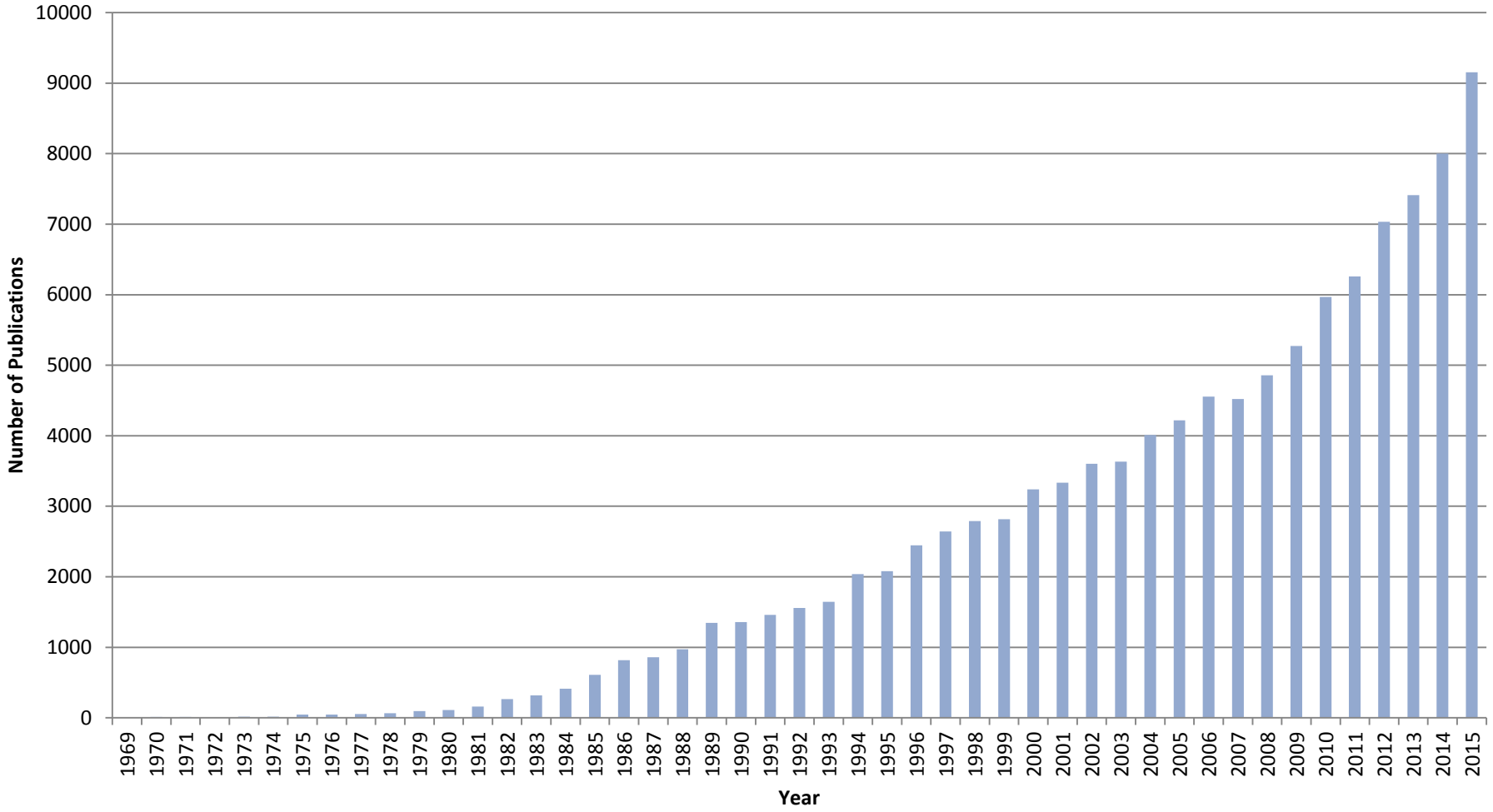

Figure 1: The number of publications in the field of AD. Shown is the number of publications within the PubMed database that can be identified using the search term “Alzheimer’s disease” between 1969 and 2015.

