloperoxidase	G129A
Mitochondrial ND2	C5178A
Toll-like receptor (TLR)-4	N299G
	T399I
IL-1 receptor antagonist (Ra)	VNTR intr 2
IL-6	G174C
CD14	C260T
E-selectin	AnHphI

CC Chemokine Receptor (CCR) 2	V64I
ICAM-1	E469K
Tumor necrosis factor (TNF) alpha	A308G
Transforming growth factor (TGF) beta 1	T29C
Peroxisome proliferator-activated receptor (PPAR) alpha	L162V
	Intron 7C
Peroxisone proliferator-activated receptor (PPAR) gamma	C161T
Hepatic lipase	C514T
Lipoprotein lipase	N291S
	S447X
5,10-methylenetetrahydrofolate reductase (MTHFR)	C677T
Cholesteryl ester transfer protein (CETP)	VNTR 1946-bp
	I405V
APOE	e4
LBP-1c	Tetra repeat
Choline acetyl-transferase (CAT)	G4A
Dopamine receptor D2	Taq I

Appendix 7

Allayee, AS #172

5-Lipoxygenase (aka 5-LO) gene:

Gene Symbol	cPLA1	ALOX5	FLAP	LTA4H	LTC4S	LTB4DH	LTB4H
LocusLink	18783	11689	11690	16993	17001	67103	64385
Source	HapMap	Re-sequence data*	HapMap	HapMap	dbSNP	HapMap	HapMap
SNP	rs6683363	Prom (G-1753A)	rs3803277	rs2660895	rs730012	rs2273786	rs2683034
	rs6685652	Prom (C-754G)	rs9508835	rs2072510	rs28365147	rs10817193	rs2072598
	rs7555326	5' UTR (C-59T)	rs4468448	rs6538697	rs730012	rs16916223	rs2683053
	rs2383556	Exon1 (C21T)	rs9579648	rs763876	rs28365147	rs4979007	
	rs6700651	Exon2 (C8215T)	rs4769055	rs2247570		rs2273787	
	rs7540602	Exon2 (G8366A)	rs4769873	rs10492226		rs1556027	
	rs12404877	Exon3 (A26902G)	rs3885907			rs3818295	
	rs10489406	Exon5 (G54869A)	rs10507391			rs1053968	
	rs11587539	Exon5 (G54873A)	rs4769058			rs1322258	
	rs12125857	Exon5 (C55096T)				rs7026971	
	rs1980444	Exon6 (G55986A)				rs2273788	
	rs10489409	Exon7 (A59503G)				rs10491726	
	rs10489410	Exon7 (C59736T)					
	rs12022299	Exon9 (A72177G)					
	rs6683416	Exon9 (C72204T)					
	rs6425056	Exon10 (G74156A)					
	rs7555140	Exon10 (T74166C)					
	rs2223307	Exon10 (C74225T)					
	rs2076075	Exon11 (C74557T)					
	rs3820185	Exon11 (C74614T)					
	rs932476	Exon13 (A75095G)					
	rs10752989	Exon14 (C76889A)					
	rs6696406	Exon14 (C76977A)					

*Note: These 5-LO SNPs were identified by our own re-sequencing.
The coordinates are given according to our own genomic sequence file,
which will be provided should this application be funded.

Appendix 8

Walston, AS #167

List of proteins that interact with 2 or more seed proteins

Yes	ADPRT	PARP ; ADP-RIBOSYLTRANSFERASE
yes	AGC1	CHONDROITIN SULFATE PROTEOGLYCAN CORE PROTEIN 1; CSPG1
Yes	BTRC	
Yes	CASP7	
Yes	CASP8	
yes	CCR2	CHEMOKINE, CC MOTIF, RECEPTOR 2;; MCP1 RECEPTOR
Yes	CEBPB	INHIBITOR OF KAPPA LIGHT CHAIN GENE ENHANCER IN B CELLS, KINASE OF, BETA; IKBKB
Yes	IKKBKB	
Yes	CHUK	CONSERVED HELIX-LOOP-HELIX UBIQUITOUS KINASE

