

Supplementary Table S1. Prioritization of candidate FPC susceptibility genes by private heterozygous PTVs

Gene	Number of private heterozygous PTVs in FPC kindred	Number of private heterozygous PTVs in BCCS samples	Number FPC patient tumors with somatic mutation	DNA repair gene	Cancer driver gene	FPC susceptibility gene	Hereditary cancer gene	Hereditary pancreatitis gene
ATM	19	1	-	Yes	Yes	Yes	Yes	-
SSPO	12	8	1	-	-	-	-	-
DNAH14	10	3	-	-	-	-	-	-
CD36	9	3	-	-	-	-	-	-
TET2	9	1	-	-	Yes	-	-	-
MUC16	8	14	-	-	-	-	-	-
DNHD1	7	4	1	-	-	-	-	-
DNMT3A	7	1	-	-	Yes	-	-	-
PKHD1L1	7	9	-	-	-	-	-	-
DNAH3	6	5	-	-	-	-	-	-
MYH7B	6	1	-	-	-	-	-	-
PKD1L2	6	6	-	-	-	-	-	-
POLN	6	2	-	Yes	-	-	-	-
POLQ	6	7	-	Yes	-	-	-	-
RP1L1	6	6	-	-	-	-	-	-
TTN	6	5	4	-	-	-	-	-
WDR87	6	7	-	-	-	-	-	-
ABCA13	5	3	1	-	-	-	-	-
ASXL1	5	1	-	-	Yes	-	-	-
BBS10	5	0	-	-	-	-	-	-
BRC A2	5	6	1	Yes	Yes	Yes	Yes	-
CENP1	5	1	-	-	-	-	-	-
CEP290	5	5	-	-	-	-	-	-
CYP3A5	5	2	-	-	-	-	-	-
DNAH12	5	6	-	-	-	-	-	-
DNAH6	5	1	1	-	-	-	-	-
EPPK1	5	4	-	-	-	-	-	-
ESYT3	5	1	-	-	-	-	-	-
FRAS1	5	4	-	-	-	-	-	-
HGC6.3	5	0	-	-	-	-	-	-
IGFN1	5	5	-	-	-	-	-	-
KCP	5	4	-	-	-	-	-	-
LRRC43	5	0	-	-	-	-	-	-
MCTP2	5	1	-	-	-	-	-	-
MPO	5	1	-	-	-	-	-	-
MUC4	5	5	-	-	-	-	-	-
OBSCN	5	8	2	-	-	-	-	-
PALB2	5	0	-	Yes	-	Yes	Yes	-
SLCO1B3	5	2	-	-	-	-	-	-
SYT15	5	3	-	-	-	-	-	-
XIRP2	5	3	1	-	-	-	-	-
ZNF266	5	2	-	-	-	-	-	-
ZNF530	5	1	-	-	-	-	-	-
ACACB	4	1	1	-	-	-	-	-
ALS2CL	4	2	-	-	-	-	-	-
AMER3	4	0	2	-	-	-	-	-
ANKRD35	4	4	-	-	-	-	-	-
ATP10B	4	1	-	-	-	-	-	-
ATP8B3	4	6	-	-	-	-	-	-
C10orf95	4	0	-	-	-	-	-	-
C2orf88	4	0	-	-	-	-	-	-
C5orf42	4	2	-	-	-	-	-	-
CACNA2D4	4	2	-	-	-	-	-	-
CAPN14	4	0	-	-	-	-	-	-
CCDC141	4	1	-	-	-	-	-	-
CCDC142	4	0	-	-	-	-	-	-
CCDC173	4	3	-	-	-	-	-	-
CCDC180	4	4	-	-	-	-	-	-
CDH26	4	1	-	-	-	-	-	-
CDKN2A	4	0	5	Yes	Yes	Yes	Yes	-
CEP89	4	2	-	-	-	-	-	-
CFTR	4	5	-	-	-	-	-	-
CLTCL1	4	1	-	-	-	-	-	-
COL6A5	4	3	-	-	-	-	-	-
CROT	4	2	-	-	-	-	-	-
DHX58	4	3	-	-	-	-	-	-
DNAH10	4	4	1	-	-	-	-	-
DNAH8	4	5	-	-	-	-	-	-
DNAH9	4	2	1	-	-	-	-	-
DOK7	4	0	-	-	-	-	-	-
EFCAB13	4	0	1	-	-	-	-	-
FAM151A	4	3	-	-	-	-	-	-
FAM186A	4	3	-	-	-	-	-	-
FANCG	4	1	-	Yes	-	-	Yes	-
FETUB	4	0	-	-	-	-	-	-
FPGT-TNNI3K	4	1	-	-	-	-	-	-
GPR155	4	0	-	-	-	-	-	-
HARS2	4	0	-	-	-	-	-	-
IQGAP2	4	2	-	-	-	-	-	-
KIF6	4	1	-	-	-	-	-	-
LOC440335	4	0	-	-	-	-	-	-
MYH1	4	2	-	-	-	-	-	-
MYO7B	4	2	3	-	-	-	-	-
MYOF	4	2	-	-	-	-	-	-
MYO2	4	3	-	-	-	-	-	-
NLRX1	4	0	-	-	-	-	-	-
PCDHAC1	4	2	-	-	-	-	-	-
PKDREJ	4	3	-	-	-	-	-	-
PTPN22	4	0	-	-	-	-	-	-
RANBP17	4	3	-	-	-	-	-	-
RYR1	4	5	4	-	-	-	-	-
SLC4A11	4	1	-	-	-	-	-	-
SPAG4	4	0	-	-	-	-	-	-
SPATA31E1	4	4	-	-	-	-	-	-
SPG7	4	1	-	-	-	-	-	-
SPINK5	4	0	-	-	-	-	-	-
TEX15	4	7	-	-	-	-	-	-
TRIM47	4	1	-	-	-	-	-	-
TLL6	4	2	-	-	-	-	-	-
USH2A	4	6	1	-	-	-	-	-
USP45	4	5	-	-	-	-	-	-

ZBBX	4	1	1	-	-	-	-	-	-
ZDBF2	4	1	-	-	-	-	-	-	-
ZFR2	4	1	-	-	-	-	-	-	-
ZNF142	4	0	-	-	-	-	-	-	-
AARS2	3	1	-	-	-	-	-	-	-
ABCA10	3	2	1	-	-	-	-	-	-
ABCA12	3	0	-	-	-	-	-	-	-
ABCA4	3	0	-	-	-	-	-	-	-
ABCA7	3	4	-	-	-	-	-	-	-
ABCB5	3	3	-	-	-	-	-	-	-
ABCC11	3	0	1	-	-	-	-	-	-
ABCC2	3	1	-	-	-	-	-	-	-
ACBD4	3	2	-	-	-	-	-	-	-
ADAM2	3	0	-	-	-	-	-	-	-
ADAMTSL4	3	1	-	-	-	-	-	-	-
ADCY10	3	3	-	-	-	-	-	-	-
ALS2CR11	3	1	-	-	-	-	-	-	-
ANKMY1	3	2	-	-	-	-	-	-	-
APOBR	3	1	-	-	-	-	-	-	-
ARHGAP10	3	1	-	-	-	-	-	-	-
ARHGEF40	3	2	-	-	-	-	-	-	-
ASB18	3	0	-	-	-	-	-	-	-
ASPSCR1	3	2	-	-	-	-	-	-	-
ATP13A5	3	0	-	-	-	-	-	-	-
ATP1A4	3	5	-	-	-	-	-	-	-
BANK1	3	1	-	-	-	-	-	-	-
BBS12	3	2	1	-	-	-	-	-	-
BTBD11	3	0	-	-	-	-	-	-	-
BUB1B	3	0	1	Yes	-	-	-	Yes	-
C16orf89	3	0	-	-	-	-	-	-	-
HEATR9	3	0	-	-	-	-	-	-	-
C17orf80	3	2	-	-	-	-	-	-	-
TBC1D32	3	4	-	-	-	-	-	-	-
C8A	3	2	-	-	-	-	-	-	-
C9orf131	3	1	-	-	-	-	-	-	-
C9orf84	3	0	-	-	-	-	-	-	-
CAP52	3	2	-	-	-	-	-	-	-
CARD14	3	3	-	-	-	-	-	-	-
CARNS1	3	0	-	-	-	-	-	-	-
CATSPER3	3	0	-	-	-	-	-	-	-
CBX2	3	2	-	-	-	-	-	-	-
CCDC129	3	1	-	-	-	-	-	-	-
CCDC40	3	0	1	-	-	-	-	-	-
CD101	3	2	-	-	-	-	-	-	-
CEP250	3	1	-	-	-	-	-	-	-
CHRNE	3	1	-	-	-	-	-	-	-
CIDEB	3	1	-	-	-	-	-	-	-
CLCA1	3	1	1	-	-	-	-	-	-
CLCNKA	3	2	-	-	-	-	-	-	-
CLIC3	3	1	-	-	-	-	-	-	-
CLIP1	3	0	-	-	-	-	-	-	-
COL6A6	3	3	-	-	-	-	-	-	-
CPZ	3	1	-	-	-	-	-	-	-
CREB3L3	3	1	-	-	-	-	-	-	-
CSRP2BP	3	0	-	-	-	-	-	-	-
DENND4A	3	0	-	-	-	-	-	-	-
DNAH11	3	3	1	-	-	-	-	-	-
DNAH17	3	3	-	-	-	-	-	-	-
DNAH7	3	4	3	-	-	-	-	-	-
DNAJC28	3	1	-	-	-	-	-	-	-
DUOX1	3	1	-	-	-	-	-	-	-
DUSP27	3	2	-	-	-	-	-	-	-
ECT2L	3	0	-	-	-	-	-	-	-
EFCAB6	3	6	-	-	-	-	-	-	-
ADGRE2	3	5	-	-	-	-	-	-	-
EPX	3	3	-	-	-	-	-	-	-
ERAP2	3	2	-	-	-	-	-	-	-
ERVV-2	3	0	-	-	-	-	-	-	-
ESCO2	3	1	-	Yes	-	-	-	-	-
EYS	3	5	1	-	-	-	-	-	-
FAM161A	3	1	-	-	-	-	-	-	-
FAM185A	3	0	-	-	-	-	-	-	-
FANCC	3	0	-	Yes	-	-	-	Yes	-
FANCM	3	3	2	Yes	-	-	-	Yes	-
FCRL6	3	2	-	-	-	-	-	-	-
FER1L6	3	1	-	-	-	-	-	-	-
GALK2	3	0	-	-	-	-	-	-	-
GJB2	3	3	-	-	-	-	-	-	-
GPIBA	3	1	-	-	-	-	-	-	-
GPBAR1	3	0	-	-	-	-	-	-	-
HEATR6	3	3	-	-	-	-	-	-	-
HEMGN	3	1	-	-	-	-	-	-	-
HGFAC	3	1	-	-	-	-	-	-	-
IFNAR2	3	0	-	-	-	-	-	-	-
IGSF10	3	6	1	-	-	-	-	-	-
IL12RB2	3	1	-	-	-	-	-	-	-
IQCE	3	1	1	-	-	-	-	-	-
KIAA0141	3	1	-	-	-	-	-	-	-
KIAA1217	3	1	-	-	-	-	-	-	-
KIAA1683	3	4	-	-	-	-	-	-	-
LAMB4	3	4	-	-	-	-	-	-	-
LARS	3	2	-	-	-	-	-	-	-
LEKR1	3	0	-	-	-	-	-	-	-
LIME1	3	0	-	-	-	-	-	-	-
LOC402160	3	0	-	-	-	-	-	-	-
LRP1B	3	3	3	-	-	-	-	-	-
LRRC26	3	0	-	-	-	-	-	-	-
LRR1Q1	3	6	1	-	-	-	-	-	-
LTBP1	3	0	1	-	-	-	-	-	-
L175-CD302	3	1	-	-	-	-	-	-	-
LZTR1	3	1	-	-	-	-	-	-	-
MAMDC4	3	4	-	-	-	-	-	-	-
MAN2A2	3	0	-	-	-	-	-	-	-
MAN2C1	3	2	-	-	-	-	-	-	-
MFI2	3	1	-	-	-	-	-	-	-
MMP9	3	1	-	-	-	-	-	-	-