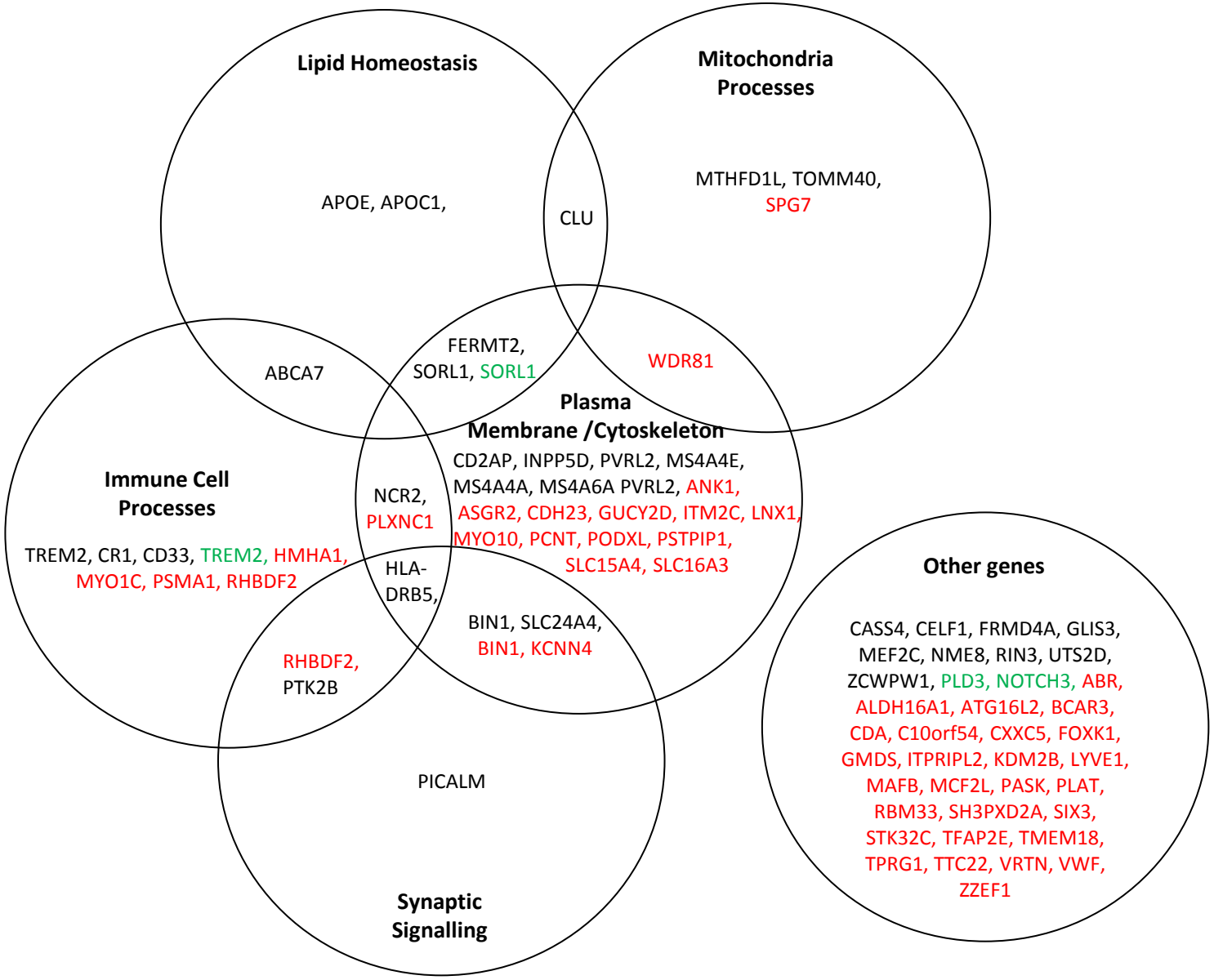

Figure 2: Cellular pathways of genes identified from GWAS or EWAS studies. The 32 most significant GWAS loci identified **(Table 1A**) are shown in black. The 48 most significant EWAS loci (red) were identified from De Jager *et al*. 2014[29] and Lunnon *et al*. 2014[28] (**Table 2**). The 4 green loci were identified via exome sequencing from Guerreiro *et al*. 2013[16], Guerreiro *et al*. 2012[49], Cruchaga *et al*. 2014[50] and Pottier *et al.* 2012[51] (**Table 1B**). We next compared the molecular and cellular pathways of the proteins encoded by these genes to look for functional overlap between studies.