Yes	CREBBP	CREB-BINDING PROTEIN
Yes	CSRP3	CYSTEINE- AND GLYCINE-RICH PROTEIN 3
Yes	DAP3	DEATH-ASSOCIATED PROTEIN 3
Yes	DAXX	DEATH-ASSOCIATED PROTEIN 6
Yes	DSIPI	DELTA SLEEP-INDUCING PEPTIDE
yes	EP300	E1A-BINDING PROTEIN, 300-KD
Yes	ETS1	V-ETS AVIAN ERYTHROBLASTOSIS VIRUS E26 ONCOGENE HOMOLOG 1; ETS1
Yes	FN1	FIBRONECTIN 1; FN1
		FN LARGE, EXTERNAL, TRANSFORMATION-SENSITIVE PROTEIN; LETS
		FNZ, INCLUDED
Yes	GADD45B	GROWTH ARREST- AND DNA DAMAGE-INDUCIBLE GENE GADD45, BETA; GADD45B, MYD118,
Yes	GPS2	G PROTEIN PATHWAY SUPPRESSOR 2; GPS2
yes	GSK3B	GLYCOGEN SYNTHASE KINASE 3-BETA; GSK3B
yes		
	HDAC3	HISTONE DEACETYLASE 1; HDAC1
		HD1
		REDUCED POTASSIUM DEPENDENCY 3, YEAST, HOMOLOG-LIKE 1; RPD3L1
		RPD3-LIKE 1
yes	HDAC3	HISTONE DEACETYLASE 3; HDAC3
yes	HIF1A	HYPOXIA-INDUCIBLE FACTOR 1, ALPHA SUBUNIT; HIF1A
		HIF1-ALPHA
		MEMBER OF PAS SUPERFAMILY 1; MOP1
Yes		HUNTINGTIN-INTERACTING PROTEIN 2; HIP2
		UBIQUITIN-CONJUGATING ENZYME E2-25K
	HIP2	
Yes	HIPK2	HOMEODOMAIN-INTERACTING PROTEIN KINASE 2; HIPK2
yes		HEPATOCYTE NUCLEAR FACTOR 4-ALPHA; HNF4A
		HNF4-ALPHA
		HEPATOCYTE NUCLEAR FACTOR 4; HNF4
	HNF4A	TRANSCRIPTION FACTOR 14, HEPATIC NUCLEAR FACTOR; TCF14
Yes		HEAT-SHOCK COGNATE PROTEIN, 71-KD; HSC71
		HSP73
		HSC70
		HEAT-SHOCK 70-KD PROTEIN 10, FORMERLY; HSPA10, FORMERLY
		LIPOPOLYSACCHARIDE-ASSOCIATED PROTEIN 1; LAP1
		LPS-ASSOCIATED PROTEIN 1
	HSPA8	
Yes		
	HSPCA	HEAT-SHOCK 90-KD PROTEIN 1, ALPHA; HSPCA
yes		ICSBP
	ICSBP1	INTERFERON REGULATORY FACTOR 8; IRF8
Yes		INHIBITOR OF KAPPA LIGHT CHAIN GENE ENHANCER IN B CELLS, KINASE OF, BETA; IKBKB, I NFKBIKB
		I-KAPPA-B KINASE-BETA
		IKK-BETA; IKKB
		I-KAPPA-B KINASE 2; IKK2
	IKBKB	

yes		IKK-GAMMA NF-KAPPA-B ESSENTIAL MODULATOR; NEMO
	IKBKG	FIP3
yes		
	IL1R2	INTERLEUKIN 1 RECEPTOR, TYPE II; IL1R2
yes		
	IL1R1	INTERLEUKIN 1 RECEPTOR, TYPE I; IL1R1
yes		
	IL2RG	INTERLEUKIN 2 RECEPTOR, GAMMA; IL2RG
yes		
	Jun	V-JUN AVIAN SARCOMA VIRUS 17 ONCOGENE HOMOLOG; JUN
yes		
	KPNB1	KARYOPHERIN BETA-1; KPNB1
Yes		MITOGEN-ACTIVATED PROTEIN KINASE KINASE 4; MAP2K4,
	MAPK	MITOGEN-ACTIVATED PROTEIN KINASE KINASE 4; MAP2K4
Yes	MAPK1	PROTEIN KINASE, MITOGEN-ACTIVATED, 1; PRKM1 PROTEIN KINASE, MITOGEN-ACTIVATED, 2; PRKM2 EXTRACELLULAR SIGNAL-REGULATED KINASE 2; ERK2 PROTEIN TYROSINE KINASE ERK2 p42MAPK
Yes	MAPK14	MITOGEN-ACTIVATED PROTEIN KINASE 14; MAPK14
Yes, one for brock	MEF2A	MADS BOX TRANSCRIPTION ENHANCER FACTOR 2, POLYPEPTIDE A; MEF2A
yes		
	MKNK2	MITOGEN-ACTIVATED PROTEIN KINASE-INTERACTING SERINE/THREONINE KINASE 2; MKNK
yes	MSN	
Yes		
	NCF1	NEUTROPHIL CYTOSOLIC FACTOR 1; NCF1
yes	NCOA1	NUCLEAR RECEPTOR COACTIVATOR 1; NCOA1, STEROID RECEPTOR COACTIVATOR 1; SRC
yes	NCOR1	NUCLEAR RECEPTOR COREPRESSOR 1; NCOR1
yes		
	NCOR2	NUCLEAR RECEPTOR COREPRESSOR 2; NCOR2
Yes		
	NDN	NECDIN; NDN
Yes		
	NFKB1	NUCLEAR FACTOR KAPPA-B, SUBUNIT 1; NFKB1
yes	NR0B2	NUCLEAR RECEPTOR SUBFAMILY 0, GROUP B, MEMBER 2; NR0B2
yes		
	NR1H2	NUCLEAR RECEPTOR SUBFAMILY 1, GROUP H, MEMBER 2; NR1H2
Yes		LIVER X RECEPTOR, ALPHA
	NR1H3	LX RECEPTOR, ALPHA; LXRA
Yes		
	NR4A2	NUCLEAR RECEPTOR SUBFAMILY 4, GROUP A, MEMBER 2; NR4A2