AGR3	2	2	-	-	-	-	-	-	-
AIFM3	2	1	-	-	-	-	-	-	-
AIRE	2	1	-	-	-	-	-	-	-
AKAP12	2	0	-	-	-	-	-	-	-
AKR1D1	2	3	-	-	-	-	-	-	-
ALDH16A1	2	2	-	-	-	-	-	-	-
ALDH3A1	2	1	-	-	-	-	-	-	-
ALDH3B1	2	0	1	-	-	-	-	-	-
ALG13	2	0	-	-	-	-	-	-	-
ALLC	2	0	-	-	-	-	-	-	-
ALMS1	2	4	-	-	-	-	-	-	-
ALOX5AP	2	0	-	-	-	-	-	-	-
ALPK2	2	4	-	-	-	-	-	-	-
ALPK3	2	1	1	-	-	-	-	-	-
ALS2CR12	2	2	-	-	-	-	-	-	-
CARF	2	0	-	-	-	-	-	-	-
AMHR2	2	1	-	-	-	-	-	-	-
AMICA1	2	2	-	-	-	-	-	-	-
AMPD3	2	1	-	-	-	-	-	-	-
ANGPTL4	2	2	-	-	-	-	-	-	-
ANGPTL5	2	3	-	-	-	-	-	-	-
ANKK1	2	3	-	-	-	-	-	-	-
ANKRD13D	2	0	-	-	-	-	-	-	-
ANKRD42	2	1	-	-	-	-	-	-	-
ANKZF1	2	2	-	-	-	-	-	-	-
ANO7	2	2	1	-	-	-	-	-	-
ANXA5	2	0	-	-	-	-	-	-	-
AOX1	2	6	-	-	-	-	-	-	-
AP1G2	2	1	-	-	-	-	-	-	-
APOL5	2	2	-	-	-	-	-	-	-
APPL2	2	3	-	-	-	-	-	-	-
LVRN	2	2	-	-	-	-	-	-	-
ARHGAP11A	2	0	-	-	-	-	-	-	-
ARHGAP25	2	0	-	-	-	-	-	-	-
ARHGAP9	2	0	-	-	-	-	-	-	-
ARHGEF1	2	0	1	-	-	-	-	-	-
ARHGEF10	2	2	-	-	-	-	-	-	-
ARHGEF37	2	2	-	-	-	-	-	-	-
ARL10	2	0	-	-	-	-	-	-	-
ARSA	2	1	-	-	-	-	-	-	-
ASB11	2	0	-	-	-	-	-	-	-
ASB13	2	0	-	-	-	-	-	-	-
ASPG	2	2	-	-	-	-	-	-	-
ASPM	2	1	-	-	-	-	-	-	-
ASTE1	2	2	-	Yes	-	-	-	-	-
ASXL3	2	0	-	-	-	-	-	-	-
ATF7IP2	2	0	-	-	-	-	-	-	-
ATG2B	2	1	-	-	-	-	-	-	-
ATG9B	2	1	-	-	-	-	-	-	-
ATP2C2	2	3	-	-	-	-	-	-	-
ATP6V0A4	2	0	-	-	-	-	-	-	-
ATR	2	5	-	Yes	-	-	-	-	-
B3GNTL1	2	1	-	-	-	-	-	-	-
BBS4	2	0	-	-	-	-	-	-	-
BEST3	2	2	-	-	-	-	-	-	-
BIRC6	2	1	1	-	-	-	-	-	-
BLVRB	2	0	-	-	-	-	-	-	-
BNIP1	2	1	-	-	-	-	-	-	-
BRC1A1	2	2	-	Yes	Yes	Yes	Yes	Yes	-
BRICD5	2	2	-	-	-	-	-	-	-
BRIP1	2	4	-	Yes	-	-	-	Yes	-
BSG	2	0	-	-	-	-	-	-	-
BTN2A2	2	2	-	-	-	-	-	-	-
C11orf16	2	1	-	-	-	-	-	-	-
C11orf40	2	2	-	-	-	-	-	-	-
C11orf42	2	1	-	-	-	-	-	-	-
C11orf49	2	1	-	-	-	-	-	-	-
RIT1A1	2	1	-	-	-	-	-	-	-
C14orf159	2	3	-	-	-	-	-	-	-
C16orf13	2	0	-	-	-	-	-	-	-
C16orf58	2	1	-	-	-	-	-	-	-
C1orf100	2	0	1	-	-	-	-	-	-
C1orf101	2	2	-	-	-	-	-	-	-
C1orf112	2	1	-	-	-	-	-	-	-
C1orf116	2	0	-	-	-	-	-	-	-
C1orf177	2	2	-	-	-	-	-	-	-
C1orf204	2	0	-	-	-	-	-	-	-
C1QTNF7	2	0	-	-	-	-	-	-	-
C21orf58	2	1	-	-	-	-	-	-	-
C22orf23	2	1	-	-	-	-	-	-	-
PRR34	2	0	-	-	-	-	-	-	-
C22orf29	2	0	-	-	-	-	-	-	-
C2orf16	2	0	-	-	-	-	-	-	-
ZGRF1	2	3	-	-	-	-	-	-	-
C4orf29	2	2	-	-	-	-	-	-	-
C5orf45	2	2	-	-	-	-	-	-	-
C6orf1	2	1	-	-	-	-	-	-	-
C7orf72	2	0	-	-	-	-	-	-	-
C7orf76	2	0	-	-	-	-	-	-	-
C8orf34	2	1	-	-	-	-	-	-	Yes
C9orf116	2	0	-	-	-	-	-	-	-
C9orf156	2	1	-	-	-	-	-	-	-
C9orf3	2	0	-	-	-	-	-	-	-
CABP2	2	1	1	-	-	-	-	-	-
CADPS2	2	0	-	-	-	-	-	-	-
CALCR	2	2	1	-	-	-	-	-	-
CAPN12	2	0	-	-	-	-	-	-	-
CAPN3	2	0	-	-	-	-	-	-	-
CAPNS2	2	1	-	-	-	-	-	-	-
CATSPER4	2	1	-	-	-	-	-	-	-
CBLB	2	0	-	-	-	-	-	-	-
CC2D2B	2	1	-	-	-	-	-	-	-
CFAP36	2	2	-	-	-	-	-	-	-
CCDC110	2	0	-	-	-	-	-	-	-
CCDC113	2	0	-	-	-	-	-	-	-
VPS50	2	0	-	-	-	-	-	-	-

CCDC14	2	1	-	-	-	-	-	-	-
CCDC154	2	1	-	-	-	-	-	-	-
CCDC170	2	1	-	-	-	-	-	-	-
CCDC171	2	2	-	-	-	-	-	-	-
CCDC38	2	3	-	-	-	-	-	-	-
CCDC42	2	0	-	-	-	-	-	-	-
CCDC59	2	0	-	-	-	-	-	-	-
CCDC60	2	1	-	-	-	-	-	-	-
CCDC66	2	7	-	-	-	-	-	-	-
CCDC84	2	1	-	-	-	-	-	-	-
CD109	2	5	-	-	-	-	-	-	-
CD177	2	0	1	-	-	-	-	-	-
CD180	2	1	-	-	-	-	-	-	-
CD6	2	0	-	-	-	-	-	-	-
CDC45	2	0	-	-	Yes	-	-	-	-
CDC7	2	0	1	-	-	-	-	-	-
CDK5RAP3	2	1	-	-	-	-	-	-	-
CDKL3	2	0	-	-	-	-	-	-	-
CEACAM1	2	1	-	-	-	-	-	-	-
CECR5	2	1	-	-	-	-	-	-	-
CENPF	2	3	-	-	-	-	-	-	-
CENPO	2	2	-	-	-	-	-	-	-
CEP104	2	2	1	-	-	-	-	-	-
CEP152	2	1	-	-	-	-	-	-	-
CEP192	2	3	-	-	-	-	-	-	-
CES2	2	1	-	-	-	-	-	-	-
CHD1L	2	3	-	-	Yes	-	-	-	-
CHD3	2	0	-	-	-	-	-	-	-
CHID1	2	1	-	-	-	-	-	-	-
CHST15	2	1	-	-	-	-	-	-	-
CISD3	2	0	-	-	-	-	-	-	-
CIZ1	2	0	-	-	-	-	-	-	-
CKM	2	0	-	-	-	-	-	-	-
CLCNKB	2	2	-	-	-	-	-	-	-
CLDN24	2	0	-	-	-	-	-	-	-
CMYA5	2	3	-	-	-	-	-	-	-
CNGB3	2	0	-	-	-	-	-	-	-
CNKSR1	2	3	-	-	-	-	-	-	-
CNTN4	2	1	-	-	-	-	-	-	-
COA1	2	1	-	-	-	-	-	-	-
COL16A1	2	0	-	-	-	-	-	-	-
COL20A1	2	3	-	-	-	-	-	-	-
COL22A1	2	1	-	-	-	-	-	-	-
COL28A1	2	1	-	-	-	-	-	-	-
COL9A1	2	3	-	-	-	-	-	-	-
COP22	2	0	-	-	-	-	-	-	-
CORIN	2	1	-	-	-	-	-	-	-
CORO7-PAM16	2	2	-	-	-	-	-	-	-
CPA2	2	1	-	-	-	-	-	-	-
CPQ	2	1	-	-	-	-	-	-	-
CPXM2	2	0	-	-	-	-	-	-	-
CR3	2	0	-	-	-	-	-	-	-
CRIP2	2	1	-	-	-	-	-	-	-
CRY1	2	0	-	-	Yes	-	-	-	-
CRYBG3	2	0	-	-	-	-	-	-	-
CRYL1	2	0	-	-	-	-	-	-	-
CRYZ	2	1	-	-	-	-	-	-	-
CSNK2A3	2	0	-	-	-	-	-	-	-
CSRNP1	2	0	-	-	-	-	-	-	-
CTH	2	1	-	-	-	-	-	-	-
CTNNA3	2	0	-	-	-	-	-	-	-
CTTNBP2	2	1	-	-	-	-	-	-	-
CXCR1	2	0	-	-	-	-	-	-	-
CYHR1	2	1	-	-	-	-	-	-	-
CYP1A2	2	1	-	-	-	-	-	-	-
CYP27A1	2	1	-	-	-	-	-	-	-
CYP4A11	2	2	-	-	-	-	-	-	-
DAO	2	0	-	-	-	-	-	-	-
ACKR1	2	1	-	-	-	-	-	-	-
DCBLD2	2	0	-	-	-	-	-	-	-
DCDC2B	2	0	-	-	-	-	-	-	-
DCLRE1C	2	0	-	-	Yes	-	-	-	-
DCT	2	0	-	-	-	-	-	-	-
DCXR	2	2	-	-	-	-	-	-	-
DDX60L	2	3	1	-	-	-	-	-	-
DENND1C	2	0	-	-	-	-	-	-	-
DENND4B	2	1	-	-	-	-	-	-	-
DENND4C	2	0	-	-	-	-	-	-	-
DGKG	2	0	-	-	-	-	-	-	-
DGKH	2	1	-	-	-	-	-	-	-
DGKQ	2	1	-	-	-	-	-	-	-
DHODH	2	0	-	-	-	-	-	-	-
DHRS7B	2	2	-	-	-	-	-	-	-
DHX57	2	2	1	-	-	-	-	-	-
DIO2	2	0	-	-	-	-	-	-	-
DIS3L	2	2	-	-	-	-	-	-	-
DLEC1	2	3	-	-	-	-	-	-	-
DMBT1	2	0	1	-	-	-	-	-	-
DMGDH	2	1	-	-	-	-	-	-	-
DNAH1	2	3	-	-	-	-	-	-	-
DNAH2	2	1	-	-	-	-	-	-	-
DNAH5	2	6	1	-	-	-	-	-	-
DNAJC21	2	2	-	-	-	-	-	-	-
DNAJC3	2	0	-	-	-	-	-	-	-
DNASE1	2	1	-	-	-	-	-	-	-
DOC2A	2	0	-	-	-	-	-	-	-
DOCK7	2	0	-	-	-	-	-	-	-
DOK3	2	1	1	-	-	-	-	-	-
DSC1	2	0	-	-	-	-	-	-	-
DSC3	2	3	-	-	-	-	-	-	-
DSN1	2	1	-	-	-	-	-	-	-
DTHD1	2	2	-	-	-	-	-	-	-
DUOX2	2	0	-	-	-	-	-	-	-
DYNC2H1	2	0	2	-	-	-	-	-	-
EBPL	2	1	-	-	-	-	-	-	-
EFCAB12	2	2	-	-	-	-	-	-	-