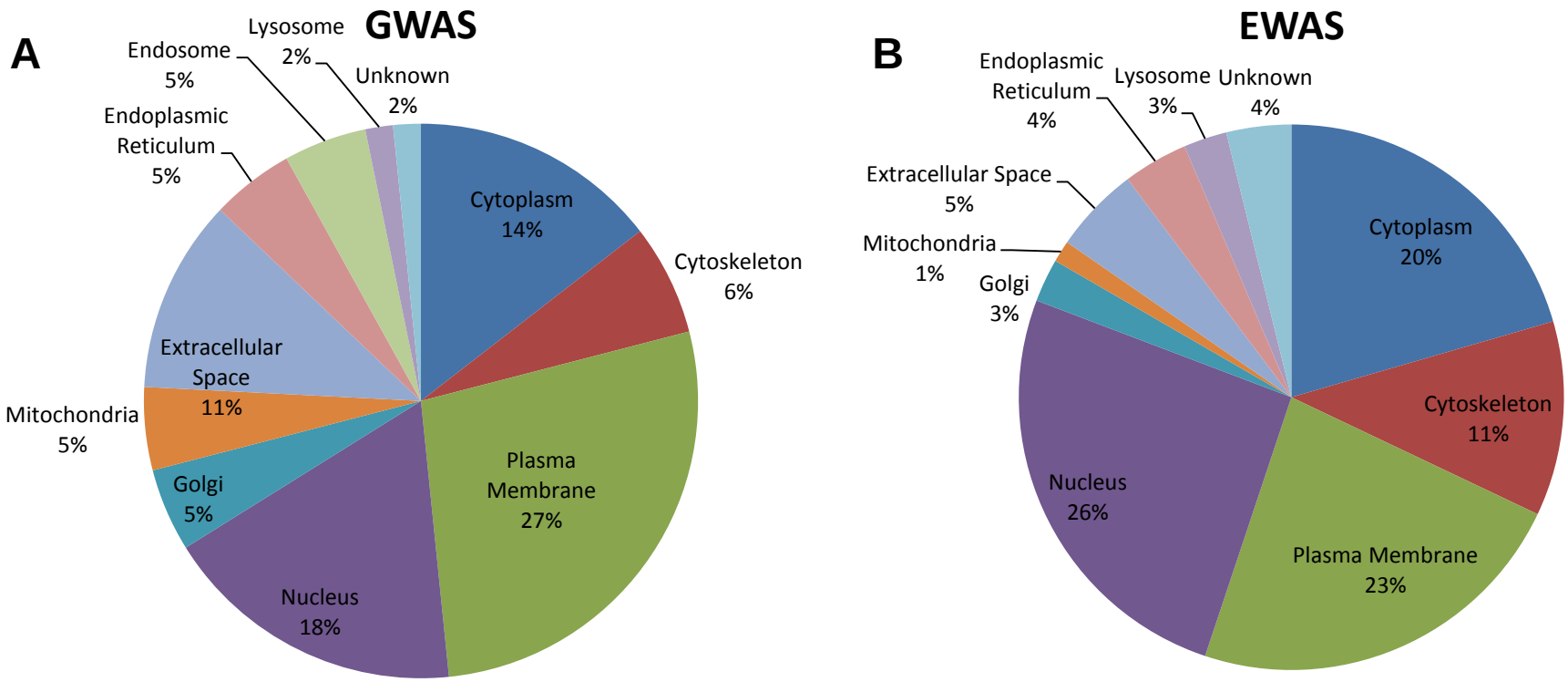

Figure 3: Cellular locations of genes nominated from (A) GWAS and (B) EWAS studies.

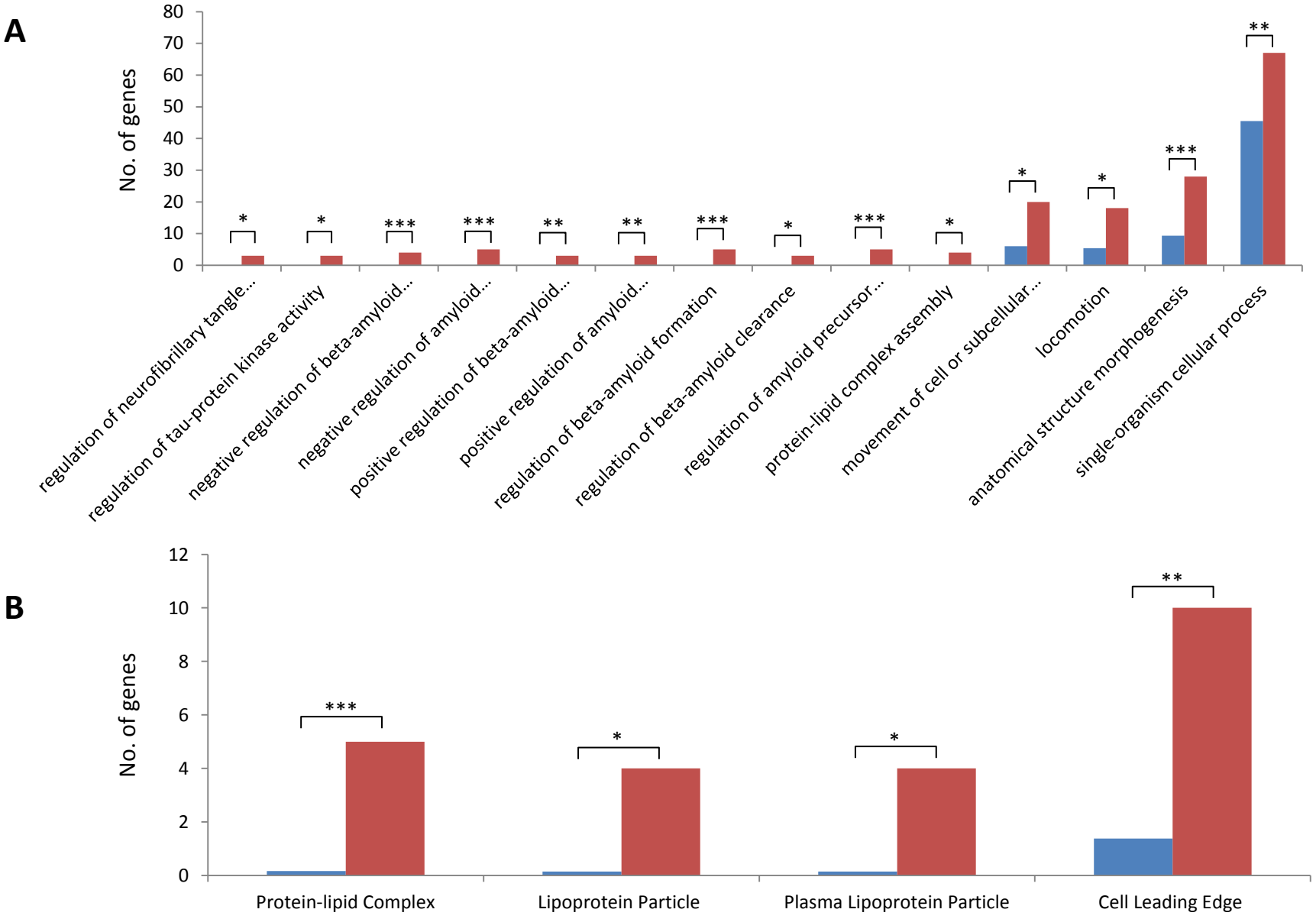

Figure 4: Pathway enrichment analysis of 81 identified genes. (A) The Panther Gene Ontology tool identified 14 significantly enriched biological processes pathways (P<0.05) after Bonferroni correction. (B) Cellular component pathways identified by the Panther Gene Ontology tool identified 4 cellular component pathways that were significantly enriched (P<0.05) after Bonferroni correction. Blue columns represent expected number of genes in each pathway, whilst red represents the actual number of genes identified.

Table 1A: Genes nominated from GWAS studies. Shown are the genes identified from GWAS studies and their respective SNPs, associated P-value, GO annotation, chromosome and genomic position and the relevant study. SNPs of P<5x10-8 were only included.

