

ADSP Discovery annotated with EA

Rank	Gene	Rank	Gene	Rank	Gene	Rank	Gene	Rank	Gene
1	APOE	41	ZNF211	81	POMC	121	BMP2K	161	RELN
2	NQO1	42	KAT2B	82	EPRS	122	ZNF3	162	CDKN1B
3	MAPT	43	TNNT1	83	IRAK2	123	CASP9	163	ZNF93
4	CSF1R	44	RHOBTB3	84	EGF	124	LARS	164	RICTOR
5	NOTCH4	45	IL4R	85	LGALS3	125	NOTCH3	165	GLP1R
6	MYC	46	UMPS	86	ASPM	126	UQCRC2	166	MOS
7	RHBDF2	47	ARHGEF3	87	RIPK2	127	IL7R	167	ZFPM1
8	PAICS	48	MRPS7	88	TBC1D2	128	ZNF679	168	PPARA
9	CTSB	49	VPS13C	89	SETDB1	129	DLAT	169	MATK
10	EHBP1L1	50	CYP2B6	90	PSMB7	130	CYP2C18	170	FANK1
11	WDHD1	51	BRCA1	91	STIL	131	LEPR	171	PRDM10
12	KRTAP20-1	52	REST	92	MC1R	132	ARAP1	172	KRTAP6-1
13	MAPK6	53	UTRN	93	FBXW8	133	LRBA	173	ANKRD44
14	ANLN	54	EREG	94	FN1	134	POLE	174	WDR31
15	LRRC6	55	SP3	95	ABCC4	135	ZNF77	175	NOL8
16	BMP4	56	TPO	96	KDELR3	136	TAP1	176	ZNF443
17	PEG3	57	LRRC17	97	GCDH	137	TTC28	177	ITGAX
18	PLEC	58	FRZB	98	PRKRA	138	ZNF445	178	RRP12
19	GMPR2	59	PLEK	99	PMPCB	139	AGMAT		
20	HLA-C	60	MBL2	100	HDAC9	140	LRRC23		
21	PASK	61	THBS1	101	SORL1	141	RIOK2		
22	RNASE9	62	HLA-DPB1	102	C8G	142	SYNJ1		
23	RNASE12	63	SCARB1	103	PDLIM4	143	NOC2L		
24	HSPBAP1	64	ALB	104	IRF7	144	EP300		
25	TOPBP1	65	HSPA4	105	FOS	145	APOC4		
26	RIPK4	66	TGFB1	106	DNAH11	146	BLM		
27	ACTR1B	67	BAZ1A	107	MDC1	147	PRIM1		
28	TRIB3	68	LRIG1	108	MCM8	148	NUF2		
29	CCNH	69	PIK3C2G	109	INVS	149	MLH1		
30	SLC6A15	70	HBS1L	110	H6PD	150	IL16		
31	EPHX2	71	GSTZ1	111	NDUFA10	151	MYO1G		
32	DLG1	72	TLR4	112	ITGA2B	152	DDX20		
33	KDR	73	POLD1	113	SERPINA1	153	IL6R		
34	ICAM3	74	ASB6	114	CDH1	154	ZNF701		
35	POLQ	75	PCK2	115	DEFB119	155	NFKBIE		
36	GNB3	76	CAT	116	MME	156	VCAN		
37	MAVS	77	DNAH8	117	HADH	157	SOS1		
38	PDHX	78	BYSL	118	SOS2	158	CD22		
39	LPL	79	PI3	119	KIF20B	159	APPL1		
40	ABCC1	80	ABCC11	120	ZRANB3	160	DDX5		

Table S1: Ranked genes from EA-Wavelet analysis on ADSP Discovery annotated with EA