EFHB	2	2	-	-	-	-	-	-	-
EFR3A	2	0	-	-	-	-	-	-	-
EFTUD1	2	1	-	-	-	-	-	-	-
ELAC2	2	0	-	-	-	-	-	-	-
EMC1	2	4	-	-	-	-	-	-	-
EME2	2	1	-	Yes	-	-	-	-	-
EML6	2	1	-	-	-	-	-	-	-
ENKD1	2	2	-	-	-	-	-	-	-
ENO1	2	1	-	-	-	-	-	-	-
EPB41L4A	2	1	-	-	-	-	-	-	-
EPHA1	2	0	-	-	-	-	-	-	-
EPHA10	2	2	-	-	-	-	-	-	-
EPHA2	2	0	-	-	-	-	-	-	-
EPYC	2	0	-	-	-	-	-	-	-
ERCC2	2	1	-	Yes	-	-	-	Yes	-
EXD3	2	1	-	-	-	-	-	-	-
EXO1	2	2	-	Yes	-	-	-	-	-
FAAH2	2	1	-	-	-	-	-	-	-
FAM111A	2	1	-	-	-	-	-	-	-
FAM111B	2	2	1	-	-	-	-	-	-
FAM160A1	2	1	-	-	-	-	-	-	-
FAM184B	2	1	-	-	-	-	-	-	-
FAM186B	2	1	-	-	-	-	-	-	-
FAM188B	2	1	-	-	-	-	-	-	-
ERIC6B	2	1	-	-	-	-	-	-	-
FAM200B	2	3	-	-	-	-	-	-	-
FAM216B	2	0	-	-	-	-	-	-	-
FAM228B	2	0	-	-	-	-	-	-	-
FAM26D	2	1	-	-	-	-	-	-	-
FAM71A	2	0	-	-	-	-	-	-	-
FAM81B	2	1	-	-	-	-	-	-	-
FAM92B	2	1	-	-	-	-	-	-	-
FANCF	2	1	-	Yes	-	-	-	Yes	-
FAT3	2	0	-	-	-	-	-	-	-
FBF1	2	0	-	-	-	-	-	-	-
FBN3	2	2	-	-	-	-	-	-	-
FBXL21	2	2	-	-	-	-	-	-	-
FBXW10	2	1	-	-	-	-	-	-	-
FCER2	2	0	-	-	-	-	-	-	-
FDXACB1	2	0	-	-	-	-	-	-	-
FLJ22184	2	0	-	-	-	-	-	-	-
FNI	2	1	-	-	-	-	-	-	-
FNBP1L	2	0	-	-	-	-	-	-	-
FOXF2	2	0	-	-	-	-	-	-	-
FOXJ2	2	0	-	-	-	-	-	-	-
FPGT	2	1	-	-	-	-	-	-	-
FSIP2	2	1	-	-	-	-	-	-	-
FUT4	2	1	-	-	-	-	-	-	-
GABRR2	2	0	-	-	-	-	-	-	-
GANC	2	1	1	-	-	-	-	-	-
GAPDH	2	0	-	-	-	-	-	-	-
GAS2L2	2	1	-	-	-	-	-	-	-
GBGT1	2	1	-	-	-	-	-	-	-
GDPD4	2	0	-	-	-	-	-	-	-
GFR44	2	0	-	-	-	-	-	-	-
GGT7	2	0	-	-	-	-	-	-	-
GIMAP6	2	0	-	-	-	-	-	-	-
GIN1	2	0	-	-	-	-	-	-	-
GJB6	2	0	-	-	-	-	-	-	-
GLB1L3	2	0	-	-	-	-	-	-	-
GLIPR1L2	2	0	-	-	-	-	-	-	-
GNL2	2	1	-	-	-	-	-	-	-
GNPTAB	2	1	-	-	-	-	-	-	-
GPATCH3	2	2	-	-	-	-	-	-	-
ADGRG7	2	0	-	-	-	-	-	-	-
GPR152	2	0	-	-	-	-	-	-	-
GPR179	2	3	-	-	-	-	-	-	-
ADGRG3	2	0	-	-	-	-	-	-	-
GPRIN3	2	0	-	-	-	-	-	-	-
GRAMD1C	2	2	-	-	-	-	-	-	-
GRIN2C	2	1	-	-	-	-	-	-	-
GRIN3B	2	4	-	-	-	-	-	-	-
GRM2	2	0	-	-	-	-	-	-	-
GSS	2	1	-	-	-	-	-	-	-
GSTM2	2	1	-	-	-	-	-	-	-
GTSE1	2	0	-	-	-	-	-	-	-
GUCY2C	2	1	-	-	-	-	-	-	-
GUCY2D	2	0	-	-	-	-	-	-	-
GUCY2F	2	1	-	-	-	-	-	-	-
HACL1	2	2	1	-	-	-	-	-	-
HAS1	2	0	-	-	-	-	-	-	-
HCAR3	2	0	-	-	-	-	-	-	-
HEATR4	2	2	-	-	-	-	-	-	-
HELQ	2	2	-	-	-	-	-	-	-
HERCS	2	3	-	-	-	-	-	-	-
HIP1R	2	1	1	-	-	-	-	-	-
HIST1H3J	2	0	-	-	-	-	-	-	-
HIST1H4B	2	0	1	-	-	-	-	-	-
HOOK1	2	0	-	-	-	-	-	-	-
HOOK2	2	0	-	-	-	-	-	-	-
HOXD10	2	0	-	-	-	-	-	-	-
HSD3B7	2	1	-	-	-	-	-	-	-
HSPA9	2	0	1	-	-	-	-	-	-
HTR5A	2	0	-	-	-	-	-	-	-
HYAL4	2	0	-	-	-	-	-	-	-
HYDIN	2	0	1	-	-	-	-	-	-
LAH1	2	0	1	-	-	-	-	-	-
ID12	2	0	-	-	-	-	-	-	-
IDUA	2	0	-	-	-	-	-	-	-
IFT1	2	1	-	-	-	-	-	-	-
IFT140	2	0	-	-	-	-	-	-	-
IFT88	2	0	-	-	-	-	-	-	-
IL17F	2	0	-	-	-	-	-	-	-
IL17RD	2	2	-	-	-	-	-	-	-
IL1F10	2	1	-	-	-	-	-	-	-
ILDRI	2	0	1	-	-	-	-	-	-

INPP5K	2	1	-	-	-	-	-	-	-
INSRR	2	1	-	-	-	-	-	-	-
IQCC	2	3	-	-	-	-	-	-	-
IQCD	2	0	-	-	-	-	-	-	-
IQUB	2	0	-	-	-	-	-	-	-
IRAK2	2	0	-	-	-	-	-	-	-
ITFG3	2	0	-	-	-	-	-	-	-
ITGA2	2	0	-	-	-	-	-	-	-
ITGAD	2	1	-	-	-	-	-	-	-
ITGB6	2	0	-	-	-	-	-	-	-
ITIH2	2	2	-	-	-	-	-	-	-
IVL	2	0	1	-	-	-	-	-	-
JMJD4	2	0	-	-	-	-	-	-	-
JRK	2	0	-	-	-	-	-	-	-
JSRP1	2	0	-	-	-	-	-	-	-
KANK2	2	0	-	-	-	-	-	-	-
KANSL1L	2	1	-	-	-	-	-	-	-
KAZALD1	2	0	-	-	-	-	-	-	-
KBTBD12	2	0	-	-	-	-	-	-	-
KBTBD7	2	0	-	-	-	-	-	-	-
KCNAB3	2	0	-	-	-	-	-	-	-
KCNV4	2	0	-	-	-	-	-	-	-
KCNJ1	2	1	-	-	-	-	-	-	-
KCNMA1	2	2	-	-	-	-	-	-	-
KDEL3	2	1	-	-	-	-	-	-	-
KDM3A	2	0	1	-	-	-	-	-	-
KEL	2	4	-	-	-	-	-	-	-
KIAA0100	2	1	-	-	-	-	-	-	-
KIAA0196	2	0	-	-	-	-	-	-	-
KIAA0226L	2	0	-	-	-	-	-	-	-
KIAA0408	2	0	-	-	-	-	-	-	-
KIAA0556	2	3	1	-	-	-	-	-	-
KIAA0586	2	1	-	-	-	-	-	-	-
KIAA1407	2	3	1	-	-	-	-	-	-
KIAA1586	2	1	-	-	-	-	-	-	-
CEP295	2	1	-	-	-	-	-	-	-
KIF14	2	1	-	-	-	-	-	-	-
KIF16B	2	1	-	-	-	-	-	-	-
KIF7	2	1	-	-	-	-	-	-	-
KLHL33	2	0	-	-	-	-	-	-	-
KLHL35	2	0	-	-	-	-	-	-	-
KLHL6	2	0	-	-	-	-	-	-	-
KRBA1	2	0	-	-	-	-	-	-	-
KRR1	2	0	-	-	-	-	-	-	-
KRT4	2	2	-	-	-	-	-	-	-
KRT79	2	0	-	-	-	-	-	-	-
KRT9	2	0	-	-	-	-	-	-	-
KRTAP6-2	2	0	-	-	-	-	-	-	-
L2HGDH	2	0	-	-	-	-	-	-	-
LAMB2	2	0	-	-	-	-	-	-	-
LANCL1	2	0	-	-	-	-	-	-	-
LARP7	2	1	1	-	-	-	-	-	-
LCTL	2	0	-	-	-	-	-	-	-
LDHB	2	0	-	-	-	-	-	-	-
P3H2	2	1	-	-	-	-	-	-	-
LGR4	2	0	-	-	-	-	-	-	-
LHCGR	2	2	-	-	-	-	-	-	-
LIG3	2	0	-	-	Yes	-	-	-	-
LILRB5	2	0	-	-	-	-	-	-	-
LMF2	2	1	-	-	-	-	-	-	-
LMLN	2	1	1	-	-	-	-	-	-
LMOD3	2	1	-	-	-	-	-	-	-
LONP2	2	2	-	-	-	-	-	-	-
LPO	2	1	-	-	-	-	-	-	-
LRRC14B	2	3	-	-	-	-	-	-	-
LRRCC1	2	1	-	-	-	-	-	-	-
LRRK1	2	0	-	-	-	-	-	-	-
LTA4H	2	1	-	-	-	-	-	-	-
LTK	2	0	-	-	-	-	-	-	-
LUC7L2	2	0	-	-	-	-	-	-	-
MAATS1	2	0	-	-	-	-	-	-	-
MADCAM1	2	1	-	-	-	-	-	-	-
MANBA	2	0	-	-	-	-	-	-	-
MAP3K19	2	0	-	-	-	-	-	-	-
MAP3K6	2	0	-	-	-	-	-	-	-
MAPKBP1	2	2	-	-	-	-	-	-	-
MATN2	2	1	-	-	-	-	-	-	-
MBD1	2	0	-	-	-	-	-	-	-
MCCC1	2	1	-	-	-	-	-	-	-
MCAM8	2	0	-	-	-	-	-	-	-
MELK	2	1	-	-	-	-	-	-	-
MESP1	2	0	-	-	-	-	-	-	-
METTL4	2	0	-	-	-	-	-	-	-
MFRP	2	0	-	-	-	-	-	-	-
MFSD12	2	1	-	-	-	-	-	-	-
MFSD7	2	1	-	-	-	-	-	-	-
MFSD9	2	0	-	-	-	-	-	-	-
MGAT2	2	0	-	-	-	-	-	-	-
MICAL1	2	0	-	-	-	-	-	-	-
MICALCL	2	2	-	-	-	-	-	-	-
MIF4GD	2	1	-	-	-	-	-	-	-
MIS18BP1	2	1	-	-	-	-	-	-	-
MMEL1	2	2	2	-	-	-	-	-	-
MMP1	2	2	-	-	-	-	-	-	-
MMP25	2	2	-	-	-	-	-	-	-
MMRN1	2	1	-	-	-	-	-	-	-
MNDA	2	3	-	-	-	-	-	-	-
MNT	2	0	-	-	-	-	-	-	-
MPDZ	2	2	-	-	-	-	-	-	-
MPP4	2	0	-	-	-	-	-	-	-
MPZL2	2	1	-	-	-	-	-	-	-
MROH8	2	2	-	-	-	-	-	-	-
MSH3	2	1	-	-	Yes	-	-	-	-
MSLN	2	0	-	-	-	-	-	-	-
MST1R	2	2	-	-	-	-	-	-	-
MTBP	2	1	-	-	-	-	-	-	-