Gene	SNPs Identified	P-value	GO annotation	Chromosome	Position	Title of Paper	First Author and Year	Reference
ABCA7	rs3764650	5.00E-17	GO:0005215 transporter activity GO:0005524 ATP binding GO:0005548 phospholipid transporter activity GO:0016887 contributes_to ATPase activity	19	1046521	Common variants at ABCA7, MS4A6A/MS4A4E, EPHA1, CD33 and CD2AP are associated with Alzheimer's disease.	Hollingworth, 2011	[11]
	rs4147929	1.00E-15		19	1063444	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
APOE, APOC1,TOMM40	rs4420638	1.00E-39	APOE GO:0001540 beta-amyloid binding IDA 11305869 GO:0005319 lipid transporter activity IDA 17305370 GO:0005515 protein binding IPI 12950167 GO:0005543 phospholipid binding	19	44919689	A high-density whole-genome association study reveals that APOE is the major susceptibility gene for sporadic late-onset Alzheimer's disease.	Coon, 2007	[31]
		1.00E-39				Sorl1 as an Alzheimer's disease predisposition gene?	Webster, 2008	[32]
		2.00E-44				Candidate single-nucleotide polymorphisms from a genomewide association study of Alzheimer disease.	Li, 2008	[33]
		1.00E-12				Genome-wide association analysis of age-at-onset in Alzheimer's disease.	Kamboh, 2012a	[34]
		8.00E-149				Genome-wide association study of Alzheimer's disease.	Kamboh, 2012b	[35]
	rs2075650	2.00E-157	APOC1 GO:0004859 phospholipase inhibitor activity GO:0005504 fatty acid binding GO:0031210 phosphatidylcholine binding GO:0055102 lipase inhibitor activity GO:0060228 phosphatidylcholine-sterol O-acyltransferase activator activity	19	44892362	Genome-wide association study identifies variants at CLU and PICALM associated with Alzheimer's disease.	Harold, 2009	[10]
		2.00E-16				Genome-wide association study identifies variants at CLU and CR1 associated with Alzheimer's disease.	Lambert, 2009	[36]
		1.00E-295				Genome-wide analysis of genetic loci associated with Alzheimer disease.	Seshadri, 2010	[37]
		5.00E-36				Dementia revealed: novel chromosome 6 locus for late-onset Alzheimer disease provides genetic evidence for folate-pathway abnormalities.	Naj, 2010	[38]
		9.00E-116				Overrepresentation of glutamate signalling in Alzheimer's disease: network-based pathway enrichment using meta-analysis of genome-wide association studies.	Perez-Palma, 2014	[39]
		4.00E-13				ABCC9 gene polymorphism is associated with hippocampal sclerosis of aging pathology.	Nelson, 2014	[40]
	rs6859	6.00E-14	TOMM40 GO:0008320 protein transmembrane transporter activity GO:0015288 porin activity	19	44878777	A genome-wide association study for late-onset Alzheimer's disease using DNA pooling.	Abraham, 2008	[41]
	rs157580	8.00E-89		19	44892009	The membrane-spanning 4-domains, subfamily A (MS4A) gene cluster contains a common variant associated with Alzheimer's disease.	Antunez, 2011	[42]
	rs157582	9.00E-52		19	44892962	Genome-wide association study of Alzheimer's disease with psychotic symptoms.	Hollingworth, 2012	[43]
	rs769449	2.00E-18		19	44906745	GWAS of cerebrospinal fluid tau levels identifies risk variants for Alzheimer's disease.	Cruchaga, 2013	[44]
BIN1	rs7561528	4.00E-14	GO:0005515 protein binding GO:0032403 protein complex binding GO:0042802 identical protein binding GO:0046982 protein heterodimerization activity GO:0048156 tau protein binding	2	127132061	Common variants at MS4A4/MS4A6E, CD2AP, CD33 and EPHA1 are associated with late-onset Alzheimer's disease.	Naj, 2011	[13]
		6.00E-11				Genome-wide association study of Alzheimer's disease.	Kamboh, 2012b	[35]
	rs744373	3.00E-14		2	127137039	Common variants at ABCA7, MS4A6A/MS4A4E, EPHA1, CD33 and CD2AP are associated with Alzheimer's disease.	Hollingworth, 2011	[11]
		1.00E-10				Meta-analysis for genome-wide association study identifies multiple variants at the BIN1 locus associated with late-onset Alzheimer's disease.	Hu, 2011	[45]
		2.00E-09				The membrane-spanning 4-domains, subfamily A (MS4A) gene cluster contains a common variant associated with Alzheimer's disease.	Antunez, 2011	[42]
	rs6733839	7.00E-44		2	127135234	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
	rs12989701	3.00E-10		2	127130409	Meta-analysis for genome-wide association study identifies multiple variants at the BIN1 locus associated with late-onset Alzheimer's disease.	Hu, 2011	[45]
CASS4	rs7274581	3.00E-08	GO:0000155 phosphorelay sensor kinase activity GO:0005515 protein binding	20	56443204	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
CD2AP	rs10948363	5.00E-11	GO:0005200 structural constituent of cytoskeleton GO:0005515 protein binding GO:0017124 SH3 domain binding	6	47520026	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
	rs9349407	9.00E-09		6	47485642	Common variants at MS4A4/MS4A6E, CD2AP, CD33 and EPHA1 are associated with late-onset Alzheimer's disease.	Naj, 2011	[13]
CD33	rs3865444	2.00E-09	GO:0004872 receptor activity GO:0005515 protein binding GO:0030246 carbohydrate binding	19	51224706	Common variants at MS4A4/MS4A6E, CD2AP, CD33 and EPHA1 are associated with late-onset Alzheimer's disease.	Naj, 2011	[13]
CELF1	rs10838725	1.00E-08	GO:0000166 nucleotide binding GO:0000900 translation repressor activity, nucleic acid binding GO:0003723 RNA binding IDA 16946708 GO:0003729 mRNA binding	11	47536319	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
CLU	rs9331896	3.00E-25	GO:0005515 protein binding GO:0016887 NOT ATPase activity GO:0031625 ubiquitin protein ligase binding GO:0051087 chaperone binding GO:0051787 misfolded protein binding	8	27610169	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
	rs2279590	6.00E-10		8	27598736	Genome-wide association study identifies variants at CLU and CR1 associated with Alzheimer's disease.	Lambert, 2009	[36]
	rs11136000	9.00E-10		8	27607002	Genome-wide association study identifies variants at CLU and PICALM associated with Alzheimer's disease.	Harold, 2009	[10]
	rs569214	4.00E-08		8	27630273	The membrane-spanning 4-domains, subfamily A (MS4A) gene cluster contains a common variant associated with Alzheimer's disease.	Antunez, 2011	[42]
CR1	rs6656401	6.00E-24	GO:0001851 complement component C3b binding GO:0001855 complement component C4b binding GO:0001861 complement component C4b receptor activity GO:0004877 complement component C3b receptor activity	1	207518704	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
	rs3818361	4.00E-14		1	207611623	Common variants at ABCA7, MS4A6A/MS4A4E, EPHA1, CD33 and CD2AP are associated with Alzheimer's disease.	Hollingworth, 2011	[11]
	rs6656401	3.00E-10		1	207518704	Genome-wide association study identifies variants at CLU and CR1 associated with Alzheimer's disease.	Lambert, 2009	[36]
	rs6701713	5.00E-10		1	207612944	Common variants at MS4A4/MS4A6E, CD2AP, CD33 and EPHA1 are associated with late-onset Alzheimer's disease.	Naj, 2011	[13]
FERMT2	rs17125944	8.00E-09	GO:0005515 protein binding GO:0005547 phosphatidylinositol-3,4,5-trisphosphate binding	14	52933911	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
FRMD4A	rs7081208	1.00E-10	GO:0030674 protein binding, bridging	10	13949865	Genome-wide haplotype association study identifies the FRMD4A gene as a risk locus for Alzheimer's disease.	Lambert, 2013b	[46]
GLIS3	rs514716	3.00E-09	GO:0000978 RNA polymerase II core promoter proximal region sequence-specific DNA binding sequence-specific DNA binding transcription factor activity involved in positive regulation of transcription GO:0001078 RNA polymerase II core promoter proximal region sequence-specific DNA binding transcription factor activity involved in negative regulation of transcription	9	3929424	GWAS of cerebrospinal fluid tau levels identifies risk variants for Alzheimer's disease.	Cruchaga, 2013	[44]