ADSP Discovery annotated with PPh2

Rank	Gene	Rank	Gene	Rank	Gene	Rank	Gene	Rank	Gene
1	PLEC	41	LIMK2	81	PKD1	121	SQSTM1	161	ENG
2	TTN	42	DEFB135	82	LRP5	122	EPHB2	162	MDC1
3	NOTCH4	43	SHH	83	ASPM	123	MAPK3	163	TNC
4	APOE	44	TLR10	84	BCL3	124	TCF7L2	164	SLC22A12
5	RYR1	45	MYC	85	ICAM1	125	EPHB4	165	ADCY4
6	EHMT2	46	RREB1	86	HSPA12B	126	SPATA5L1	166	MAP3K9
7	BCAR1	47	KIF1C	87	EPHA2	127	IL17RA	167	CSF1
8	HNRNPM	48	FOS	88	ITGAM	128	CYP8B1	168	PNPLA6
9	CACNA1A	49	ZNF224	89	SMURF1	129	KANK1	169	POLR1A
10	EGR1	50	PIK3C2B	90	JUP	130	ACAN	170	EPHA8
11	IGFALS	51	CCNB2	91	ABCC8	131	DRD4	171	KDM6B
12	DEFB129	52	KEAP1	92	IMPDH1	132	ARID1A	172	AXL
13	CENPF	53	MARK4	93	DROSHA	133	FLNC	173	THBS1
14	ACAA1	54	MYO7A	94	EXOSC5	134	PIKFYVE	174	PIM3
15	RERE	55	MET	95	RPL3L	135	ZNRF4	175	DOT1L
16	ACE	56	TAS1R3	96	ESPL1	136	TRIO	176	EPHA1
17	AGRN	57	SETD1A	97	ZBTB11	137	TP53	177	PDLIM2
18	TLR9	58	LTB4R2	98	PML	138	BDKRB1	178	GLI3
19	CAD	59	DUSP5	99	HSPG2	139	KIFC1		
20	VEGFA	60	SREBF1	100	YY1	140	EGFR		
21	FGFR4	61	HDAC4	101	ITGA2	141	BSN		
22	EPHB3	62	USP34	102	ERBB2	142	ITGA5		
23	TIE1	63	POLD1	103	PTPRF	143	CASKIN1		
24	NOTCH1	64	VWF	104	COL4A2	144	ZNF407		
25	NOS2	65	CYBA	105	ANKS6	145	ASH1L		
26	ACACB	66	TESK1	106	GNAS	146	SHANK1		
27	BLK	67	SCRIB	107	MYH14	147	CPS1		
28	SPTBN2	68	CFD	108	ARRB2	148	SNAPC4		
29	TNRC6C	69	EPHB1	109	TPBG	149	MYBL2		
30	DVL1	70	FURIN	110	PABPC1	150	PRDM16		
31	PGR	71	PFKL	111	NEB	151	MAPK12		
32	PCNT	72	EHMT1	112	ZNF831	152	DUSP16		
33	RUNX1	73	DYRK2	113	TOP2B	153	PRDM10		
34	FASN	74	LMNA	114	ABCA2	154	UBE3B		
35	PCSK4	75	NFKB2	115	ELANE	155	KIFC2		
36	JAG2	76	PKMYT1	116	PIK3CA	156	SLC22A18		
37	P2RY11	77	GAK	117	SNRPB	157	IPO4		
38	COL18A1	78	GABRD	118	RIPK4	158	FOSL1		
39	CDK13	79	JAK3	119	POLE	159	ATP2A3		
40	DNAJB6	80	TSC2	120	RELA	160	RAD23A		

Table S2: Ranked genes from EA-Wavelet analysis on ADSP Discovery annotated with PPh2