yes		ONE CUT DOMAIN, FAMILY MEMBER 1; ONECUT1, HEPATOCYTE NUCLEAR FACTOR 6-ALPHA
		HEPATOCYTE NUCLEAR FACTOR 6; HNF6
	ONECUT1	
yes		
	PCAF	p300/CBP-ASSOCIATED FACTOR; PCAF
yes		
	PCNA	PROLIFERATING CELL NUCLEAR ANTIGEN; PCNA
yes		PROGRAMMED CELL DEATH 6; PDCD6 PDCD6-INTERACTING PROTEIN
		ALG2-INTERACTING PROTEIN 1; AIP1
		ALG2-INTERACTING PROTEIN X; ALIX
		KIAA1375
	PDCD6	
yes		
	PFDN5	PREFOLDIN 5; PFDN5
yes	PIASY	PROTEIN INHIBITOR OF ACTIVATED STAT4; PIAS4
		PROTEIN INHIBITOR OF ACTIVATED STAT Y; PIASY
yes		
	PIK3R1	PHOSPHATIDYLINOSITOL 3-KINASE, REGULATORY, 1; PIK3R1
yes		
	PIN1	PEPTIDYL-PROLYL CIS/TRANS ISOMERASE, NIMA-INTERACTING, 1; PIN1
	PLAU	
	PLD2	
yes		
	PPARBP	PEROXISOME PROLIFERATOR-ACTIVATED RECEPTOR-BINDING PROTEIN; PPARBP
yes		
	PPARG	PEROXISOME PROLIFERATOR-ACTIVATED RECEPTOR-GAMMA; PPARG
yes		
	PPARGC1	PEROXISOME PROLIFERATOR-ACTIVATED RECEPTOR-GAMMA; PPARG
yes		
	RARA	RETINOIC ACID RECEPTOR, alpha; RARA
yes		
	RARB	RETINOIC ACID RECEPTOR, BETA; RARB
yes		
	RELA	V-REL AVIAN RETICULOENDOTHELIOSIS VIRAL ONCOGENE HOMOLOG A; RELA
yes		
	RIPK1	RECEPTOR-INTERACTING SERINE/THREONINE KINASE 1; RIPK1
yes	RXRA	RETINOID X RECEPTOR, ALPHA; RXRA
yes		
	SMARCA2	SWI/SNF-RELATED, MATRIX-ASSOCIATED, ACTIN-DEPENDENT REGULATOR OF CHROMATIN,
yes		
	SRF	SERUM RESPONSE FACTOR; SRF
Yes for all 3		
	STAT1, STAT2, STAT3	SIGNAL TRANSDUCER AND ACTIVATOR OF TRANSCRIPTION 1
yes	STAT6df	SIGNAL TRANSDUCER AND ACTIVATOR OF TRANSCRIPTION 6
Yes for all 4	SUMO1, SUMO2, SUMO3, SUMO4	SMALL UBIQUITIN-LIKE MODIFIER 1; SUMO1
yes	TAF1	TAF1 RNA POLYMERASE II, TATA BOX-BINDING PROTEIN-ASSOCIATED FACTOR, 250-KD; TAF
yes	TGFB1I1	TRANSFORMING GROWTH FACTOR, BETA-1-INDUCED 1; TGFB1I1
yes	TIAM1	T-CELL LYMPHOMA INVASION AND METASTASIS 1; TIAM1
yes	TIF1	TRANSCRIPTIONAL INTERMEDIARY FACTOR 1; TIF1

		TRANSCRIPTIONAL INTERMEDIARY FACTOR 1-ALPHA; TIF1A
		PTC6 CHIMERIC ONCOGENE, INCLUDED
yes		
		NUCLEAR RECEPTOR COACTIVATOR 2; NCOA2GLUCOCORTICOID RECEPTOR-INTERACTING
	TIF2	TRANSCRIPTIONAL INTERMEDIARY FACTOR 2; TIF2
yes	TIMP3	TISSUE INHIBITOR OF METALLOPROTEINASE 3; TIMP3
yes	TNFRSF1A	TUMOR NECROSIS FACTOR RECEPTOR SUPERFAMILY, MEMBER 1A; TNFRSF1A
		TUMOR NECROSIS FACTOR RECEPTOR 1; TNFR1
		TUMOR NECROSIS FACTOR-ALPHA RECEPTOR; TNFAR
		TNFR, 55-KD
		TNFR, 60-KD
yes	TNFRSF1B	TUMOR NECROSIS FACTOR RECEPTOR SUBFAMILY, MEMBER 1B; TNFRSF1B
yes	TNFSF13	TUMOR NECROSIS FACTOR LIGAND SUPERFAMILY, MEMBER 13; TNFSF13
yes		
	TP53	TUMOR PROTEIN p53; TP53P53;TRANSFORMATION-RELATED PROTEIN 53
yes		TUMOR PROTEIN p73; TP73
		p53-RELATED PROTEIN p73; p73
	TP73	
yes		TUMOR NECROSIS FACTOR RECEPTOR 1-ASSOCIATED DEATH DOMAIN PROTEIN; TRADD
	TRADD	
		TNFR1-ASSOCIATED DEATH DOMAIN PROTEIN
yes		
		TNF RECEPTOR-ASSOCIATED FACTOR 1; TRAF1
		EPSTEIN-BARR VIRUS-INDUCED mRNA 6; EBI6
	TRAF1	
yes		TNF RECEPTOR-ASSOCIATED FACTOR 2; TRAF2
		TNF RECEPTOR-ASSOCIATED PROTEIN; TRAP
	TRAF2	
yes	TRIP4	THYROID HORMONE RECEPTOR INTERACTOR 4; TRIP4
yes	TRRAP	TRANSFORMATION/TRANSCRIPTION DOMAIN-ASSOCIATED PROTEIN;
yes	UBE2I	UBIQUITIN-CONJUGATING ENZYME E2I; UBE2I
yes	VTN	VITRONECTIN; VTN
yes	YWHAE	
yes	YY1	TRANSCRIPTION FACTOR YY1; YY1
Yes x 6	GPX1-6	Glutathione peroxidase 1-6
Yes x 3	SOD1-3	Superoxide dismutase 1-3
Yes	CAT	catalase
Yes	MTHFR	methylenetetrahydrofolate reductase
yes	MTRR	methionine synthase reductase
yes	MTR	methionine synthase
yes	CBS	cystathione ƒÀ-synthase
yes		PHOSPHOLIPASE A2, SYNOVIAL; PLA2S; PLAS1
		PHOSPHOLIPASE A2 POLYPEPTIDE B; PLA2B
	PLA2G2A	MODIFIER OF MIN-1, MOUSE, HOMOLOG OF; MOM1
yes		IKK-GAMMA
		NF-KAPPA-B ESSENTIAL MODULATOR; NEMO
	NEMO	FIP3
yes		
	TAB2	MITOGEN-ACTIVATED PROTEIN KINASE KINASE KINASE 7-INTERACTING PROTEIN 2; MAP3K7
yes	TAK1	