Gene	SNPs Identified	P-value	GO annotation	Chromosome	Position	Title of Paper	First Author	Year
HLA-DRB5	rs9271192	3.00E-12	GO:0042605 peptide antigen binding	6	32610753	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
INPP5D	rs35349669	3.00E-08	GO:0004445 inositol-polyphosphate 5-phosphatase activity GO:0005515 protein binding GO:0017124 SH3 domain binding GO:0034594 phosphatidylinositol trisphosphate phosphatase activity GO:0051425 PTB domain binding	2	233159830	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
MEF2C	rs190982	3.00E-08	GO:0000977 RNA polymerase II regulatory region sequence-specific DNA binding GO:0000978 RNA polymerase II core promoter proximal region sequence-specific DNA binding GO:0000980 RNA polymerase II distal enhancer sequence-specific DNA binding GO:0000981 sequence-specific DNA binding RNA polymerase II transcription factor activity GO:0000983 RNA polymerase II core promoter sequence-specific DNA binding transcription factor activity	5	88927603	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
MS4A4A	rs4938933	8.00E-12	GO:0016021 integral component of membrane	11	60266956	Common variants at MS4A4/MS4A6E, CD2AP, CD33 and EPHA1 are associated with late-onset Alzheimer's disease.	Naj, 2011	[13]
MS4A4E, MS4A6A	rs610932	2.00E-14	MS4A4E GO:0016021 integral component of membrane	11	60171834	Common variants at ABCA7, MS4A6A/MS4A4E, EPHA1, CD33 and CD2AP are associated with Alzheimer's disease.	Hollingworth, 2011	[11]
	rs983392	6.00E-16	MS4A6A GO:0016021 integral component of membrane	11	60156035	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
MTHFD1L	rs11754661	2.00E-10	GO:0004329 formate-tetrahydrofolate ligase activity GO:0004477 NOT methenyltetrahydrofolate cyclohydrolase activity GO:0004488 NOT methylenetetrahydrofolate dehydrogenase (NADP+) activity GO:0005524 ATP binding	6	150885942	Dementia revealed: novel chromosome 6 locus for late-onset Alzheimer disease provides genetic evidence for folate-pathway abnormalities.	Naj, 2010	[38]
NME8	rs2718058	5.00E-09	GO:0004550 nucleoside diphosphate kinase activity IBA GO:0005524 ATP binding	7	37801932	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
PICALM	rs10792832	9.00E-26	GO:0005515 protein binding GO:0005545 1-phosphatidylinositol binding GO:0030276 clathrin binding GO:0032050 clathrin heavy chain binding	11	86156833	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
	rs561655	7.00E-11		11	86089237	Common variants at MS4A4/MS4A6E, CD2AP, CD33 and EPHA1 are associated with late-onset Alzheimer's disease.	Naj, 2011	[13]
	rs3851179	1.00E-09		11	86157598	Genome-wide association study identifies variants at CLU and PICALM associated with Alzheimer's disease.	Harold, 2009	[10]
	rs536841	3.00E-09		11	86076782	The membrane-spanning 4-domains, subfamily A (MS4A) gene cluster contains a common variant associated with Alzheimer's disease.	Antunez, 2011	[42]
	rs17817600	2.00E-08		11	85966428	Genome-wide association study of Alzheimer's disease.	Kamboh, 2012b	[35]
PTK2B	rs28834970	7.00E-14	GO:0004683 calmodulin-dependent protein kinase activity GO:0004713 protein tyrosine kinase activity GO:0004715 non-membrane spanning protein tyrosine kinase activity GO:0004871 signal transducer activity	8	27337604	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
PVRL2	rs6857	2.00E-62	GO:0001618 virus receptor activity GO:0005515 protein binding GO:0015026 coreceptor activity GO:0042802 identical protein binding GO:0042803 protein homodimerization activity	19	44888997	Genome-Wide Association Meta-analysis of Neuropathologic Features of Alzheimer's Disease and Related Dementias.	Beecham, 2014	[47]
SLC24A4, RIN3	rs10498633	6.00E-09	SLC24A4 GO:0008273 calcium, potassium:sodium antiporter activity GO:0015293 symporter activity RIN3 GO:0005096 GTPase activator activity GO:0005515 protein binding GO:0017112 Rab guanyl-nucleotide exchange factor activity GO:0017137 Rab GTPase binding	14	92460608	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
SORL1	rs11218343	1.00E-14	GO:0001540 beta-amyloid binding GO:0004888 transmembrane signaling receptor activity GO:0005515 protein binding GO:0030169 low-density lipoprotein particle binding GO:0030306 ADP-ribosylation factor binding	11	121564878	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]
NCR2	rs6922617	4.00E-08	GO:0004888 transmembrane signaling receptor activity	6	41368363	GWAS of cerebrospinal fluid tau levels identifies risk variants for Alzheimer's disease.	Cruchaga, 2013	[44]
TREM2	rs75932628	2.00E-12	GO:0001530 lipopolysaccharide binding GO:0004872 receptor activity GO:0005515 protein binding GO:0042834 peptidoglycan binding GO:0070891 lipoteichoic acid binding	6	41161514	Variant of TREM2 associated with the risk of Alzheimer's disease.	Jonsson, 2012	[48]
UTS2D	rs9877502	5.00E-09	GO:0001664 G-protein coupled receptor binding GO:0005179 hormone activity	3	190951729	GWAS of cerebrospinal fluid tau levels identifies risk variants for Alzheimer's disease.	Cruchaga, 2013	[44]
ZCWPW1	rs1476679	6.00E-10	GO:0008270 zinc ion binding	7	100406823	Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease.	Lambert, 2013a	[12]

