

Supplementary material

Gene	Chromosome	Early-onset	Late-onset
Amyloid precursor protein	21	Ages 40-60	No
Presenilin I	14	Ages 30-50	No
Presenilin II	1	Ages 30-65	Rare
Apolipoprotein-E	19	Rare	Ages 60-75

Table 1: Genes Related to Alzheimer's disease [65].

S.no.	Protein name	Gen Id	Gene name
1	Calsenilin	604662	CSEN
2	HIV-1rev-bindingprotein	600862	HRB
3	HIV-1tat stimulatory factor1	300346	HTATSF1
4	HIV type1 expression1	143055	HIVE1
5	presenilin-associated rhomboid-like protein	607858	PSARL
6	ribosomal protein l3	604163	RPL3
7	tar rna-binding protein 1	605052	TARBP1
8	amyloid beta a4 precursor protein-binding, family b, member 2	602710	APBB2
9	amyloid beta a4 precursor protein-binding, family b, member 1	602709	APBB1
10	amyloid beta a4 precursor-like protein 2; aplp2"	104776	APLP2
11	amyloid beta precursor protein-binding protein 2	605324	APPBP2
12	chemokine, cc motif, ligand	187011	CCL5
13	fe65-like 2	602711	APBB3
14	HIV-1 tat-interacting protein 30-kd	605628	HTATIP2
15	HIV-1tat-interacting protein	601409	HTATIP
16	presenilin 1	104311	PSEN1
17	presenilin 2	600759	PSEN2
18	LOC442267, similar to T-complex protein 1, eta subunit (TCP-1-eta) (CCT-eta) (HIV-1 Nef interacting protein)	442267	LOC442267
19	HIV-1 rev binding protein 2	11103	HRB2
20	HIV-1 induced protein HIN-1, KIAA1046	54726	HSHIN1
21	LOC145414 similar to ribosomal protein L3; 60S ribosomal protein L3; HIV-1 TAR RNA-binding protein B	30583118	LOC145414

Table 2: Dementia associated genes in NCBI, OMIM.

Name	Additional description/function	Chromosome	Location	Distance (bp)
APBA1	9q13-q21.1 amyloid beta (A4) precursor protein-binding, family A, member 1 (X11)	9	9q13-q21.2	69.27M - 69.53M
APPL1	amyloid beta (A4) precursor protein-like 1		9q31-qter	57.24M-57.28M
APBB1IP	amyloid beta (A4) precursor protein-binding, family B, member 1 interacting protein	10	10p12.1	26.76M-26.89M
LOC387643	similar to amyloid beta (A4) precursor protein-binding, family B, member 1 interacting protein; proline-rich protein 73; Rap1-interacting adaptor molecule		10p12.1	26.91M-26.98M
C10ORF51	similar to amyloid beta (A4) precursor protein-binding, family B, member 1 interacting protein; proline-rich protein 73; Rap1-interacting adaptor molecule		10q21.1	
APBA2	amyloid beta (A4) precursor protein-binding, family A, member 2 (X11-like)	15	15q11-q12	27.00M-27.19M
LOC390566	similar to amyloid beta A4 precursor protein-binding, family		15q14	32.48M-32.49M

LOC390569	A, member 2; neuronal munc18-1-interacting protein 2; X11-like protein; phosphotyrosine-binding/-interacting domain (PTB)-bearing protein; neuron-specific X11L protein; adapter protein X similar to amyloid beta A4 precursor protein-binding, family A, member 2; neuronal munc18-1-interacting protein 2; X11-like protein; phosphotyrosine-binding/-interacting domain (PTB)-bearing protein; neuron-specific X11L protein; adapter protein X		15q14	32.635M-32.636M
APPBP1	amyloid beta precursor protein binding protein 1, 59kDa	16	16q22	65.39M-65.42M
APBA3	19p13.3 amyloid beta (A4) precursor protein-binding, family A, member 3 (X11-like 2)	19**	19p13.3	37.01M-37.126M
APBA2BP	20q11.22 amyloid beta (A4) precursor protein-binding, family A, member 2 binding protein	20	20.q11.22	31.7M-31.72M
APP	21q21.3 amyloid beta (A4) precursor protein (protease nexin-II, Alzheimer disease)	21	21q21.3	26.17M-26.46M
PEN2	19q13.13 presenilin enhancer 2	19**	19q13.13	40.928M-40.929M
APOE	19q13.2 Apo-lipoprotein E (late onset AD)	19**	19q13.2	50.100M-50.1004M