yes		MITOGEN-ACTIVATED PROTEIN KINASE KINASE KINASE 7-INTERACTING PROTEIN 1;
	TAB1	MAP3K7IP1TAK1-BINDING PROTEIN 1; TAB1
yes	BCL-10	**BCL2-LIKE 10; BCL2L10**
yes	WNT	
yes	CATENIN, BETA-1	
yes		
	MYD88	MYELOID DIFFERENTIATION PRIMARY RESPONSE GENE 88; MYD88
yes		MUCOSA-ASSOCIATED LYMPHOID TISSUE LYMPHOMA TRANSLOCATION
		PARACASPASE
	MALT1	

Appendix 9

Chakravarti, Post , AS #169

A) list of proposed genotypes sent to CC with original proposal:

Genomic Predictors of Sudden Cardiac Death

1) SOX5 transcription factor expressed in chondrocytes and striated muscles
2) KCNK1 potassium channel
3) CAPON carboxy-terminal PDZ ligand of nNOS which regulates the distribution of nNOS
4) SCN1A sodium channel- associated with severe myoclonic epilepsy in infancy
5) CACNA2D1 calcium channel
6) ANK3 ankyrin 3, expressed on Node of Ranvier on neurons
7) EFHCI linked to myoclonic epilepsy, enhances calcium influx
8) FLT1 receptor for VEGF
9) PACSIN1 neurospecific phosphoprotein involved in synaptic vesicle recycling
10) Unknown gene on chromosome 5

We will include the SNP's that were present on the Affymetrix chips and additional SNP's identified through the HAPMAP database. SNPs will be selected to provide coverage for most of the major haplotypic variations in each gene; up to a total of 120 SNP's will be selected. As our results are somewhat preliminary at the time of this written proposal, we will send an update to the ancillary committee if we identify different genes/loci that appear to be more promising after haplotype analysis, further statistical analyses including adjustment for covariates, and replication/validation testing. If any of the SNP's identified in the German cohort are not present in African-American cohorts, we will chose alternative SNP's in the same gene/region from HAPMAP that are present in African-American populations.

B) updated list sent to CC March, 2006:

Assay ID	Gene
rs4732425-CACNA2D1	CACNA2D1
rs7341478-CACNA2D1	CACNA2D1
rs12537921-CACNA2D1	CACNA2D1
rs258717-CACNA2D1	CACNA2D1
rs10234372-CACNA2D1	CACNA2D1
rs885092-CAPON	CAPON
rs7539281-CAPON	CAPON
rs7532680-CAPON	CAPON
rs16856785-CAPON	CAPON
rs1415262-CAPON	CAPON
rs12068421-CAPON	CAPON
RS12567209-CAPN	CAPON

RS12026931-CAPN	CAPON
rs4657154-CAPON	CAPON
rs4656345-CAPON	CAPON
rs16847548-CAPON	CAPON
rs12124105-CAPON	CAPON
rs12022536-CAPON	CAPON
rs10918762-CAPON	CAPON
rs10494366-CAPON	CAPON
rs7540690-CAPON	CAPON
rs7514121-CAPON	CAPON
rs12026452-CAPON	CAPON
rs4657139-CAPON	CAPON
rs1572495-CAPON	CAPON
rs12567211-CAPON	**CAPON**
RS10510088-FGF2	FGFR2
RS11199729-FGF2	FGFR2
rs6585682-FGFR2	FGFR2
rs11199696-FGFR2	FGFR2
rs2282428-KCNK1	KCNK1
rs1559578-QTc_5.3	QTc_5.3