ADNI annotated with EA									
Rank	Gene	Rank	Gene	Rank	Gene	Rank	Gene	Rank	Gene
1	OXM1	41	ZNF219	81	IFIT2	121	POLG	161	ZNF141
2	CSF1R	42	NOS2	82	OPRM1	122	IFNA1	162	PLAUR
3	C3	43	GEN1	83	MDC1	123	FLII	163	ARHGEF3
4	PABPC1	44	RNASE12	84	HTT	124	ZNRF2	164	NDUFS2
5	HSPBAP1	45	RNASE9	85	KIF2C	125	TLR6	165	ABL1
6	PKN2	46	HSPA2	86	WDFY2	126	NCBP1	166	LRCH1
7	TRIB3	47	EGF	87	TXNDC16	127	RRS1	167	RNH1
8	ACTR1B	48	IRS1	88	TLR2	128	ACP1	168	ADRA2C
9	BRCA1	49	ACACB	89	TLR1	129	NCAN	169	ARID4A
10	ASB16	50	RAD17	90	ATP6V0A2	130	POLE	170	IRAK2
11	DYNLL1	51	CCNH	91	TIMELESS	131	DICER1	171	PRKAG1
12	PAICS	52	KALRN	92	MCL1	132	SPATA5L1	172	ANKRD53
13	LRRC49	53	GMPS	93	EP300	133	MYH6	173	TYK2
14	ATP7A	54	LYST	94	ZNF83	134	PPIE	174	LGALS3
15	ESR1	55	YME1L1	95	SP100	135	GTF3A	175	SRRM2
16	SETBP1	56	MAP2K7	96	ATXN3	136	CMTM6	176	CES1
17	HSPA4	57	KPNA2	97	AGT	137	AR	177	RIPK3
18	M6PR	58	SERPINA1	98	PDLIM4	138	RPL14	178	HIBCH
19	UBD	59	TLR3	99	DAP3	139	ATXN2		
20	PLEK	60	NDUFA9	100	RPS6KA1	140	POLR3B		
21	ISG15	61	PEPD	101	ATXN1	141	UBQLN1		
22	POLQ	62	BMP2	102	NDC80	142	ZNF302		
23	FOXF2	63	CD68	103	KITLG	143	DDX54		
24	FGFR4	64	IL10RA	104	ADCY2	144	CHD1		
25	CPS1	65	PIK3CG	105	CHD7	145	SIRPA		
26	AK2	66	PDE6B	106	DUSP16	146	FLT1		
27	ICAM1	67	CREM	107	NMU	147	ITIH3		
28	DLAT	68	SIRT1	108	JAK2	148	MAPK1		
29	ATR	69	KDR	109	KRT18	149	ESRRA		
30	DMTF1	70	N4BP2L2	110	HERC2	150	MITF		
31	SELPLG	71	RIPK2	111	TAP1	151	BAG3		
32	TBP	72	HSP90AA1	112	ERBB2	152	ZNF217		
33	HSPA6	73	RALY	113	PML	153	ZNF805		
34	SDHA	74	SYNJ1	114	DHX33	154	UTP23		
35	OAS3	75	TP53BP1	115	LPL	155	ZNF180		
36	APOE	76	PARP1	116	KAT6A	156	ZNF292		
37	CTSB	77	ZNF445	117	TLR10	157	GPSM2		
38	FZD1	78	PLEC	118	RPL13A	158	RIPK4		
39	SMC6	79	FGFRL1	119	EPHA1	159	FAM136A		
40	TTC28	80	PRDM2	120	KL	160	RASIP1		