MTMR8	2	0	-	-	-	-	-	-	-	-
MUC17	2	5	-	-	-	-	-	-	-	-
MUC6	2	2	-	-	-	-	-	-	-	-
MYBPC3	2	1	-	-	-	-	-	-	-	-
MYF6	2	0	-	-	-	-	-	-	-	-
MYH8	2	2	1	-	-	-	-	-	-	-
MYLK	2	1	-	-	-	-	-	-	-	-
MYO18B	2	1	-	-	-	-	-	-	-	-
MYO1A	2	1	-	-	-	-	-	-	-	-
MYO3A	2	2	1	-	-	-	-	-	-	-
MYRIP	2	2	1	-	-	-	-	-	-	-
NAA60	2	0	-	-	-	-	-	-	-	-
NANOS1	2	0	-	-	-	-	-	-	-	-
NBAS	2	5	-	-	-	-	-	-	-	-
NBEAL2	2	0	1	-	-	-	-	-	-	-
NBPF7	2	1	-	-	-	-	-	-	-	-
NCOR2	2	4	-	-	-	-	-	-	-	-
NDOR1	2	1	-	-	-	-	-	-	-	-
NDUFAF6	2	0	-	-	-	-	-	-	-	-
NEBL	2	0	-	-	-	-	-	-	-	-
NEDD4	2	2	-	-	-	-	-	-	-	-
NEFH	2	1	-	-	-	-	-	-	-	-
NEGF	2	0	-	-	-	-	-	-	-	-
NHSL1	2	1	-	-	-	-	-	-	-	-
NKX1-2	2	0	-	-	-	-	-	-	-	-
NLRP12	2	0	1	-	-	-	-	-	-	-
NLRP13	2	0	-	-	-	-	-	-	-	-
NLRP4	2	1	1	-	-	-	-	-	-	-
NME1	2	2	-	Yes	-	-	-	-	-	-
NME4	2	0	-	-	-	-	-	-	-	-
NNMT	2	1	-	-	-	-	-	-	-	-
NOC2L	2	1	-	-	-	-	-	-	-	-
NOC3L	2	2	-	-	-	-	-	-	-	-
NOD2	2	0	-	-	-	-	-	-	-	-
NOL3	2	1	-	-	-	-	-	-	-	-
NPC1	2	0	-	-	-	-	-	-	-	-
NR1I2	2	2	1	-	-	-	-	-	-	-
NR1I3	2	0	-	-	-	-	-	-	-	-
NRG1	2	0	-	-	-	-	-	-	-	-
NRIP1	2	0	-	-	-	-	-	-	-	-
NTSE	2	0	1	-	-	-	-	-	-	-
NTN5	2	2	-	-	-	-	-	-	-	-
NUDT6	2	0	-	-	-	-	-	-	-	-
NUDT7	2	0	-	-	-	-	-	-	-	-
NUP210	2	2	-	-	-	-	-	-	-	-
OBSL1	2	2	1	-	-	-	-	-	-	-
OCEL1	2	0	-	-	-	-	-	-	-	-
ODAM	2	2	-	-	-	-	-	-	-	-
OLFML2B	2	1	-	-	-	-	-	-	-	-
OPLAH	2	1	-	-	-	-	-	-	-	-
OR10A3	2	1	-	-	-	-	-	-	-	-
OR10W1	2	0	-	-	-	-	-	-	-	-
OR13H1	2	0	-	-	-	-	-	-	-	-
OR1E1	2	1	-	-	-	-	-	-	-	-
OR1J2	2	0	-	-	-	-	-	-	-	-
OR2B2	2	1	-	-	-	-	-	-	-	-
OR2T11	2	0	-	-	-	-	-	-	-	-
OR2T27	2	1	-	-	-	-	-	-	-	-
OR2T3	2	0	-	-	-	-	-	-	-	-
OR4A16	2	1	-	-	-	-	-	-	-	-
OR52B6	2	0	-	-	-	-	-	-	-	-
OR52M1	2	0	-	-	-	-	-	-	-	-
OR9A4	2	1	-	-	-	-	-	-	-	-
OR9K2	2	0	-	-	-	-	-	-	-	-
OSCAR	2	1	-	-	-	-	-	-	-	-
OSMR	2	3	-	-	-	-	-	-	-	-
OTOGL	2	5	-	-	-	-	-	-	-	-
PADI1	2	2	-	-	-	-	-	-	-	-
PADI3	2	0	-	-	-	-	-	-	-	-
PAEP	2	0	-	-	-	-	-	-	-	-
PARP3	2	0	-	Yes	-	-	-	-	-	-
PCDHA12	2	1	-	-	-	-	-	-	-	-
PCDHB1	2	0	-	-	-	-	-	-	-	-
PCDHGA5	2	1	1	-	-	-	-	-	-	-
PCDHGB7	2	0	-	-	-	-	-	-	-	-
PCLO	2	0	2	-	-	-	-	-	-	-
PCNT	2	0	1	-	-	-	-	-	-	-
PCSK5	2	1	-	-	-	-	-	-	-	-
PDCD11	2	0	-	-	-	-	-	-	-	-
PDE3B	2	1	-	-	-	-	-	-	-	-
PDZD3	2	1	-	-	-	-	-	-	-	-
PEX12	2	2	-	-	-	-	-	-	-	-
PEX6	2	2	-	-	-	-	-	-	-	-
PHTF1	2	2	-	-	-	-	-	-	-	-
PIDD1	2	0	1	-	-	-	-	-	-	-
PIEZO1	2	4	-	-	-	-	-	-	-	-
PIF1	2	1	-	-	-	-	-	-	-	-
PIK3C2G	2	2	1	-	-	-	-	-	-	-
PIK3R6	2	1	1	-	-	-	-	-	-	-
PILRB	2	0	-	-	-	-	-	-	-	-
PINX1	2	0	-	-	-	-	-	-	-	-
PKD1L1	2	3	-	-	-	-	-	-	-	-
PKD1L3	2	6	-	-	-	-	-	-	-	-
PLA2G4E	2	0	-	-	-	-	-	-	-	-
PLAC4	2	1	-	-	-	-	-	-	-	-
PLCD1	2	0	-	-	-	-	-	-	-	-
PLD1	2	2	-	-	-	-	-	-	-	-
PLEKHD1	2	0	-	-	-	-	-	-	-	-
PLEKHG1	2	1	-	-	-	-	-	-	-	-
PLIN4	2	1	-	-	-	-	-	-	-	-
PLK5	2	0	-	-	-	-	-	-	-	-
PMS1	2	1	-	Yes	-	-	-	-	Yes	-
PNKD	2	0	-	-	-	-	-	-	-	-
PNLIPRP1	2	1	-	-	-	-	-	-	-	-
PNLIPRP3	2	1	-	-	-	-	-	-	-	-
PNPLA8	2	0	1	-	-	-	-	-	-	-



POLG	2	0	-	Yes	-	-	-	-	-
POLK	2	0	-	Yes	-	-	-	-	-
POLL	2	0	-	Yes	-	-	-	-	-
POLR3B	2	1	-	-	-	-	-	-	-
POLRMT	2	2	-	-	-	-	-	-	-
POTE4	2	1	-	-	-	-	-	-	-
POU2F3	2	1	-	-	-	-	-	-	-
POU6F2	2	0	-	-	-	-	-	-	-
PPFIBP1	2	0	-	-	-	-	-	-	-
PPFIBP2	2	3	-	-	-	-	-	-	-
PPM1D	2	1	-	Yes	-	-	-	-	-
PPP1R12B	2	3	-	-	-	-	-	-	-
PPP1R15A	2	0	-	-	-	-	-	-	-
PPP3CC	2	0	-	-	-	-	-	-	-
PRDM7	2	0	1	-	-	-	-	-	-
PRELID2	2	0	-	-	-	-	-	-	-
PREPL	2	0	-	-	-	-	-	-	-
PRIM2	2	1	-	-	-	-	-	-	-
PROCA1	2	0	-	-	-	-	-	-	-
PRPH	2	0	1	-	-	-	-	-	-
PRRT3	2	0	-	-	-	-	-	-	-
PRSS12	2	3	-	-	-	-	-	-	-
PRSS33	2	0	-	-	-	-	-	-	-
PRSS41	2	0	-	-	-	-	-	-	-
PRSS42	2	1	-	-	-	-	-	-	-
PTGER1	2	0	-	-	-	-	-	-	-
PTPRD	2	1	-	-	-	-	-	-	-
PUS7L	2	1	1	-	-	-	-	-	-
PWP1	2	1	-	-	-	-	-	-	-
PXMP2	2	0	-	-	-	-	-	-	-
PZP	2	1	-	-	-	-	-	-	-
RAB25	2	2	-	-	-	-	-	-	-
RAB41	2	1	-	-	-	-	-	-	-
RBBP6	2	0	-	-	-	-	-	-	-
RBM5	2	1	-	-	-	-	-	-	-
RBPJL	2	2	-	-	-	-	-	-	-
RETSAT	2	2	-	-	-	-	-	-	-
RFC1	2	0	1	Yes	-	-	-	-	-
RFC4	2	0	-	Yes	-	-	-	-	-
RGS12	2	0	-	-	-	-	-	-	-
RGS3	2	2	1	-	-	-	-	-	-
RHBDD3	2	2	-	-	-	-	-	-	-
RHNO1	2	1	-	-	-	-	-	-	-
RIMS1	2	2	2	-	-	-	-	-	-
RNASEL	2	2	-	-	-	-	-	-	-
RNF215	2	0	-	-	-	-	-	-	-
RNFT1	2	0	-	-	-	-	-	-	-
RNPBP	2	3	-	-	-	-	-	-	-
ROCK1	2	0	-	-	-	-	-	-	-
RPGRIPI	2	1	1	-	-	-	-	-	-
RUFY4	2	1	-	-	-	-	-	-	-
SAA1	2	0	-	-	-	-	-	-	-
SAMHD1	2	0	-	-	-	-	-	-	-
SCLT1	2	0	-	-	-	-	-	-	-
SCN11A	2	1	1	-	-	-	-	-	-
SCYL3	2	0	1	-	-	-	-	-	-
SDCCAG8	2	1	-	-	-	-	-	-	-
SDPR	2	1	-	-	-	-	-	-	-
SEC63	2	1	-	-	-	-	-	-	-
SEMA3G	2	4	-	-	-	-	-	-	-
SEMG2	2	1	-	-	-	-	-	-	-
SERGEF	2	0	-	-	-	-	-	-	-
SFPQ	2	1	-	Yes	-	-	-	-	-
SFT2D3	2	0	-	-	-	-	-	-	-
SGK494	2	0	-	-	-	-	-	-	-
SH2D4A	2	1	-	-	-	-	-	-	-
SH2D4B	2	0	-	-	-	-	-	-	-
SH2D7	2	2	-	-	-	-	-	-	-
SHANK3	2	1	-	-	-	-	-	-	-
SHISA6	2	1	-	-	-	-	-	-	-
SIGLEC5	2	2	1	-	-	-	-	-	-
SIGLECL1	2	0	-	-	-	-	-	-	-
SIRT3	2	1	-	-	-	-	-	-	-
SLC12A7	2	0	-	-	-	-	-	-	-
SLC16A11	2	0	-	-	-	-	-	-	-
SLC16A3	2	1	-	-	-	-	-	-	-
SLC22A10	2	1	-	-	-	-	-	-	-
SLC22A16	2	2	-	-	-	-	-	-	-
SLC22A2	2	0	-	-	-	-	-	-	-
SLC27A1	2	0	-	-	-	-	-	-	-
SLC27A3	2	0	1	-	-	-	-	-	-
SLC35B2	2	0	-	-	-	-	-	-	-
SLC38A6	2	1	-	-	-	-	-	-	-
SLC39A11	2	2	-	-	-	-	-	-	-
SLC45A2	2	1	-	-	-	-	-	-	-
SLC4A5	2	0	-	-	-	-	-	-	-
SLC5A2	2	1	-	-	-	-	-	-	-
SLC6A20	2	0	-	-	-	-	-	-	-
SLC7A2	2	1	-	-	-	-	-	-	-
SLC7A9	2	0	1	-	-	-	-	-	-
SLFN12	2	2	-	-	-	-	-	-	-
SMC4	2	3	-	-	-	-	-	-	-
SMYD4	2	0	-	-	-	-	-	-	-
SNAPC4	2	2	-	-	-	-	-	-	-
SNTG2	2	0	-	-	-	-	-	-	-
SNUPN	2	0	-	-	-	-	-	-	-
SNX9	2	0	-	-	-	-	-	-	-
SOX12	2	0	-	-	-	-	-	-	-
SP110	2	2	-	-	-	-	-	-	-
SPATASL1	2	1	-	-	-	-	-	-	-
SPG11	2	1	1	-	-	-	-	-	-
SQRDL	2	1	-	-	-	-	-	-	-
SSC5D	2	1	-	-	-	-	-	-	-
STAB1	2	3	-	-	-	-	-	-	-
STEAP2	2	0	-	-	-	-	-	-	-
STEAP3	2	0	-	-	-	-	-	-	-