Appendix 10

Fornage , AS #180

Translational Studies in Susceptibility to Hypertension-Related Cerebrovascular Injury

We will genotype 10-15 SNPs in each of 30-50 candidate genes identified in an animal model of hypertensive cerebrovascular injury. This animal model is a congenic rat carrying modified alleles of the soluble epoxide hydrolase (EPHX2) gene. The genes to be investigated in this study are those functionally related to EPHX2, which will be identified in the congenic rat strains. For the purpose of this research, “functionally related” genes refers to those genes differentially expressed in reciprocal congenic rats (see proposal). We expect these genes to be those involved in eicosanoid production and metabolism and those involved in endothelial function and oxidative stress. In the unlikely event that a functionally related gene is a common candidate gene for CHD and/or stroke, we will check with the CHS DNA laboratory and CHS database before genotyping. This will avoid unnecessary duplication of work. A list of known functionally-related genes to EPHX2 is provided in Appendix. We expect that some of these genes will be identified in our animal model studies.

Appendix 11

Psaty , AS #187

Whole genome association (WGA) study to identify genetic variants associated with CV events in CHS

In Stage 1, WG scans of 300,000 SNPs will be conducted on a random sample of half of CHS participants. For each of the 3 major outcomes, MI, stroke and HF, 400 “interesting” genomic regions will be selected for further study. In Stage 2, genotyping of 7 to 10 SNPs per region for the 400 regions will be done in the second half of the CHS participants. The process of examining 7 to 10 SNPs in each of the 400 regions will be repeated for each of the three outcomes. Finally, a limited set of about 20 genes will be evaluated for replication [in other studies].

2008 update: the genome-wide association study is part of a consortium known as CHARGE.

Appendix 12

Sotoodehnia , AS #111

A) update sent to CC April, 2006

Appendix: Proposed Gene List

Autonomic Nervous System Genes

1. Alpha1A-Adrenergic Receptor (ADRA1A)
2. Alpha1B-Adrenergic Receptor (ADRA1B)
3. Alpha1D-Adrenergic Rec. (ADRA1D)
4. Alpha2A-Adrenergic Receptor (ADRA2A)
5. Alpha2B-Adrenergic Receptor (ADRA2B)
6. Alpha2C-Adrenergic Rec. (ADRA2C)
7. Beta1-Adrenergic Receptor (ADRB1)
8. Beta2-Adrenergic Receptor (ADRB2)
9. Beta3-Adrenergic Receptor (ADRB3)
10. Cholinergic Receptor, Musc. 2 (CHRM2)
11. G-protein, stim. act, polypept. 1 (GNAS)
12. G-protein, inhib act, polypept. 1 (GNAI1)
13. G-protein, inhib act, polypept. 2 (GNAI2)
14. G-protein, beta, polypeptide 3 (GNB3)
15. G-protein receptor kinase 4 (GRK4)
16. Beta-Adr. Receptor, kinase 1 (ADRBK1)
17. Beta-Adr. Receptor, kinase 2 (ADRBK2)
18. Adenylate cyclase 5 (ADCY5)
19. Norepinephrine transporter, solute carrier family 6 (SLC6A2)

Renin-Angiotensin System Genes

20. Angiotensin Converting Enzyme (ACE)
21. Angiotensin Conv Enzyme 2 (ACE2)
22. Angiotensinogen (AGT)
23. Angiotensin Receptor, Type 1 (AGTR1)
24. Angiotensin Receptor, Type 2 (AGTR2)
25. Renin (REN)
26. Aldosterone Synthase (CYP11B2)

Ion Channel Related Genes

27. Pot. chan, IKs subunit, MinK (KCNE1)
28. Pot. chan, IKs subunit, MiRP1 (KCNE2)
29. Pot. chan, IKr, hERG (KCNH2)
30. Pot. chan, KQT-like, memb 1 (KCNQ1)
31. Pot. inward rect chan, (KCNJ2)
32. Pot. inward rect chan, (KCNJ12)
33. Kv channel interacting prtn 2 (KCHIP2)
34. Pot. voltage gated channel, shaker-related subfamily, member 4 (KCNA4)
35. Pot. voltage gated channel, shaker-related subfamily, member 5 (KCNA5)
36. Pot. voltage gated channel, shaker-related subfamily, member 7 (KCNA7)
37. Pot. volt gated channel, shaker-related subfamily, beta member 1 (KCNAB1)