Table 1B: Genes nominated from exome sequencing studies. Shown are the genes identified from exome sequencing studies and their respective SNPs, GO annotation, chromosome and genomic position and the relevant study.

Gene	SNPs identified	GO annotation	Chromosome	Position	Title of Paper	First Author and Year	Reference
TREM2	rs2234255	GO:0001530 lipopolysaccharide binding GO:0004872 receptor activity GO:0005515 protein binding GO:0042834 peptidoglycan binding GO:0070891 lipoteichoic acid binding	6	41127543	TREM2 Variants in Alzheimer's Disease	Guerreiro, 2013	[16]
	rs147564421		6	41129100			
	rs2234253		6	41129105			
	rs142232675		6	41129133			
	rs201258663		6	41129195			
	rs75932628		6	41129252			
	#N/A		6	41129279			
SORL1	#N/A	GO:0001540 beta-amyloid binding GO:0004888 transmembrane signaling receptor activity GO:0005515 protein binding GO:0030169 low-density lipoprotein particle binding GO:0030306 ADP-ribosylation factor binding	11	1.21E+08	High frequency of potentially pathogenic SORL1 mutations in autosomal dominant early-onset Alzheimer disease	Pottier, 2012	[51]
	#N/A		11	1.21E+08			
	#N/A		11	1.21E+08			
NOTCH3	rs10408676	GO:0005509 calcium ion binding GO:0005515 protein binding GO:0019899 enzyme binding	19	15290007	Exome sequencing reveals an unexpected genetic cause of disease: NOTCH3 mutation in a Turkish family with Alzheimer's disease	Guerreiro, 2012	[49]
PLD3	rs145999145	GO:0004630 phospholipase D activity GO:0005515 protein binding GO:0070290 N-acylphosphatidylethanolamine-specific phospholipase D activity	19	40877595	Rare coding variants in the phospholipase D3 gene confer risk for Alzheimer's disease	Cruchaga, 2014	[50]

Table 2: Genes nominated from EWAS studies. Shown are the genes identified from EWAS studies and their respective probes, associated P-value, GO annotation, chromosome and genomic position and the relevant study. Probes of P<1x10-7 were only included.