Table S3: Ranked genes from EA-Wavelet analysis on ADNI annotated with EA

ADSP Extension annotated with EA									
Rank	Gene	Rank	Gene	Rank	Gene	Rank	Gene	Rank	Gene
1	RIPK4	41	PLAU	81	DCLRE1C	121	PIKFYVE	161	PPARGC1B
2	CREBBP	42	TLR2	82	GLI2	122	CENPH	162	PSMD9
3	RNASE12	43	CSF1R	83	HPGDS	123	CASC1	163	ANKRD53
4	RNASE9	44	ABCC8	84	SHANK2	124	PFKFB4	164	ZNF611
5	TRIB3	45	KAT6B	85	TSC2	125	ASB2	165	PLEK
6	EPHB4	46	DNAJB1	86	ASB16	126	DDX50	166	SERPINA1
7	BLM	47	GATA6	87	GNA12	127	NFKBIE	167	FOS
8	GNAS	48	IGF1R	88	SEL1L	128	MPP3	168	IL4R
9	KAT2B	49	SREBF1	89	SP3	129	FKBP9	169	KIF2A
10	PLA2G6	50	LTB4R	90	GIPR	130	DCAF13	170	LRRC61
11	MAP3K11	51	PARP1	91	FLT3	131	ITPR3	171	CYP2S1
12	MAPK3	52	PDLIM4	92	ADCY6	132	CDKN2D	172	SETD2
13	ABL1	53	IPO5	93	CARD10	133	DNAJC10	173	IKZF1
14	CDC5L	54	SLC7A7	94	DNAJA3	134	PMPCB	174	ABCB6
15	LIF	55	CES1	95	NCOA1	135	TRAP1	175	UTS2R
16	RASL12	56	LIPE	96	PITX2	136	RPA1	176	TAP1
17	BLK	57	EGR4	97	CDK13	137	TSPO	177	NUDC
18	SPTAN1	58	JUND	98	GATA3	138	SSH3	178	WNT10A
19	MRPL15	59	GAPDHS	99	RANGAP1	139	RCN2		
20	KLF1	60	TCEA3	100	UBD	140	COX11		
21	CFTR	61	SETD1A	101	ZFPM1	141	FANCI		
22	GPI	62	GLI3	102	OXTR	142	HERC2		
23	DVL1	63	GMPS	103	PIK3C2B	143	ADORA2B		
24	RASL10A	64	POLR1A	104	OAS3	144	NPR1		
25	MAPK6	65	GNE	105	MRPS2	145	HOXA10		
26	EPHA2	66	KIF23	106	ECI1	146	JAK2		
27	FOXM1	67	CAMKK2	107	ACTR1B	147	RREB1		
28	BRCA1	68	TYK2	108	ERAP1	148	SLC12A7		
29	TAF9	69	FARS2	109	PYGB	149	ICAM1		
30	MYH14	70	GRK5	110	MNT	150	NDUFA9		
31	EPRS	71	REST	111	MLH1	151	CYP2C9		
32	RASD1	72	EPHA10	112	DUSP6	152	FGFR4		
33	MOCS3	73	PLEC	113	LARS	153	RANBP2		
34	MYL5	74	NCOR2	114	SREBF2	154	RIOK2		
35	FRZB	75	CDKN1C	115	CEBPA	155	PGR		
36	TACR1	76	DDX41	116	RAD23A	156	ZNF862		
37	LGALS3	77	GATA4	117	PDXP	157	ADRA2A		
38	SLC2A1	78	MYH7	118	TLR6	158	RET		
39	TGFBR2	79	MDH2	119	SLC7A1	159	PODNL1		
40	TLR9	80	POLE	120	HTT	160	FGFRL1		

Table S4: Ranked genes from EA-Wavelet analysis on ADSP Extension annotated with EA

CTD			AD+FAD genes	GWAS genes
Gene			Gene	Gene
A2M	ESR1	PLAU	APP	CR1
ABCA7	F2	PLCG2	MAPT	BIN1
ABI3	GAPDHS	PPARG	PSEN1	INPP5D
ACE	GSK3B	PRNP	PSEN2	HLA -DRB1
ACHE	HFE	PSEN1	BSG	TREM2
ADAM10	HLA-DRB5	PSEN2	PSENEN	CD2AP
ADAMTS1	HMOX1	PYY	APH1A	NYAP1
AMFR	IDE	RELN	APH1B	EPHA1
APOC1	IGF1	SLC2A4	NCSTN	PTK2B
APOE	IGF1R	SLC30A4	BACE1	CLU
APP	IGF2	SLC30A6	ADAM9	SPI1
ARC	IGF2R	SNAR-I	ADAM19	MS4A2
ATP5F1A	IL1B	SOD2	ADAM17	PICALM
ATP7	INPP5D	TF	ADAM10	SORL1
BACE1	INS	TFAM		FERMT2
BAX	INSR	TNF		SLC24A4
BCHE	IQCK	TOMM40		ABCA7
BCL2	LEP	TPI1		APOE
BDNF	MAOB	TPP1		CASS4
BIN1	MAPT	TREM2		ECHDC3
CALM1	MIR100	VEGFA		ADAM10
CASP3	MIR124A-3	VSNL1		IQCK
CASS4	MIR146A	WWOX		ACE
CD2AP	MIR296			ADAMTS1
CD33	MIR3622B			WWOX
CHRNA7	MIR375			
CHRNA7	MIR4467			
CLU	MIR505			
CR1	MIR708			
CRH	MIR766			
CST3	MPO			
CTR1B	MS4A4A			
CTR1C	MTHFR			
CYP2D6	NCSTN			
CYP46A1	NECTIN2			
DHCR24	NOS3			
DPYSL2	NPY			
EIF2S1	PCDH11X			
ENO1	PGRMC1			
EPHA1	PICALM			

Table S5: Gold Standard gene sets from CTD, AD+FAD and GWAS Knukle meta analysis