STK3	2	0	-	-	-	-	-	-	-
STK31	2	1	-	-	-	-	-	-	-
STON1-GTF2AIL	2	3	-	-	-	-	-	-	-
STX8	2	2	-	-	-	-	-	-	-
STYX	2	0	-	-	-	-	-	-	-
SYCE1	2	1	-	-	-	-	-	-	-
SYNM	2	4	1	-	-	-	-	-	-
SYTL2	2	2	-	-	-	-	-	-	-
TAF1C	2	1	-	-	-	-	-	-	-
TANC1	2	1	-	-	-	-	-	-	-
TARBP1	2	1	-	-	-	-	-	-	-
TARM1	2	2	-	-	-	-	-	-	-
TASIR3	2	0	-	-	-	-	-	-	-
TAS2R14	2	1	-	-	-	-	-	-	-
TATDN3	2	0	-	-	-	-	-	-	-
TBC1D1	2	0	-	-	-	-	-	-	-
TBX6	2	0	-	-	-	-	-	-	-
TCIRG1	2	0	-	-	-	-	-	-	-
TCN2	2	1	-	-	-	-	-	-	-
TCTN2	2	0	-	-	-	-	-	-	-
TDRD10	2	2	-	-	-	-	-	-	-
TGM6	2	4	-	-	-	-	-	-	-
THEG	2	0	-	-	-	-	-	-	-
TLE6	2	1	-	-	-	-	-	-	-
TLR1	2	4	-	-	-	-	-	-	-
TLR10	2	1	-	-	-	-	-	-	-
TLR2	2	2	-	-	-	-	-	-	-
TMC2	2	2	-	-	-	-	-	-	-
TMC3	2	1	-	-	-	-	-	-	-
TMC4	2	0	-	-	-	-	-	-	-
TMEM143	2	1	-	-	-	-	-	-	-
TMEM232	2	0	-	-	-	-	-	-	-
TMEM255B	2	0	-	-	-	-	-	-	-
TMEM308	2	0	-	-	-	-	-	-	-
TMEM44	2	0	1	-	-	-	-	-	-
TMPRSS15	2	0	-	-	-	-	-	-	-
TMPRSS5	2	2	-	-	-	-	-	-	-
TP53	2	0	28	Yes	Yes	Yes	Yes	Yes	-
TP53I13	2	0	-	-	-	-	-	-	-
TPRG1L	2	2	-	-	-	-	-	-	-
TPSG1	2	1	-	-	-	-	-	-	-
TRIM16	2	0	-	-	-	-	-	-	-
TRIM38	2	2	-	-	-	-	-	-	-
TRIM4	2	1	-	-	-	-	-	-	-
TRIM42	2	0	-	-	-	-	-	-	-
TRIM60	2	3	-	-	-	-	-	-	-
TRIOBP	2	3	-	-	-	-	-	-	-
TRMT44	2	1	-	-	-	-	-	-	-
TRPM1	2	2	-	-	-	-	-	-	-
TRPV3	2	2	-	-	-	-	-	-	-
TSR3	2	0	-	-	-	-	-	-	-
TSSC4	2	1	-	-	-	-	-	-	-
TTC27	2	0	-	-	-	-	-	-	-
TTC29	2	2	-	-	-	-	-	-	-
TTC34	2	0	-	-	-	-	-	-	-
TTC39B	2	1	-	-	-	-	-	-	-
CFAP46	2	1	-	-	-	-	-	-	-
TLL2	2	0	-	-	-	-	-	-	-
TLL3	2	2	-	-	-	-	-	-	-
TUFM	2	1	-	-	-	-	-	-	-
TXNRD3NB	2	1	-	-	-	-	-	-	-
TYR	2	1	-	-	-	-	-	-	-
UCP2	2	1	-	Yes	-	-	-	-	-
UFSP1	2	0	-	-	-	-	-	-	-
UGGT2	2	1	-	-	-	-	-	-	-
UGT3A1	2	0	-	-	-	-	-	-	-
URB2	2	2	-	-	-	-	-	-	-
USP10	2	0	-	-	-	-	-	-	-
USP37	2	0	-	-	-	-	-	-	-
USP53	2	0	-	-	-	-	-	-	-
VIPAS39	2	1	1	-	-	-	-	-	-
VPS13C	2	7	-	-	-	-	-	-	-
VPS33B	2	0	-	-	-	-	-	-	-
VRK2	2	0	1	-	-	-	-	-	-
VWA1	2	1	-	-	-	-	-	-	-
VWA5A	2	1	-	-	-	-	-	-	-
VWA5B1	2	1	-	-	-	-	-	-	-
VWDE	2	0	-	-	-	-	-	-	-
WDR25	2	0	-	-	-	-	-	-	-
WDR34	2	0	-	-	-	-	-	-	-
WDR64	2	2	-	-	-	-	-	-	-
CFAP57	2	2	-	-	-	-	-	-	-
WDR66	2	3	1	-	-	-	-	-	-
TBC1D31	2	1	-	-	-	-	-	-	-
WDR73	2	0	-	-	-	-	-	-	-
WDR75	2	0	-	-	-	-	-	-	-
WDR90	2	2	-	-	-	-	-	-	-
WNK4	2	4	1	-	-	-	-	-	-
XRCC1	2	0	-	Yes	-	-	-	-	-
ZAN	2	2	-	-	-	-	-	-	-
ZBTB40	2	1	-	-	-	-	-	-	-
ZDHHC1	2	0	-	-	-	-	-	-	-
ZFAND1	2	0	-	-	-	-	-	-	-
ZFP1	2	0	-	-	-	-	-	-	-
RBSN	2	0	-	-	-	-	-	-	-
ZMPSTE24	2	1	-	-	-	-	-	-	-
ZMYM5	2	0	-	-	-	-	-	-	-
ZNF135	2	1	-	-	-	-	-	-	-
ZNF18	2	0	-	-	-	-	-	-	-
ZNF180	2	0	-	-	-	-	-	-	-
ZNF197	2	1	-	-	-	-	-	-	-
ZNF276	2	0	-	-	-	-	-	-	-
ZNF318	2	2	-	-	-	-	-	-	-
ZNF391	2	2	-	-	-	-	-	-	-
ZNF407	2	0	-	-	-	-	-	-	-
ZNF419	2	1	-	-	-	-	-	-	-

ZNF433	2	2	-	-	-	-	-	-	-
ZNF438	2	0	-	-	-	-	-	-	-
ZNF468	2	1	-	-	-	-	-	-	-
ZNF471	2	0	-	-	-	-	-	-	-
ZNF488	2	1	-	-	-	-	-	-	-
ZNF510	2	1	-	-	-	-	-	-	-
ZNF540	2	2	-	-	-	-	-	-	-
ZNF547	2	0	-	-	-	-	-	-	-
ZNF587	2	1	-	-	-	-	-	-	-
ZNF669	2	1	-	-	-	-	-	-	-
ZNF71	2	1	-	-	-	-	-	-	-
ZNF764	2	1	-	-	-	-	-	-	-
ZNF774	2	1	-	-	-	-	-	-	-
ZNF776	2	1	-	-	-	-	-	-	-
ZNF782	2	0	-	-	-	-	-	-	-
ZNF878	2	2	-	-	-	-	-	-	-
ZP1	2	0	-	-	-	-	-	-	-
ZP3	2	0	-	-	-	-	-	-	-
ZSCAN2	2	0	-	-	-	-	-	-	-
ZSCAN9	2	0	-	-	-	-	-	-	-
ZSWIM1	2	0	-	-	-	-	-	-	-
ZSWIM7	2	0	-	-	Yes	-	-	-	-
SEPT4	1	1	-	-	-	-	-	-	-
SEPT10	1	0	-	-	-	-	-	-	-
SEPT12	1	1	-	-	-	-	-	-	-
A1BG	1	1	-	-	-	-	-	-	-
A2M	1	0	-	-	-	-	-	-	-
AACS	1	4	-	-	-	-	-	-	-
AARSD1	1	0	-	-	-	-	-	-	-
AATF	1	4	-	-	Yes	-	-	-	-
ABCA1	1	2	1	-	-	-	-	-	-
ABCA6	1	1	1	-	-	-	-	-	-
ABCC1	1	0	-	-	-	-	-	-	-
ABCC12	1	1	-	-	-	-	-	-	-
ABCC8	1	0	-	-	-	-	-	-	-
ABCF3	1	0	-	-	-	-	-	-	-
ABCG1	1	0	-	-	-	-	-	-	-
ABCG4	1	0	1	-	-	-	-	-	-
ABCG8	1	3	-	-	-	-	-	-	-
ABHD10	1	0	-	-	-	-	-	-	-
ABHD12	1	1	-	-	-	-	-	-	-
ABI3BP	1	1	1	-	-	-	-	-	-
ABLIM2	1	1	-	-	-	-	-	-	-
ABO	1	1	-	-	-	-	-	-	-
ACACA	1	0	1	-	-	-	-	-	-
ACAD9	1	0	-	-	-	-	-	-	-
ACADL	1	3	-	-	-	-	-	-	-
ACADM	1	0	-	-	-	-	-	-	-
ACADSB	1	1	-	-	-	-	-	-	-
ACBD5	1	0	-	-	-	-	-	-	-
ACD	1	0	-	-	-	-	-	-	-
ACER1	1	1	-	-	-	-	-	-	-
ACO1	1	2	-	-	-	-	-	-	-
ACOT1	1	0	-	-	-	-	-	-	-
ACOT12	1	0	-	-	-	-	-	-	-
ACOT13	1	1	-	-	-	-	-	-	-
ACOT9	1	0	-	-	-	-	-	-	-
ACOX2	1	1	-	-	-	-	-	-	-
ACRBP	1	1	-	-	-	-	-	-	-
ACSBG2	1	1	-	-	-	-	-	-	-
ACSL3	1	1	-	-	-	-	-	-	-
ACSL6	1	1	-	-	-	-	-	-	-
ACSM4	1	3	-	-	-	-	-	-	-
ACSS3	1	1	-	-	-	-	-	-	-
ACTB	1	0	-	-	-	-	-	-	-
ACTG1	1	0	-	-	-	-	-	-	-
ACTL6B	1	0	-	-	-	-	-	-	-
ACTL8	1	0	-	-	-	-	-	-	-
ACY1	1	1	-	-	-	-	-	-	-
ADAL	1	0	-	-	-	-	-	-	-
ADAM18	1	2	-	-	-	-	-	-	-
ADAM28	1	2	-	-	-	-	-	-	-
ADAM32	1	0	-	-	-	-	-	-	-
ADAM7	1	2	-	-	-	-	-	-	-
ADAMDECI	1	3	-	-	-	-	-	-	-
ADAMTS13	1	1	-	-	-	-	-	-	-
ADAMTS14	1	1	-	-	-	-	-	-	-
ADAMTS17	1	0	-	-	-	-	-	-	-
ADAMTS19	1	1	-	-	-	-	-	-	-
ADAMTS20	1	3	-	-	-	-	-	-	-
ADAMTS5	1	1	-	-	-	-	-	-	-
ADAMTSL1	1	0	-	-	-	-	-	-	-
ADAMTSL5	1	0	-	-	-	-	-	-	-
ADAT1	1	0	-	-	-	-	-	-	-
ADCY4	1	0	-	-	-	-	-	-	-
ADCY9	1	0	-	-	-	-	-	-	-
ADD2	1	0	1	-	-	-	-	-	-
ADD3	1	0	-	-	-	-	-	-	-
ADH6	1	2	-	-	-	-	-	-	-
ADHFE1	1	1	-	-	-	-	-	-	-
ADH1	1	1	-	-	-	-	-	-	-
ADIRF	1	0	-	-	-	-	-	-	-
ADNP	1	1	-	-	-	-	-	-	-
ADORA2B	1	1	-	-	-	-	-	-	-
ADPRH	1	1	-	-	-	-	-	-	-
ADRA2B	1	0	1	-	-	-	-	-	-
ADSL	1	1	-	-	-	-	-	-	-
ADSS	1	1	-	-	-	-	-	-	-
ADSSL1	1	0	-	-	-	-	-	-	-
ADTRP	1	0	-	-	-	-	-	-	-
AEN	1	0	-	-	-	-	-	-	-
AFM	1	1	-	-	-	-	-	-	-
AFTPH	1	1	-	-	-	-	-	-	-
AGBL2	1	2	-	-	-	-	-	-	-
AGGF1	1	0	-	-	-	-	-	-	-
AGL	1	0	-	-	-	-	-	-	-