Gene	Probes Identified	P-value	Functional summary, GO annotation	Chromosome	Position	Title of Paper	First Author and Year	Reference
ABR	cg25018458	1.89E-10	GO:0005089 Rho guanyl-nucleotide exchange factor activity GO:0005096 GTPase activator activity	17	980014	Methylomic profiling implicates cortical deregulation of ANK1 in Alzheimer's disease	Lunnon, 2014	[28]
ALDH16A1	cg20618448	1.16E-08	GO:0004029 aldehyde dehydrogenase (NAD) activity	19	49962324	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
ANK1	cg05066959	7.13E-14	GO:0005198 structural molecule activity GO:0005200 structural constituent of cytoskeleton GO:0005515 protein binding GO:0008093 cytoskeletal adaptor activity GO:0019899 enzyme binding GO:0030507 spectrin binding GO:0051117 ATPase binding	8	41519308	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
		1.24E-09		8	41519308	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29
	cg11823178	7.83E-14		8	41519399	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
		3.42E-11		8	41519399	Methylomic profiling implicates cortical deregulation of ANK1 in Alzheimer's disease	Lunnon, 2014	[28]
	cg16140558	1.85E-08		8	41514039	Methylomic profiling implicates cortical deregulation of ANK1 in Alzheimer's disease	Lunnon, 2014	[28]
ASGR2	cg18659586	1.06E-09	GO:0004873 asialoglycoprotein receptor activity GO:0005515 protein binding GO:0030246 carbohydrate binding	17	7017474	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
ATG16L2	cg21806242	3.71E-10	Regulation of autophagy	11	72532891	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
BCAR3	cg02342148	1.60E-08	GO:0005085 guanyl-nucleotide exchange factor activity GO:0005515 protein binding	1	94145223	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
BIN1	cg22883290	3.73E-08	GO:0005515 protein binding GO:0032403 protein complex binding GO:0042802 identical protein binding GO:0046982 protein heterodimerization activity GO:0048156 tau protein binding	2	127800646	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
CDA	cg26407544	2.10E-10	GO:0001882 nucleoside binding GO:0004126 cytidine deaminase activity GO:0005515 protein binding GO:0008270 zinc ion binding	1	20945355	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
CDH23, C10orf54	cg23968456	1.09E-08	GO:0005509 calcium ion binding GO:0005515 protein binding	10	73521631	Methylomic profiling implicates cortical deregulation of ANK1 in Alzheimer's disease	Lunnon, 2014	[28]
		3.97E-10		10	73521631	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
CXXC5	cg07354506	9.26E-08	GO:0004871 signal transducer activity GO:0005515 protein binding GO:0008134 transcription factor binding GO:0008270 zinc ion binding	5	139048148	Methylomic profiling implicates cortical deregulation of ANK1 in Alzheimer's disease	Lunnon, 2014	[28]
FOXK1	cg07180538	4.95E-08	GO:0000977 RNA polymerase II regulatory region sequence-specific DNA binding GO:0000981 sequence-specific DNA binding RNA polymerase II transcription factor activity GO:0005515 protein binding	7	4786899	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
	cg25594100	2.54E-11		7	4786943	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
GMDS	cg07714812	3.81E-08	GO:0005515 protein binding GO:0008446 GDP-mannose 4,6-dehydratase activity GO:0070401 NADP+ binding	6	1635611	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
GUCY2D	cg04157161	7.80E-08	GO:0004383 guanylate cyclase activity GO:0004672 protein kinase activity GO:0004872 receptor activity GO:0005524 ATP binding	17	7906847	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
HMHA1	cg02308560	3.06E-08	GO:0005096 GTPase activator activity GO:0005515 protein binding GO:0046872 metal ion binding	19	1071176	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
ITM2C	cg18346707	3.30E-08	GO:0001540 beta-amyloid binding GO:0005515 protein binding GO:0005524 ATP binding	2	231732249	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
ITPRIPL2	cg16733298	5.24E-08	membrane-associated protein, intracellular calcium signalling	16	19127132	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
KCNN4	cg22904711	1.08E-08	GO:0005515 protein binding GO:0005516 calmodulin binding GO:0015269 calcium-activated potassium channel activity GO:0016286 NOT small conductance calcium-activated potassium channel activity	19	44278628	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]