Table 3: Genes found in Alzheimer's disease and their particular location in the human genome excluding those that shared loci with HIV-1-associated genes. Note that chromosome 19 has genes from Amyloid B, presenilin, and Apolipoprotein groups. *Data obtained from NCBI Entrez Genome [18, 41, 53]. Alzheimer's disease related genes with their corresponding proteins. ***blank = no information was obtained

Amyloid β related genes				HIV-1 related genes		
Location/Description	Symbol	Distance (bp)	Chromosome	Distance (bp)	Symbol	Location/Description
4p14 amyloid beta (A4) precursor protein-binding, family B, member 2 (Fe65-like)	APBB2	41.05M-41.06	4	14.645M-14.641M	HSHIN1	4q31.21 HIV-1 induced protein HIN-1
5q31 amyloid beta (A4) precursor protein-binding, family B, member 3	APBB3	13.991M-13.992M	5	92.251M-92.252M	LOC391810	5q14.3 similar CCT7
11p15 amyloid beta (A4) precursor protein-binding, family B, member 1 (Fe65)	APBB1	63.72M-63.97M	11	20.341M-20.361M	HTATIP2	11p15.1 HIV-1 Tat interactive protein 2, 30kDa
11q24 amyloid beta (A4) precursor-like protein 2	APLP2	129.4M-129.5M		65.23M-65.24M	HTATIP	11q13 HIV-1 Tat interactive protein, 60kDa
17q21-q23 amyloid beta precursor protein (cytoplasmic tail) binding protein 2	APPBP2	55.87M-55.95M	17	31.22-31.23M	CCL5	17q11.2-q12 HIV-1 disease, delayed progression of; HIV-1 disease, rapid progression of

Table 4: Amyloid β and HIV-1 associated dementia related genes with their locations in the human genome. *Data gathered from NCBI Entrez Genome [49, 53, 60]. **Bold text highlights the proximity of these genes to one another on the chromosome

Presenilin related genes				HIV-1 related genes		
Location/Description	Symbol	Distance (bp)	Chromosome	Distance (bp)	Symbol	Location/Description
1q31-q42 presenilin (Alzheimer disease 4)	2 PSEN2	22.336M-22.339M	1	230.8M-230.9M	TARBP1	1q42.3 TAR (HIV) RNA binding protein 1
				203.32M-203.33M	IL10	1q31-q32 HIV-1, susceptibility to; Graft-versus-host disease,

2q21.1 calnenilin, presenilin binding protein, EF hand transcription factor	CSEN	95.38M-95.47M	2	228.16M-22824M	HRB	2q36.3 HIV-1 Rev binding protein	protection against
3q27.3 presenilin associated, rhomboid-like	PSARL	185.02M-185.08M	3	46.38M-46.39M	CCR5	3p21 HIV infection, susceptibility/resistance to	
14q24.3 presenilin (Alzheimer disease 3)	1 PSEN 1 †	72.67M-72.75	14	56.3M-56.5M	LOC14541 4	14q22.3 similar to ribosomal protein L3; 60S ribosomal protein L3; HIV-1 TAR RNA-binding protein B	

Table 5: Presenilin and HIV-1 associated dementia related genes with their locations in the human genome. *Data obtained from NCBI Entrez Genome [41, 49, 60]. ****Bold** text highlights the idea of these genes being close to one another on the chromosome. †Directly found to be associated with Alzheimer's disease.

Chromosome	Distance (bp)	Symbol	Description
6	150.293M-150.294M	LOC442267	similar to T-complex protein 1, eta subunit (TCP-1-eta) (CCT-eta) (HIV-1 Nef interacting protein)
	2.966M-2.968M	LOC401233	similar to HIV TAT specific factor 1; cofactor required for Tat activation of HIV-1 transcription
7	99.78M-99.80	HRBL	7q22.1 HIV-1 Rev binding protein-like
8	104.740M-104.741M	LOC442391	similar to ribosomal protein L3; 60S ribosomal protein L3; HIV-1 TAR RNA-binding protein B
	80.64M-80.65M	TARBP2P	8q22-q24 TAR (HIV) RNA binding protein 2 pseudogene
12	74.1M-74.19M	HRB2	12q21.1 HIV-1 rev binding protein 2
		HIVE1	12q11-q13.3 human immunodeficiency virus type 1 (HIV-1) expression (elevated) 1
	52.180M-52.186M	TARBP2	12q12-q12 TAR (HIV) RNA binding protein 2
X	135.30M-135.32M	HTATSF1	Xq26.1-q27.2 HIV TAT specific factor 1

Table 6: HIV-1 associated dementia genes found in human genome not structurally related to genes found with Alzheimer's disease. *Data obtained from NCBI Entrez Genome [49, 60]. **blank = no information was found.