AGMAT	1	1	-	-	-	-	-	-
AGPAT2	1	0	-	-	-	-	-	-
AGPAT9	1	0	-	-	-	-	-	-
HYKK	1	1	-	-	-	-	-	-
AGTR2	1	0	-	-	-	-	-	-
ETNPPL	1	0	-	-	-	-	-	-
PHYKPL	1	1	-	-	-	-	-	-
AHCYL1	1	0	-	-	-	-	-	-
AHH1	1	4	-	-	-	-	-	-
AHNAK2	1	4	-	-	-	-	-	-
AHR	1	0	-	Yes	-	-	-	-
AIG1	1	0	-	-	-	-	-	-
AIM1	1	4	-	-	-	-	-	-
AIM2	1	1	-	-	-	-	-	-
AIMP1	1	1	-	-	-	-	-	-
AK5	1	0	-	-	-	-	-	-
AKAP3	1	0	-	-	-	-	-	-
AKAP9	1	1	-	-	-	-	-	-
AKIP1	1	0	-	-	-	-	-	-
ALDH1L2	1	4	-	-	-	-	-	-
ALDH2	1	0	-	-	-	-	-	-
ALDH3B2	1	0	-	-	-	-	-	-
ALDH5A1	1	1	-	-	-	-	-	-
ALDH7A1	1	0	-	-	-	-	-	-
ALG1	1	0	-	-	-	-	-	-
ALG12	1	0	-	-	-	-	-	-
ALG8	1	0	-	-	-	-	-	-
ALG9	1	0	1	-	-	-	-	-
ALK	1	1	-	-	Yes	-	-	Yes
ALKBH2	1	0	-	Yes	-	-	-	-
ALKBH3	1	1	-	Yes	-	-	-	-
ALKBH7	1	0	-	-	-	-	-	-
ALOX12	1	0	-	-	-	-	-	-
ALOX15	1	2	-	-	-	-	-	-
ALOX15B	1	2	-	-	-	-	-	-
ALPI	1	2	-	-	-	-	-	-
ALPK1	1	3	-	-	-	-	-	-
ALS2	1	1	-	-	-	-	-	-
AMACR	1	0	-	-	-	-	-	-
AMBP	1	0	-	-	-	-	-	-
AMFR	1	0	-	-	-	-	-	-
AMIGO3	1	0	-	-	-	-	-	-
AMMECR1	1	0	-	-	-	-	-	-
AMN	1	1	-	-	-	-	-	-
AMPD2	1	1	-	-	-	-	-	-
AMT	1	0	-	-	-	-	-	-
AMY2B	1	0	-	-	-	-	-	-
AMZ1	1	2	-	-	-	-	-	-
AMZ2	1	0	-	-	-	-	-	-
ANAPC11	1	0	-	-	-	-	-	-
ANAPC13	1	0	-	-	-	-	-	-
ANGEL1	1	2	-	-	-	-	-	-
ANGEL2	1	0	-	-	-	-	-	-
ANGPTL1	1	0	-	-	-	-	-	-
ANGPTL3	1	2	-	-	-	-	-	-
ANGPTL6	1	0	-	-	-	-	-	-
ANGPTL7	1	2	-	-	-	-	-	-
ANK3	1	0	-	-	-	-	-	-
ANKDD1A	1	1	-	-	-	-	-	-
ANKDD1B	1	0	1	-	-	-	-	-
ANKEF1	1	0	-	-	-	-	-	-
ANKRA2	1	0	-	-	-	-	-	-
ANKRD12	1	0	-	-	-	-	-	-
ANKRD23	1	2	-	-	-	-	-	-
ANKRD24	1	0	-	-	-	-	-	-
ANKRD26	1	3	-	-	-	-	-	-
ANKRD27	1	2	-	-	-	-	-	-
ANKRD30A	1	2	-	-	-	-	-	-
ANKRD31	1	3	-	-	-	-	-	-
ANKRD34A	1	0	-	-	-	-	-	-
ANKRD6	1	1	-	-	-	-	-	-
ANKRD61	1	0	-	-	-	-	-	-
ANKS6	1	0	-	-	-	-	-	-
ANO10	1	4	-	-	-	-	-	-
ANO2	1	0	2	-	-	-	-	-
ANO5	1	1	-	-	-	-	-	-
ANO6	1	2	-	-	-	-	-	-
ANO9	1	2	-	-	-	-	-	-
AOAH	1	1	-	-	-	-	-	-
AOC2	1	3	-	-	-	-	-	-
APIAR	1	0	-	-	-	-	-	-
APIM2	1	1	-	-	-	-	-	-
AP3B2	1	0	-	Yes	-	-	-	-
AP3M2	1	0	-	-	-	-	-	-
AP4B1	1	0	1	-	-	-	-	-
APAF1	1	2	-	-	-	-	-	-
APBA3	1	3	-	-	-	-	-	-
APBB2	1	0	-	-	-	-	-	-
APC	1	0	-	-	Yes	-	-	Yes
APEX1	1	1	-	Yes	-	-	-	-
APLF	1	1	-	Yes	-	-	-	-
APOA1BP	1	0	-	-	-	-	-	-
APOA5	1	1	-	-	-	-	-	-
APOBEC3B	1	0	-	-	-	-	-	-
APOBEC3H	1	0	-	-	-	-	-	-
APOBEC4	1	1	-	-	-	-	-	-
APOC3	1	0	-	-	-	-	-	-
APTY	1	0	-	Yes	-	-	-	-
ARAP2	1	1	-	-	-	-	-	-
ARFGEF1	1	0	1	-	-	-	-	-
ARHGAP24	1	0	-	-	-	-	-	-
ARHGAP31	1	0	-	-	-	-	-	-
ARHGEF11	1	1	-	-	-	-	-	-
ARHGEF16	1	0	-	-	-	-	-	-
ARHGEF19	1	0	-	-	-	-	-	-
ARHGEF25	1	0	-	-	-	-	-	-

ARHGEF38	1	0	-	-	-	-	-	-	-
ARHGEF39	1	1	-	-	-	-	-	-	-
ARID2	1	0	1	-	Yes	-	-	-	-
ARID5A	1	0	-	-	-	-	-	-	-
ARL16	1	0	-	-	-	-	-	-	-
ARL4A	1	0	-	-	-	-	-	-	-
ARL6IP5	1	0	-	-	-	-	-	-	-
ARMC10	1	0	-	-	-	-	-	-	-
ARMC9	1	0	-	-	-	-	-	-	-
ARMCX5	1	0	1	-	-	-	-	-	-
ARNTL2	1	1	-	-	-	-	-	-	-
ARRDC1	1	2	-	-	-	-	-	-	-
ARV1	1	1	-	-	-	-	-	-	-
ASB10	1	0	-	-	-	-	-	-	-
ASB16	1	0	-	-	-	-	-	-	-
ASB4	1	1	-	-	-	-	-	-	-
ASB8	1	0	-	-	-	-	-	-	-
ASCL1	1	0	-	-	-	-	-	-	-
ASCL3	1	0	-	-	-	-	-	-	-
ASGR2	1	0	-	-	-	-	-	-	-
ASH2L	1	0	-	-	-	-	-	-	-
ASIC3	1	1	-	-	-	-	-	-	-
ASIC5	1	1	-	-	-	-	-	-	-
ASMT	1	0	-	-	-	-	-	-	-
ASMTL	1	0	-	-	-	-	-	-	-
ASPA	1	0	-	-	-	-	-	-	-
ASTL	1	0	1	-	-	-	-	-	-
ATAD2	1	0	-	-	-	-	-	-	-
ATAD3A	1	0	-	-	-	-	-	-	-
ATAD3B	1	0	1	-	-	-	-	-	-
ATF5	1	1	-	-	-	-	-	-	-
ATG10	1	0	-	-	-	-	-	-	-
ATG12	1	0	-	-	-	-	-	-	-
ATG16L2	1	0	-	-	-	-	-	-	-
ATP10A	1	0	-	-	-	-	-	-	-
ATP10D	1	1	1	-	-	-	-	-	-
ATP11A	1	1	-	-	-	-	-	-	-
ATP11C	1	0	-	-	-	-	-	-	-
ATP13A1	1	0	-	-	-	-	-	-	-
ATP4B	1	0	-	-	-	-	-	-	-
ATP5J2-PTCD1	1	1	-	-	-	-	-	-	-
ATP5SL	1	0	-	-	-	-	-	-	-
ATP6V0D2	1	1	-	-	-	-	-	-	-
ATP7B	1	1	-	-	-	-	-	-	-
ATXN1	1	0	-	-	-	-	-	-	-
ATXN3	1	1	-	Yes	-	-	-	-	-
ATXN7	1	1	-	-	-	-	-	-	-
AUH	1	0	-	-	-	-	-	-	-
AUNIP	1	0	-	-	-	-	-	-	-
AURKC	1	0	-	-	-	-	-	-	-
AVIL	1	2	-	-	-	-	-	-	-
AVPR2	1	0	-	-	-	-	-	-	-
AXDND1	1	4	-	-	-	-	-	-	-
CEP131	1	1	-	-	-	-	-	-	-
B3GALT5	1	2	-	-	-	-	-	-	-
B3GLCT	1	0	-	-	-	-	-	-	-
B3GNT3	1	0	-	-	-	-	-	-	-
B3GNT4	1	2	-	-	-	-	-	-	-
B3GNT5	1	0	-	-	-	-	-	-	-
B3GNT6	1	0	-	-	-	-	-	-	-
B3GNT8	1	0	-	-	-	-	-	-	-
B4GALNT1	1	1	-	-	-	-	-	-	-
B4GALNT3	1	1	-	-	-	-	-	-	-
B4GALT6	1	0	-	-	-	-	-	-	-
BACE1	1	1	-	-	-	-	-	-	-
BAG5	1	0	-	-	-	-	-	-	-
BAGE3	1	0	-	-	-	-	-	-	-
ADGRB2	1	0	1	-	-	-	-	-	-
BALAP2L1	1	0	-	-	-	-	-	-	-
BAMB1	1	0	-	-	-	-	-	-	-
BANF2	1	0	-	-	-	-	-	-	-
BAP1	1	0	-	Yes	Yes	-	-	Yes	-
BAX	1	0	-	Yes	-	-	-	-	-
BAZ1B	1	1	-	Yes	-	-	-	-	-
BAZ2B	1	0	-	-	-	-	-	-	-
BBS2	1	0	-	-	-	-	-	-	-
BBS9	1	1	-	-	-	-	-	-	-
BCAM	1	0	-	-	-	-	-	-	-
BCAN	1	0	-	-	-	-	-	-	-
BCAR3	1	0	-	-	-	-	-	-	-
BCAT1	1	1	-	-	-	-	-	-	-
BCHE	1	0	-	-	-	-	-	-	-
BCKDHB	1	0	-	-	-	-	-	-	-
BCL2L12	1	0	-	-	-	-	-	-	-
BCL2L2-PABPN1	1	1	-	-	-	-	-	-	-
BCL7C	1	1	-	-	-	-	-	-	-
BCLAF1	1	3	1	-	-	-	-	-	-
BCO1	1	0	-	-	-	-	-	-	-
BCO2	1	2	-	-	-	-	-	-	-
BDH1	1	0	-	-	-	-	-	-	-
BDKRB1	1	0	-	-	-	-	-	-	-
BDNF	1	2	-	-	-	-	-	-	-
BGLAP	1	0	-	-	-	-	-	-	-
BHLHA15	1	1	-	-	-	-	-	-	-
BHLHA9	1	0	-	-	-	-	-	-	-
BHMT2	1	1	-	-	-	-	-	-	-
BICD2	1	0	1	-	-	-	-	-	-
BIN1	1	0	1	-	-	-	-	-	-
BIRC5	1	0	-	-	-	-	-	-	-
BIRC7	1	0	-	-	-	-	-	-	-
BLM	1	3	-	Yes	-	-	-	Yes	-
BLNK	1	0	-	-	-	-	-	-	-
BLOCS4	1	0	-	-	-	-	-	-	-
BMP1	1	0	-	-	-	-	-	-	-
BMP8A	1	0	-	-	-	-	-	-	-
BMPER	1	1	-	-	-	-	-	-	-

BNC1	1	0	-	-	-	-	-	-	-
BNIP2	1	0	-	-	-	-	-	-	-
BOK	1	0	-	-	-	-	-	-	-
BPGM	1	0	-	-	-	-	-	-	-
BPIFA1	1	0	-	-	-	-	-	-	-
BPIFB3	1	0	-	-	-	-	-	-	-
BPIFB4	1	0	-	-	-	-	-	-	-
BPIFB6	1	0	-	-	-	-	-	-	-
BPIFC	1	0	-	-	-	-	-	-	-
BRAT1	1	2	-	-	-	-	-	-	-
BRD8	1	1	-	-	-	-	-	-	-
BRDT	1	1	-	-	-	-	-	-	-
BRF1	1	1	-	-	-	-	-	-	-
BRWD1	1	0	-	-	-	-	-	-	-
BTBD6	1	0	-	-	-	-	-	-	-
BTBD7	1	0	-	-	-	-	-	-	-
BTN2A1	1	2	-	-	-	-	-	-	-
ACSM6	1	1	-	-	-	-	-	-	-
C10orf2	1	0	-	-	-	-	-	-	-
C10orf35	1	1	-	-	-	-	-	-	-
C10orf55	1	1	-	-	-	-	-	-	-
C10orf88	1	0	-	-	-	-	-	-	-
C10orf90	1	0	1	-	-	-	-	-	-
C11orf24	1	0	-	-	-	-	-	-	-
C11orf30	1	0	-	Yes	-	-	-	-	-
C11orf31	1	2	-	-	-	-	-	-	-
C11orf52	1	0	-	-	-	-	-	-	-
C11orf54	1	2	-	-	-	-	-	-	-
C11orf63	1	0	-	-	-	-	-	-	-
C11orf65	1	2	-	-	-	-	-	-	-
C11orf73	1	0	-	-	-	-	-	-	-
C11orf74	1	0	-	-	-	-	-	-	-
C11orf80	1	1	-	-	-	-	-	-	-
C12orf10	1	1	-	-	-	-	-	-	-
C12orf40	1	0	-	-	-	-	-	-	-
C12orf42	1	1	-	-	-	-	-	-	-
C12orf56	1	0	-	-	-	-	-	-	-
C14orf105	1	1	-	-	-	-	-	-	-
LRRC74A	1	1	-	-	-	-	-	-	-
C14orf180	1	0	-	-	-	-	-	-	-
LINC01588	1	0	-	-	-	-	-	-	-
LINC01599	1	0	-	-	-	-	-	-	-
C14orf28	1	1	-	-	-	-	-	-	-
C14orf37	1	0	-	-	-	-	-	-	-
C14orf79	1	1	-	-	-	-	-	-	-
C14orf80	1	1	-	-	-	-	-	-	-
C15orf41	1	2	-	-	-	-	-	-	-
C15orf48	1	0	-	-	-	-	-	-	-
C15orf52	1	1	-	-	-	-	-	-	-
C16orf46	1	0	-	-	-	-	-	-	-
SPATA33	1	0	-	-	-	-	-	-	-
C16orf59	1	0	-	-	-	-	-	-	-
C16orf86	1	0	-	-	-	-	-	-	-
C16orf90	1	0	-	-	-	-	-	-	-
C16orf92	1	1	-	-	-	-	-	-	-
C16orf93	1	1	1	-	-	-	-	-	-
C16orf97	1	0	-	-	-	-	-	-	-
C17orf102	1	1	-	-	-	-	-	-	-
NATD1	1	0	-	-	-	-	-	-	-
C17orf47	1	1	-	-	-	-	-	-	-
C17orf51	1	1	-	-	-	-	-	-	-
C17orf53	1	0	-	-	-	-	-	-	-
C17orf58	1	0	-	-	-	-	-	-	-
C17orf64	1	0	-	-	-	-	-	-	-
C17orf74	1	1	-	-	-	-	-	-	-
C17orf99	1	1	-	-	-	-	-	-	-
C18orf32	1	0	-	-	-	-	-	-	-
C18orf63	1	0	-	-	-	-	-	-	-
C19orf24	1	0	-	-	-	-	-	-	-
C19orf44	1	0	-	-	-	-	-	-	-
C19orf45	1	0	-	-	-	-	-	-	-
C19orf48	1	0	-	-	-	-	-	-	-
PROSER3	1	3	-	-	-	-	-	-	-
C19orf71	1	0	-	-	-	-	-	-	-
SMIM24	1	0	-	-	-	-	-	-	-
C19orf80	1	0	-	-	-	-	-	-	-
C1orf105	1	1	-	-	-	-	-	-	-
C1orf106	1	0	-	-	-	-	-	-	-
C1orf123	1	1	-	-	-	-	-	-	-
C1orf131	1	0	-	-	-	-	-	-	-
C1orf141	1	0	-	-	-	-	-	-	-
C1orf168	1	0	-	-	-	-	-	-	-
C1orf186	1	1	-	-	-	-	-	-	-
C1orf189	1	1	-	-	-	-	-	-	-
C1orf194	1	0	-	-	-	-	-	-	-
C1orf198	1	0	-	-	-	-	-	-	-
C1orf216	1	0	-	-	-	-	-	-	-
C1orf53	1	0	-	-	-	-	-	-	-
C1orf56	1	0	-	-	-	-	-	-	-
C1orf61	1	0	-	-	-	-	-	-	-
RSRP1	1	1	-	-	-	-	-	-	-
CCDC185	1	0	-	-	-	-	-	-	-
FAAP20	1	2	-	-	-	-	-	-	-
C1orf87	1	0	-	-	-	-	-	-	-
C1orf94	1	0	-	-	-	-	-	-	-
C1QBP	1	0	-	-	-	-	-	-	-
C1QTNF3	1	0	-	-	-	-	-	-	-
C1QTNF8	1	0	-	-	-	-	-	-	-
C20orf144	1	0	-	-	-	-	-	-	-
C20orf173	1	0	-	-	-	-	-	-	-
CFAP61	1	3	1	-	-	-	-	-	-
C20orf27	1	0	-	-	-	-	-	-	-
C20orf85	1	0	-	-	-	-	-	-	-
C21orf59	1	0	-	-	-	-	-	-	-
C2CD3	1	2	-	-	-	-	-	-	-
C2CD4B	1	0	-	-	-	-	-	-	-