38. Pot. voltage gated channel, shaw-related subfamily, member 1 (KCNC1)
39. Pot. voltage gated channel, shaw-related subfamily, member 4 (KCNC4)
40. Pot. volt gtd chan, shal-rel, m2 (KCND2)
41. Pot. volt gtd chan, shal-rel, m3 (KCND3)
42. Pot. inw-rect chan, subf J, m3 (KCNJ3)
43. Pot. inw-rect chan, subf J, m5 (KCNJ5)
44. Pot inw-rect chan, subf J, m11 (KCNJ11)
45. Pot. channel, subfamily K, member 1 (KCNK1)
46. Pot. channel, subfamily K, member 3 (KCNK3)
47. Pot. channel, subfamily K, member 4 (KCNK4)
48. Pot. channel, subfamily K, member 6 (KCNK6)
49. Hyperpolarization activated cyclic nucleotide-gated potassium channel 2 (HCN2)
50. Hyperpolarization activated cyclic nucleotide-gated potassium channel 4 (HCN4)
51. Sodium channel, alpha (SCN5A)
52. Na/Ca exchanger, mem 1 (NCX1)
53. Calcium channel, L-type (CACNAIC)
54. Calcium channel, T-type (CACNAIH)
55. Ryanodine Receptor 2, cardiac (RYR2)
56. FK506 Binding Protein 1B, 12.6 kDa (FKBP1B)
57. Calsequestrin 2 (CASQ2)
58. Phospholamban (PLN)
59. ATPase, Ca transporting, slow twitch 2 (ATP2A2)
60. Gap Junction Protein, alpha 1, 43 kDa, connexin 43 (GJA1)
61. Gap Junction Protein, connexin 40 (GJA5)
62. Gap Junction Protein, connexin 45 (GJA7)
63. N-Cadherin (CDH2)

Fatty Acid Dietary Absorption

64. Fatty acid bndg prtn, intestine (FABP2)
65. Fatty acid transport protein 4 (SLC27A4)
66. Monoacylglycerol acyltransf 2 (MOGAT2)
67. Monoacylglycerol acyltransf 3 (MOGAT3)

Fatty Acid Release into Circulation and Uptake by Heart

68. Hormone-sensitive lipase (LIPE)
69. Lipoprotein lipase (LPC)
70. Fatty acid translocase (CD36)
71. Long-chain fatty acid transporters (SLC27A6 and SLC27A1)
72. Fatty acid binding protein (FABP3)

Acylation-reacylation of heart membranes

73. Lysophosphatidylglycerol acyltransferase (LPGAT1)
74. Calcium-independent phospholipase A2 γ (IPLA2GAMMA)
75. Cytosolic phospholpse A2 γ (PLA2G4C)

Fatty Acid Oxidation, Synthesis and Metabolic Regulation

76. Malonyl-CoA decarboxylase (MLYCD)
77. Acetyl-CoA carboxylase α (ACACA)
78. Acetyl-CoA carboxylase, another heart isoform (ACACB)
79. Carnitine palmitoyltransferases (CPT1B and CPTII)
80. Carnitine acylcarnitine translocase (SL25A20)
81. Acyl-CoA synthetase (ACSL4)

82. Fatty acid synthase (FASN)
83. Delta-9 desaturase (SCD and SCD4)
84. Delta-5 desaturase (FADS1)
85. Delta-6 desaturase (FADS2)
86. Long-chain fatty acyl elongase (ELOV6)
87. AMP-activated protein kinase, α2 subunit (PRKAA2)
88. AMP-activated protein kinase, γ3 subunit (PRKAG3)
89. AMP-activated protein kinase, ß1 subunit (PRKAB1)
90. AMP-activated protein kinase, γ1 subunit (PRKAG1)
91. AMP-activated protein kinase, ß2 subunit (PRKAB2)
92. PPARγ, co-activator 1α (PPARGC1A)
93. PPARα (PPARA)
94. PPARδ (PPARD)
95. Sterol regulatory element binding protein 1 (SREBF1)
96. SREBP cleavage activating protein (SCAP)

Eicosanoid metabolism

97. Phospholipase A2, cPLA2α (PLA2G4A)
98. Phospholipase A2, cPLA2ß (PLA2G4B)
99. Phospholipase A2, sPLA2, IIA (PLA2G2A)
100. Phospholipase A2, lipoprotein associated (PLA2G7)
101. COX1 (PTGS1)
102. COX2 (PTGS2)
103. Thromboxane A synthase (TBXAS1)
104. Prostaglandin D synthase (PGDS)
105. Prostaglandin E synthase (PTGES)
106. Prostaglandin E receptor 4 (PTGER4)
107. Prostacyclin synthase (PTGIS)
108. Arachidonate 5-lipoxygenase (ALOX5)
109. Arachidonate 12-lipoxygenase (ALOX12)
110. Arachidonate 5-lipoxygenase activating protein (ALOX5AP)
111. Arachidonate 15-lipoxygenase (ALOX15)
112. Arachidonic acid epoxygenase (CYP2J2)

B) Modification sent to CC May, 2007 (Sotoodehnia, Siscovick)

Study will conduct a whole genome scan of 1 million SNPs on the CHS African American population – looking for candidates for genetic associations with sudden cardiac arrest.