Gene ID	Probes Identified	P-value	Functional summary, GO annotation	Chromosome	Position	Title of Paper	First Author and Year	Reference
KDM2B	cg11724984	4.76E-09	GO:0003677 DNA binding GO:0005515 protein binding GO:0008270 zinc ion binding GO:0019843 rRNA binding GO:0032452 histone demethylase activity	12	121890864	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
LNX1	cg12114584	5.81E-13	GO:0004842 ubiquitin-protein transferase activity GO:0005515 protein binding GO:0008270 zinc ion binding GO:0016874 ligase activity GO:0030165 PDZ domain binding	4	54518744	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
LYVE1	cg18343862	4.96E-08	GO:0004872 receptor activity GO:0004888 transmembrane signaling receptor activity GO:0005515 protein binding GO:0005540 hyaluronic acid binding	11	10590003	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
MAFB	cg13579486	3.25E-08	GO:0003700 sequence-specific DNA binding transcription factor activity GO:0005515 protein binding GO:0008134 transcription factor binding GO:0043565 sequence-specific DNA binding	20	39314091	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
MCF2L	cg07883124	6.31E-12	GO:0005089 Rho guanyl-nucleotide exchange factor activity GO:0005545 1-phosphatidylinositol binding	13	113634042	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
	cg09448088	6.43E-10		13	113635690	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
MYO10	cg06742628	1.58E-10	GO:0005515 protein binding GO:0005516 calmodulin binding GO:0005524 ATP binding GO:0005547 phosphatidylinositol-3,4,5-trisphosphate binding	5	16886424	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
MYO1C	cg05417607	2.25E-08	GO:0003774 motor activity GO:0003779 actin binding GO:0005102 receptor binding GO:0005515 protein binding GO:0005516 calmodulin binding	17	1373605	Methylomic profiling implicates cortical deregulation of ANK1 in Alzheimer's disease	Lunnon, 2014	[28]
		2.52E-08		17	1373605	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
PASK	cg25488284	3.50E-08	GO:0004674 protein serine/threonine kinase activity GO:0004871 signal transducer activity GO:0005515 protein binding	2	242048127	Methylomic profiling implicates cortical deregulation of ANK1 in Alzheimer's disease	Lunnon, 2014	[28]
PCNT	cg00621289	6.48E-08	GO:0005515 protein binding GO:0005516 calmodulin binding	21	47855916	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
	cg04147621	1.39E-08		21	47856020	Methylomic profiling implicates cortical deregulation of ANK1 in Alzheimer's disease	Lunnon, 2014	[28]
	cg23449541	9.39E-08		21	47855893	Methylomic profiling implicates cortical deregulation of ANK1 in Alzheimer's disease	Lunnon, 2014	[28]
PLAT	cg17693222	2.14E-08	GO:0004252 serine-type endopeptidase activity GO:0005515 protein binding	8	42033472	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
PLXNC1	cg12877335	2.36E-11	GO:0004872 receptor activity GO:0005102 receptor binding GO:0005515 protein binding	12	94539319	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
PODXL	cg08737189	3.37E-08	GO:0005515 protein binding	7	131223417	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
	cg19140834	1.22E-09		7	131217668	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
PSMA1	cg27443779	1.18E-08	GO:0003723 RNA binding GO:0004298 threonine-type endopeptidase activity GO:0005515 protein binding	11	14664793	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
PSTPIP1	cg11652496	2.57E-09	GO:0003779 actin binding GO:0005515 protein binding GO:0019903 protein phosphatase binding	15	77324526	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
RBM33	cg13639901	1.54E-13	GO:0000166 nucleotide binding GO:0044822 poly(A) RNA binding	7	155556590	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
	cg14430943	2.71E-10		7	155556652	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
RHBDF2	cg05810363	9.42E-10	GO:0004252 serine-type endopeptidase activity GO:0019838 growth factor binding	17	74475270	Methylomic profiling implicates cortical deregulation of ANK1 in Alzheimer's disease	Lunnon, 2014	[28]
		3.68E-10		17	74475270	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
	cg12163800	2.66E-08		17	74475355	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
	cg13076843	3.81E-08		17	74475294	Methylomic profiling implicates cortical deregulation of ANK1 in Alzheimer's disease	Lunnon, 2014	[28]
		1.68E-09		17	74475294	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]

Gene	Probes Identified	P-value	Functional summary, GO annotation	Chromosome	Position	Title of Paper	First Author and Year	Reference
SH3PXD2A	cg19007269	2.96E-09	GO:0005515 protein binding GO:0035091 phosphatidylinositol binding	10	105420501	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
SIX3	cg22385702	4.47E-10	GO:0000980 RNA polymerase II distal enhancer sequence-specific DNA binding GO:0001205 RNA polymerase II distal enhancer sequence-specific DNA binding transcription factor activity involved in positive regulation of transcription GO:0001222 transcription corepressor binding GO:0003700 sequence-specific DNA binding transcription factor activity	2	45175881	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
SLC15A4	cg06653632	9.77E-08	GO:0005290 L-histidine transmembrane transporter activity GO:0015293 symporter activity	12	129281444	Methylomic profiling implicates cortical deregulation of ANK1 in Alzheimer's disease	Lunnon K	[28]
SLC16A3	cg07012687	6.19E-09	GO:0005515 protein binding GO:0008028 monocarboxylic acid transmembrane transporter activity GO:0015129 lactate transmembrane transporter activity GO:0015293 symporter activity GO:0015355 secondary active monocarboxylate transmembrane transporter activity	17	80195180	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
SPG7	cg03169557	7.95E-09	GO:0004222 metalloendopeptidase activity GO:0005515 protein binding	16	89598950	Methylomic profiling implicates cortical deregulation of ANK1 in Alzheimer's disease	Lunnon K	[28]
		3.99E-10	GO:0005524 ATP binding GO:0008233 peptidase activity GO:0008270 zinc ion binding	16	89598950	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
STK32C	cg25917732	9.98E-08	GO:0004672 protein kinase activity GO:0004674 protein serine/threonine kinase activity GO:0004713 protein tyrosine kinase activity null GO:0005524 ATP binding GO:0016772 transferase activity, transferring phosphorus-containing groups	10	134038395	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
TFAP2E	cg17474422	1.56E-08	GO:0000977 RNA polymerase II regulatory region sequence-specific DNA binding GO:0000981 sequence-specific DNA binding RNA polymerase II transcription factor activity GO:0042803 protein homodimerization activity	1	36039866	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
TMEM18	cg21644387	7.25E-08	GO:0003677 DNA binding	2	663024	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
TPRG1	cg04252044	2.42E-10	GO:0042802 identical protein binding	3	188664747	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
	cg12307200	3.06E-17		3	188664632	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
TTC22	cg15645660	4.05E-08	Chaperone activity	1	55247356	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
VRTN	cg21207436	2.24E-09	GO:0004803 transposase activity GO:0043565 sequence-specific DNA binding	14	74815316	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
VWF	cg27041424	4.47E-10	GO:0001948 glycoprotein binding GO:0002020 protease binding GO:0005178 integrin binding GO:0005515 protein binding GO:0005518 collagen binding	12	6232979	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
WDR81	cg19803550	1.04E-08	GO:0016772 transferase activity, transferring phosphorus-containing groups	17	1637391	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]
ZZEF1	cg06753513	3.87E-12	GO:0005509 calcium ion binding GO:0008270 zinc ion binding	17	3977385	Alzheimer's disease: early alterations in brain DNA methylation at ANK1, BIN1, RHBDF2 and other loci	De Jager, 2014	[29]