CCDC148	1	2	-	-	-	-	-	-	-
CCDC15	1	1	-	-	-	-	-	-	-
CCDC153	1	0	-	-	-	-	-	-	-
CCDC157	1	0	-	-	-	-	-	-	-
CCDC158	1	0	-	-	-	-	-	-	-
CCDC168	1	3	-	-	-	-	-	-	-
CCDC169-SOHLH2	1	0	-	-	-	-	-	-	-
CCDC17	1	1	-	-	-	-	-	-	-
CCDC172	1	0	-	-	-	-	-	-	-
CCDC175	1	2	1	-	-	-	-	-	-
CCDC178	1	1	-	-	-	-	-	-	-
CCDC181	1	0	-	-	-	-	-	-	-
CCDC27	1	3	-	-	-	-	-	-	-
CCDC28B	1	0	-	-	-	-	-	-	-
CCDC34	1	1	-	-	-	-	-	-	-
CCDC37	1	0	-	-	-	-	-	-	-
CCDC57	1	2	-	-	-	-	-	-	-
CCDC64B	1	0	-	-	-	-	-	-	-
CCDC73	1	1	-	-	-	-	-	-	-
CCDC74A	1	0	-	-	-	-	-	-	-
CCDC78	1	0	-	-	-	-	-	-	-
CCDC81	1	1	-	-	-	-	-	-	-
CCDC82	1	0	-	-	-	-	-	-	-
CCDC87	1	2	-	-	-	-	-	-	-
CCDC88B	1	2	-	-	-	-	-	-	-
CCDC90B	1	1	-	-	-	-	-	-	-
CCDC96	1	0	-	-	-	-	-	-	-
CCCL11	1	0	-	-	-	-	-	-	-
CCNJL	1	0	-	-	-	-	-	-	-
CCP110	1	1	-	-	-	-	-	-	-
CCR3	1	1	-	-	-	-	-	-	-
CCR7	1	0	-	-	-	-	-	-	-
NOCT	1	0	-	-	-	-	-	-	-
CCS	1	1	-	-	-	-	-	-	-
CCT5	1	0	-	-	-	-	-	-	-
CD160	1	0	-	-	-	-	-	-	-
CD163L1	1	1	1	-	-	-	-	-	-
CD1B	1	0	-	-	-	-	-	-	-
CD1C	1	1	-	-	-	-	-	-	-
CD209	1	0	-	-	-	-	-	-	-
CD22	1	0	-	-	-	-	-	-	-
CD247	1	0	-	-	-	-	-	-	-
CD248	1	0	-	-	-	-	-	-	-
CD276	1	0	-	-	-	-	-	-	-
CD2AP	1	1	-	-	-	-	-	-	-
CD300LB	1	0	-	-	-	-	-	-	-
CD38	1	1	-	-	-	-	-	-	-
CD70	1	0	1	-	-	-	-	-	-
CD72	1	1	-	-	-	-	-	-	-
CD88	1	1	-	-	-	-	-	-	-
CDADC1	1	2	-	-	-	-	-	-	-
CDAN1	1	0	-	-	-	-	-	-	-
CDG14A	1	0	-	-	-	-	-	-	-
CDG20B	1	1	-	-	-	-	-	-	-
CDG25C	1	0	-	-	Yes	-	-	-	-
CDG27	1	0	-	-	-	-	-	-	-
CDG42BPG	1	0	-	-	-	-	-	-	-
CDG42EP5	1	0	-	-	-	-	-	-	-
CDG6	1	1	-	-	Yes	-	-	-	-
CDCA2	1	1	-	-	-	-	-	-	-
CDCA8	1	0	-	-	-	-	-	-	-
CDCP1	1	1	-	-	-	-	-	-	-
CDCP2	1	3	-	-	-	-	-	-	-
CDH10	1	0	-	-	-	-	-	-	-
CDH13	1	0	-	-	Yes	-	-	-	-
CDH17	1	1	-	-	-	-	-	-	-
CDH18	1	0	-	-	-	-	-	-	-
CDH19	1	0	2	-	-	-	-	-	-
CDH22	1	1	1	-	-	-	-	-	-
CDH23	1	0	1	-	-	-	-	-	-
CDH24	1	0	-	-	-	-	-	-	-
CDH8	1	0	1	-	-	-	-	-	-
CDHR3	1	2	-	-	-	-	-	-	-
CDK10	1	1	-	-	-	-	-	-	-
CDK11A	1	0	-	-	-	-	-	-	-
CDK15	1	2	-	-	-	-	-	-	-
CDK3	1	1	-	-	-	-	-	-	-
CDK4	1	0	-	-	Yes	-	-	Yes	-
CDK5R1	1	0	-	-	-	-	-	-	-
CDK5RAP2	1	4	-	-	-	-	-	-	-
CDKL1	1	0	-	-	-	-	-	-	-
CDKN1A	1	1	-	-	-	-	-	-	-
CDON	1	2	-	-	-	-	-	-	-
CDPF1	1	0	-	-	-	-	-	-	-
CDRT15L2	1	0	-	-	-	-	-	-	-
CEACAM4	1	0	-	-	-	-	-	-	-
CEACAM5	1	0	-	-	-	-	-	-	-
CELA2A	1	1	-	-	-	-	-	-	-
CELA2B	1	0	-	-	-	-	-	-	-
CELF6	1	1	1	-	-	-	-	-	-
CELSR1	1	2	-	-	-	-	-	-	-
CENPH	1	1	-	-	-	-	-	-	-
CENPM	1	0	-	-	-	-	-	-	-
CENPO	1	1	-	-	-	-	-	-	-
CEP112	1	3	-	-	-	-	-	-	-
CEP135	1	4	-	-	-	-	-	-	-
CEP164	1	1	-	-	Yes	-	-	-	-
CEP170B	1	0	-	-	-	-	-	-	-
CEP350	1	1	-	-	-	-	-	-	-
CEP44	1	0	-	-	-	-	-	-	-
CEP55	1	1	-	-	-	-	-	-	-
CEP63	1	2	-	-	-	-	-	-	-
CEP70	1	1	-	-	-	-	-	-	-
CEP78	1	0	-	-	-	-	-	-	-
CEP85	1	1	-	-	-	-	-	-	-
CEP85L	1	0	-	-	-	-	-	-	-



CEP95	1	2	-	-	-	-	-	-	-
CEP97	1	2	-	-	-	-	-	-	-
CERCAM	1	2	-	-	-	-	-	-	-
CERS4	1	0	1	-	-	-	-	-	-
CESSA	1	4	-	-	-	-	-	-	-
CETP	1	0	-	-	-	-	-	-	-
CFD	1	0	-	-	-	-	-	-	-
CFHR3	1	0	-	-	-	-	-	-	-
CFI	1	2	-	-	-	-	-	-	-
CFL2	1	0	-	-	-	-	-	-	-
CFLAR	1	0	-	-	-	-	-	-	-
CGREF1	1	1	-	-	-	-	-	-	-
CGRRF1	1	0	-	-	-	-	-	-	-
CHAC2	1	0	-	-	-	-	-	-	-
CHAT	1	0	-	-	-	-	-	-	-
CFAP47	1	0	-	-	-	-	-	-	-
CHDH	1	1	-	-	-	-	-	-	-
CHEK2	1	3	-	Yes	-	-	-	Yes	-
CHIA	1	2	-	-	-	-	-	-	-
CHMP1A	1	0	-	-	-	-	-	-	-
CHMP4A	1	0	-	-	-	-	-	-	-
CHMP7	1	0	-	-	-	-	-	-	-
CHPF	1	1	-	-	-	-	-	-	-
CHPF2	1	2	-	-	-	-	-	-	-
CHRD	1	0	1	-	-	-	-	-	-
CHRNA5	1	1	-	-	-	-	-	-	-
CHRNA6	1	1	-	-	-	-	-	-	-
CHRNA9	1	2	-	-	-	-	-	-	-
CHRNA9	1	1	-	-	-	-	-	-	-
CHST5	1	0	-	-	-	-	-	-	-
CHST8	1	0	-	-	-	-	-	-	-
CHTF18	1	1	-	-	-	-	-	-	-
CHURC1	1	0	-	-	-	-	-	-	-
CHURC1-FNTB	1	1	-	-	-	-	-	-	-
CIB4	1	0	-	-	-	-	-	-	-
CIDEA	1	1	-	-	-	-	-	-	-
CIT	1	0	-	-	-	-	-	-	-
CITED4	1	0	-	-	-	-	-	-	-
CKAP2	1	1	-	-	-	-	-	-	-
CLC	1	0	-	-	-	-	-	-	-
CLCA4	1	1	-	-	-	-	-	-	-
CLCC1	1	0	-	-	-	-	-	-	-
CLCN1	1	3	-	-	-	-	-	-	-
CLCN6	1	0	-	-	-	-	-	-	-
CLDN17	1	0	-	-	-	-	-	-	-
CLDN23	1	0	-	-	-	-	-	-	-
CLEC10A	1	1	-	-	-	-	-	-	-
CLEC11A	1	0	-	-	-	-	-	-	-
CLEC12A	1	1	-	-	-	-	-	-	-
CLEC1A	1	1	-	-	-	-	-	-	-
CLEC2L	1	1	-	-	-	-	-	-	-
CLEC4C	1	1	-	-	-	-	-	-	-
CLEC7A	1	1	-	-	-	-	-	-	-
CLGN	1	0	-	-	-	-	-	-	-
CLHC1	1	0	-	-	-	-	-	-	-
CLK1	1	1	-	-	-	-	-	-	-
CLMN	1	0	-	-	-	-	-	-	-
CLNS1A	1	2	-	-	-	-	-	-	-
CLPSL1	1	2	-	-	-	-	-	-	-
CLPTMIL	1	1	-	-	-	-	-	-	-
CLRNI	1	1	-	-	-	-	-	-	-
CLUL1	1	1	-	-	-	-	-	-	-
CLYBL	1	0	-	-	-	-	-	-	-
CMC2	1	1	-	-	-	-	-	-	-
CMTM5	1	1	-	-	-	-	-	-	-
CNBD1	1	1	-	-	-	-	-	-	-
CNBD2	1	1	-	-	-	-	-	-	-
CNBP	1	0	-	-	-	-	-	-	-
CNGB1	1	1	-	-	-	-	-	-	-
CNOT4	1	0	-	-	-	-	-	-	-
CNTD1	1	0	-	-	-	-	-	-	-
CNTD2	1	0	-	-	-	-	-	-	-
CNTLN	1	1	-	Yes	-	-	-	-	-
CNTN2	1	0	-	-	-	-	-	-	-
CNTN5	1	1	-	-	-	-	-	-	-
CNTRL	1	6	-	-	-	-	-	-	-
COASY	1	0	-	-	-	-	-	-	-
COG1	1	2	-	-	-	-	-	-	-
COG5	1	1	-	-	-	-	-	-	-
COG7	1	1	-	-	-	-	-	-	-
COL13A1	1	0	-	-	-	-	-	-	-
COL14A1	1	2	-	-	-	-	-	-	-
COL18A1	1	1	-	-	-	-	-	-	-
COL24A1	1	3	-	-	-	-	-	-	-
COL26A1	1	0	-	-	-	-	-	-	-
COL4A2	1	2	-	-	-	-	-	-	-
COL4A4	1	0	-	-	-	-	-	-	-
COL6A3	1	1	-	-	-	-	-	-	-
COL9A3	1	1	-	-	-	-	-	-	-
COMMDD6	1	0	-	-	-	-	-	-	-
COMP	1	1	-	-	-	-	-	-	-
COPG2	1	1	-	-	-	-	-	-	-
COPZ1	1	0	-	-	-	-	-	-	-
COQ4	1	0	-	-	-	-	-	-	-
COQ5	1	0	-	-	-	-	-	-	-
COQ9	1	0	1	-	-	-	-	-	-
CORO1C	1	0	-	-	-	-	-	-	-
COX20	1	0	-	-	-	-	-	-	-
CPA1	1	1	-	-	-	-	-	Yes	-
CPA3	1	0	-	-	-	-	-	-	-
CPB1	1	1	1	-	-	-	-	-	-
CPEB3	1	1	-	-	-	-	-	-	-
CPM	1	0	-	-	-	-	-	-	-
CPN1	1	1	-	-	-	-	-	-	-
CPNE1	1	0	-	-	-	-	-	-	-
CPPED1	1	0	-	-	-	-	-	-	-