Appendix 13

Chakravarti , AS #190

Selected SNPs for Each Gene to Cover Rest at $r^2 > 0.8$

rsnum	gene	chr	chr pos	avg het	orig build	upd build
rs2808630	CRP	1	156493941	0.33	100	123

rs876537	CRP	1	156488006	0.48	86	123
rs1417938	CRP	1	156497259	0.33	88	121
rs1205	CRP	1	156495306	0.46	36	116
rs3093077	CRP	1	156492709	0.35	103	103
rs1800947	CRP	1	156496511	0.08	89	123
rs876538	CRP	1	156488790	0.21	86	123
rs3093058	CRP	1	156498388	0.21	103	103
rs2972164	PPARG	3	12309416	0.49	101	121
rs7620165	PPARG	3	12319441	.	116	116
rs17793693	PPARG	3	12320971	0.08	123	123
rs17036314	PPARG	3	12351745	0.43	123	123
rs4684847	PPARG	3	12361337	.	111	111
rs12629751	PPARG	3	12374407	.	120	120
rs2120825	PPARG	3	12388339	.	96	120
rs4135263	PPARG	3	12398266	0.18	108	123
rs2938392	PPARG	3	12409608	0.49	101	123
rs2959273	PPARG	3	12417731	0.43	101	125
rs4135275	PPARG	3	12418844	0.29	108	123
rs7645903	PPARG	3	12438826	.	116	116
rs1797912	PPARG	3	12445239	0.48	89	123
rs7626560	PPARG	3	12450088	.	116	116
rs3856806	PPARG	3	12450557	0.24	108	123
rs405509	APOE*	19	50100676	0.50	80	121
rs429358	APOE	19	50103781	0.02	80	123
rs440446	APOE	19	50101007	0.46	80	121
rs449647	APOE	19	50100404	.	80	111
rs7412	APOE	19	50103919	0.18	52	120

* There are no HapMap genotypes for SNPs in the APOE gene.
Those chosen are based on functional polymorphisms and coding SNPs

---

Appendix 14

NL Smith, AS #76

Modification approved May, 2008

Replicate high-signal markers identified in the CHARGE Consortium. We plan to genotype ~1,200 participants using Illumina® bead array technology and will include up to 768 SNPs. The sample of ~1200 subjects will include those excluded from the genome-wide study because of baseline cardiovascular disease.

Markers that are replicated in CHS and other replication cohorts will be investigated further in the full cohort.

Appendix 15

Psaty, AS #158

Epidemiology of CV events and drug-gene interactions using case-only design

From original proposal: "The genes to be investigated will be determined by the findings from a genome-wide case-control study, so they are not known. We anticipate evaluating 8 to 10 SNPs per gene in about 10 to 12 genes--about 100 SNPs in each."

July 2007 modification: gene list approved:

Gene	Total Tags + NS	Non-Syn Only	1=EA+AA, 2=EA only, 3=NSonly	**selected snps = 1536**	Alex SNPs Dropped	SNPs Kept	SNPs Added	Total SNPs in Panel
ABCB1	48		2	17		17		17
ABO	0		1	14		11	2	13
ACE	16		1	16		16		16
ACE2	18		1	18		13		13
ADAIM			3	21		0		0
ADD1	11		1	11		11		11
ADRA1B	14		1	14		15		15
ADRA1D	22		1	22		18		18
ADRA2A		4	3	7		4		4
ADRA2B		2	3	2		0		0
ADRA2C		5	3	5		4		4
ADRB1	14		1	14		9		9
ADRB2	7		1	7		6	1	7
AGT	15		1	15		11	2	13
AGTR1	38		1	38		33	2	35
AGTR2	6		1	6		5		5
ALOX12	13		1	13		13		13
ALOX15	21		1	21		17		17
ALOX5		4	3	4		2	29	31
ALOX5AP	36		1	36		32		32
ATP1A1		5	3	5		0		0
ATP1B1		2	3	2		0		0
BDKRB2	16		1	16		16		16
CACNA1C		4	3	4		0		0
CASR		4	3	4		2		2
CETP	35		2	16		13		13
CLCNKB	24		1	24		13		13
CPB2	24		1	24	18	3		3
CRP	7		1	11		11		11
CYP11B1		10	3	10		1		1
CYP11B2		7	3	7		2		2
CYP27B1	5		1	5		5		5
CYP2C8	12		1	12		10		10

CYP2C9	9		1	9		9		9
CYP2J2	11		1	11		10	4	14
EA-admixture			3	68		0		0
ESR1	41		1	41		34		34
ESR2	25		1	25		21		21
F10	28		1	28	15	7	5	12
F11	25		2	11	5	5	1	6
F12	6		2	2		2		2
F13A1	60		1	14	6	7		7
F13B	10		1	10	8	3		3
F2	14		1	14	11	3		3
F2R	14		1	14	11	3		3
F2RL1	12		2	6	3	1		1
F2RL2	14		2	6	3	3		3
F2RL3	12		1	12	2	3		3
F3	16		2	5	5	0		0
F5	41		2	16	14	8		8
F7	13		2	6	5	1		1
F8	10		1	10	2	8	1	9
F9	25		1	25	20	1		1
FGA	7		2	5		5		5
FGB	7		2	5		5		5
FGG	6		2	4		4		4
GNAS	29		1	29		27		27
GNB3	16		1	16		10		10
GRK4	34		1	34		27	2	29
HMGCR	9		1	9		8		8
IL10	7		1	7	4	2	1	3
IL18	11		1	11	4	5	1	6
IL1B	15		1	15		12	1	13
IL6	11		1	11		12		12
IL8	5		1	5	2	3		3
KCNJ1		1	3	1		0		0
KCNMB1		2	3	2		1		1
KNG	26		1	26		23		23
LDLR	31		1	31		29		29
LINAT-pilot			3	14		0		0
LIPC	79		2	35		32		32
LPL			1	37		37		37
LTA	10		2	8		5		5
LTB	2		2	2		1		1
MIF		2	3	2		0		0
MMP3	9		1	9	6	1		1
MMP9	14		2	6	4	0		0
NOS3	31		1	31	15	10	1	11
PGIS	9		1	9		8		8
PLAT	29		1	29	19	6		6
PLG	34		2	13	5	7		7

PPARA	30		2	9	4	3	5	8
PPARD	15		1	15		13		13
PPARG	32		2	16	12	4		4
PROC	14		1	14		11		11
PROCR	5		1	5		6	2	8
PROS1	9		1	9		9		9
PTGS1	22		1	22		18		18
PTGS2	17		2	8	6	1		1
REN	24		1	24		22		22
SCN5A	30		1	30		25		25
SCNN1A		5	3	5		3		3
SCNN1B		6	3	6		2		2
SCNN1G		2	3	2		2		2
SERPINC1	13		1	13	8	2		2
SERPINE1	9		2	5	5	0		0
SLC12A1	19		1	19		15		15
SLC12A3	27		1	27		20		20
SLC9A3		2	3	2		1		1
Specific Variants		47	3	47		0		0
TFPI	23		2	6	5	1		1
THBD	6		1	6	5	2		2
TLR4	20		1	20	5	14		14
TNF	3		1	3		2		2
UGT1A1	15		2	9		9		9
UGT1A3	7		2	6		4		4
VDR	18		1	19		17		17
VKORC1	8		1	9		7		7
Specific Variants								
ADRA1A							1	1
ADRB3							1	1
AVPR2							2	2
GAS6							1	1
GPR10							1	1
HSD11B2							1	1
MTHFR							1	1
ITGA2					1	0	0	0
EDG1							6	6
New Genes								
ADRA2B							4	4
CASP3							12	12
CASP8							28	28
CASP9							12	12
CYP1A2							4	4
CYP2B6							1	1
CYP2C19							3	3

CYP3A5				10	10
CYP4A11				11	11
EMILIN1				5	5
GJA5				23	23
IGF1				20	20
IL1RB				24	24
IL1RN				2	2
IL6R				8	8
ITGB3				21	21
KCNA5				15	15
KCNE1				19	19
KCNE2				4	4
KCNJ2				8	8
KCNQ1				42	42
NOGENE				2	2
OLR1				10	10
P2RY12				29	29
PCSK9				25	25
PGDS				11	11
PTGES				16	16
SELE				7	7
SELP				10	10
SMAD2				19	19
SMAD4				9	9
STAT3				6	6
TBXA2R				16	16
TBXAS1				23	23
TCF7L2				2	2
TGFB1				15	15
TGFBR1				5	5
TGFBR2				12	12
THBS1				6	6
TNFRSF1A				3	3
TNFRSF1B				21	21
VCAM1				4	4
Total		238	935	601	1536

Appendix 16

Fornage , AS #205

Genes and SNPs are unknown at this time as this study proposes to identify genes influencing clinical and subclinical ischemic brain vascular disease through a genome-wide scan in ARIC and replicating the effects in the CHS participants.
When possible will use genotype data available in CHS from other large-scale initiatives (CARE, STAMPEED). If pre-collected genotype data is not available in the genes/regions of interest, we will request stored DNA.

Appendix 17

Tracy, AS #206
Candidate Gene Association Resource (CARE), Phase I pilot project.
Candidate SNPs to be Tested in CARE Pilot Study

Gene	Polymorphism
Peroxisome-proliferator activated receptor gamma	Pro12Ala
Apolipoprotein E	Cys/Arg112 & Cys/Arg158
Lipoprotein Lipase	S447X
Cholesteryl ester transfer protein	C-1337T; G-971A; C-629A; Taq1B
Hepatic Lipase	C-480T; C-514T
Apolipoprotein A5	S19W; Q139X(rare)
Proprotein convertase subtilisin/kexin type 9 (PCSK9)	R46L; L253F; A443T; E670G
ATP-sensitive potassium channel KCNJ11	E23K
Transcription factor 7-like 2	rs12255372 and rs7903146
Beta 2 Adrenergic Receptor	Arg16Gly; Gln27Glu
Glucocorticoid receptor	N363S
Insulin induced gene 2 (INSIG2)	rs7566605
C-reactive protein	rs3091244
Tumor necrosis factor (TNF) alpha	G-308A
Melanocortin-4 receptor	V103I
Angiotensinogen	M235T; T174M
Peroxisome proliferator-activated receptor-gamma co-activator-1alpha (PPARGC1A)	Gly482Ser
HNF1 alpha	A98V (rare)
Insulin	I/D promoter polymorphism
Beta 3 adrenergic receptor 3	Trp64Arg
Factor VII	G10976A
Plasminogen activator inhibitor-1 (PAI-1)	-675 4G/5G
Ectonucleotide pyrophosphatase/phosphodiesterase 1 (ENPP1)	K121Q
Angiotensin II receptor Type 1	A1166C
ACE	T-3892C (proxy for I/D)
Methylenetetrahydrofolate reductase	C677T