EIF5A	1	0	-	-	-	-	-	-	-
ELF5	1	0	-	-	-	-	-	-	-
ELK3	1	0	-	-	-	-	-	-	-
ELMO2	1	0	1	-	-	-	-	-	-
ELN	1	0	-	-	-	-	-	-	-
ADGRL4	1	0	-	-	-	-	-	-	-
EME1	1	2	-	Yes	-	-	-	-	-
EMILIN3	1	0	-	-	-	-	-	-	-
EML1	1	0	-	-	-	-	-	-	-
EML2	1	0	-	-	-	-	-	-	-
EML3	1	0	-	-	-	-	-	-	-
EML4	1	2	-	-	-	-	-	-	-
EML5	1	1	-	-	-	-	-	-	-
EMP2	1	1	-	-	-	-	-	-	-
ENAM	1	0	-	-	-	-	-	-	-
ENDOD1	1	1	-	-	-	-	-	-	-
ENDOG	1	1	-	-	-	-	-	-	-
ENDOU	1	1	-	-	-	-	-	-	-
ENDOV	1	0	-	-	-	-	-	-	-
ENOSF1	1	1	-	-	-	-	-	-	-
ENOX1	1	0	-	-	-	-	-	-	-
ENPEP	1	0	-	-	-	-	-	-	-
ENPP6	1	0	-	-	-	-	-	-	-
ENPP7	1	0	-	-	-	-	-	-	-
ENTPD2	1	0	-	-	-	-	-	-	-
ENTPD6	1	1	-	-	-	-	-	-	-
ENTPD8	1	0	-	-	-	-	-	-	-
EP300	1	0	-	Yes	Yes	-	-	Yes	-
EPB41L3	1	1	-	-	-	-	-	-	-
EPDR1	1	1	-	-	-	-	-	-	-
EPHA8	1	1	1	-	-	-	-	-	-
EPHB1	1	0	1	-	-	-	-	-	-
EPHX2	1	1	-	-	-	-	-	-	-
EPN2	1	1	-	-	-	-	-	-	-
EPN3	1	0	-	-	-	-	-	-	-
EPS8L2	1	0	-	-	-	-	-	-	-
EPS8L3	1	0	-	-	-	-	-	-	-
EPST11	1	0	-	-	-	-	-	-	-
EPT1	1	0	1	-	-	-	-	-	-
EQTN	1	1	-	-	-	-	-	-	-
ERAL1	1	0	-	-	-	-	-	-	-
ERBB3	1	3	-	-	-	-	-	-	-
ERC1	1	0	-	-	-	-	-	-	-
ERCC1	1	0	-	Yes	-	-	-	-	-
ERCC3	1	3	-	Yes	-	-	-	Yes	-
ERCC6	1	3	-	Yes	-	-	-	-	-
ERCC6L	1	0	-	-	-	-	-	-	-
ERF	1	0	1	-	-	-	-	-	-
ERGIC3	1	1	-	-	-	-	-	-	-
ERL2	1	3	-	-	-	-	-	-	-
ERICH1	1	0	-	-	-	-	-	-	-
ERN2	1	1	-	-	-	-	-	-	-
ERO1B	1	2	-	-	-	-	-	-	-
ERV3-1	1	0	-	-	-	-	-	-	-
ERVMER34-1	1	2	-	-	-	-	-	-	-
ESAM	1	0	-	-	-	-	-	-	-
ESD	1	2	-	-	-	-	-	-	-
ESPNL	1	1	1	-	-	-	-	-	-
ESR2	1	0	-	-	-	-	-	-	-
ESYT1	1	2	-	-	-	-	-	-	-
ETS2	1	0	-	Yes	-	-	-	-	-
ETV2	1	0	-	-	-	-	-	-	-
ETV3	1	0	-	-	-	-	-	-	-
ETV4	1	0	-	-	-	-	-	-	-
ETV7	1	2	-	Yes	-	-	-	-	-
EVC	1	2	1	-	-	-	-	-	-
EVC2	1	2	-	-	-	-	-	-	-
EVL	1	0	-	-	-	-	-	-	-
EYPL	1	2	2	-	-	-	-	-	-
EXOC3L1	1	0	1	-	-	-	-	-	-
EXOC3L4	1	1	-	-	-	-	-	-	-
EXOSC7	1	0	-	-	-	-	-	-	-
F13A1	1	0	-	-	-	-	-	-	-
F13B	1	0	-	-	-	-	-	-	-
F2R	1	1	-	-	-	-	-	-	-
F2RL1	1	1	-	-	-	-	-	-	-
F2RL3	1	0	-	-	-	-	-	-	-
FAAH	1	0	-	-	-	-	-	-	-
FABP4	1	0	-	-	-	-	-	-	-
FAF1	1	0	-	-	-	-	-	-	-
FAHD1	1	2	-	-	-	-	-	-	-
FAIM	1	0	-	-	-	-	-	-	-
FAM102B	1	0	-	-	-	-	-	-	-
FAM103A	1	0	-	-	-	-	-	-	-
OTULIN	1	0	-	-	-	-	-	-	-
FAM107A	1	0	-	-	-	-	-	-	-
FAM109B	1	0	-	-	-	-	-	-	-
FAM118A	1	0	-	-	-	-	-	-	-
FAM124B	1	1	-	-	-	-	-	-	-
FAM129A	1	1	-	-	-	-	-	-	-
FAM129B	1	0	-	-	-	-	-	-	-
FAM133A	1	0	-	-	-	-	-	-	-
FAM135A	1	1	1	-	-	-	-	-	-
FAM136A	1	0	-	-	-	-	-	-	-
FAM13A	1	3	-	-	-	-	-	-	-
FAM149B1	1	1	-	-	-	-	-	-	-
FAM151B	1	1	-	-	-	-	-	-	-
FAM159A	1	1	-	-	-	-	-	-	-
FAM166A	1	3	-	-	-	-	-	-	-
FAM170B	1	1	-	-	-	-	-	-	-
FAM174A	1	1	-	-	-	-	-	-	-
FAM179A	1	0	-	-	-	-	-	-	-
FAM181A	1	0	-	-	-	-	-	-	-
FAM184A	1	1	-	-	-	-	-	-	-
FAM189A1	1	1	-	-	-	-	-	-	-
FAM189B	1	1	-	-	-	-	-	-	-

FAM192A	1	0	-	-	-	-	-	-	-
FAM193B	1	0	-	-	-	-	-	-	-
ERICH6	1	2	-	-	-	-	-	-	-
FAM198B	1	0	-	-	-	-	-	-	-
FAM200A	1	2	-	-	-	-	-	-	-
FAM205A	1	1	-	-	-	-	-	-	-
FAM206A	1	1	-	-	-	-	-	-	-
FAM20C	1	0	-	-	-	-	-	-	-
FAM212B	1	2	-	-	-	-	-	-	-
FAM213B	1	0	-	-	-	-	-	-	-
FAM214A	1	0	-	-	-	-	-	-	-
FAM218A	1	0	-	-	-	-	-	-	-
FAM21A	1	0	-	-	-	-	-	-	-
FAM227B	1	3	-	-	-	-	-	-	-
FAM26E	1	0	-	-	-	-	-	-	-
FAM3B	1	1	-	-	-	-	-	-	-
FAM47A	1	1	-	-	-	-	-	-	-
FAM63A	1	4	-	-	-	-	-	-	-
FAM64A	1	0	-	-	-	-	-	-	-
FAM65B	1	1	-	-	-	-	-	-	-
FAM71B	1	0	-	-	-	-	-	-	-
FAM71C	1	2	-	-	-	-	-	-	-
FAM71E1	1	0	-	-	-	-	-	-	-
FAM71F1	1	2	-	-	-	-	-	-	-
FAM71F2	1	0	-	-	-	-	-	-	-
FAM73B	1	0	-	-	-	-	-	-	-
FAM83D	1	1	-	-	-	-	-	-	-
FAM89A	1	0	-	-	-	-	-	-	-
FAM9B	1	0	-	-	-	-	-	-	-
FANCD2	1	0	-	-	Yes	-	-	-	Yes
FANCD2OS	1	0	-	-	-	-	-	-	-
FANCI	1	2	-	-	Yes	-	-	-	Yes
FANK1	1	1	-	-	-	-	-	-	-
FAP	1	1	-	-	-	-	-	-	-
FASTKD1	1	1	-	-	-	-	-	-	-
FASTKD3	1	2	-	-	-	-	-	-	-
FAT1	1	6	1	-	-	-	-	-	-
FBLIM1	1	0	-	-	-	-	-	-	-
FBLN1	1	0	1	-	-	-	-	-	-
FBLN2	1	1	-	-	-	-	-	-	-
FBXL13	1	2	1	-	-	-	-	-	-
FBXL14	1	0	-	-	-	-	-	-	-
FBXL15	1	0	-	-	-	-	-	-	-
FBXL18	1	0	-	-	-	-	-	-	-
FBXL6	1	1	-	-	-	-	-	-	-
FBXO16	1	2	-	-	-	-	-	-	-
FBXO21	1	0	1	-	-	-	-	-	-
FBXO22	1	0	-	-	-	-	-	-	-
FBXO24	1	2	-	-	-	-	-	-	-
FBXO38	1	1	-	-	-	-	-	-	-
FBXO7	1	2	-	-	-	-	-	-	-
FBXW8	1	0	-	-	-	-	-	-	-
FCAMR	1	0	-	-	-	-	-	-	-
FCER1A	1	0	-	-	-	-	-	-	-
FCGBP	1	3	-	-	-	-	-	-	-
FCN2	1	1	-	-	-	-	-	-	-
FCN3	1	1	-	-	-	-	-	-	-
FCRL1	1	1	-	-	-	-	-	-	-
FCRL2	1	0	-	-	-	-	-	-	-
FCRL3	1	2	-	-	-	-	-	-	-
FDXR	1	0	-	-	-	-	-	-	-
FER1L5	1	0	-	-	-	-	-	-	-
FERMT1	1	0	-	-	-	-	-	-	-
FFAR1	1	0	1	-	-	-	-	-	-
FG4	1	4	-	-	-	-	-	-	-
FGD2	1	1	-	-	-	-	-	-	-
FGD4	1	0	-	-	-	-	-	-	-
FGF12	1	0	-	-	-	-	-	-	-
FGF22	1	0	-	-	-	-	-	-	-
FGFBP1	1	1	-	-	-	-	-	-	-
FGFBP2	1	0	-	-	-	-	-	-	-
FGFR1	1	1	-	-	-	-	-	-	-
FGFR4	1	1	-	-	-	-	-	-	-
FGGY	1	2	-	-	-	-	-	-	-
FHAD1	1	1	-	-	-	-	-	-	-
FIBIN	1	0	-	-	-	-	-	-	-
FIBP	1	0	-	-	-	-	-	-	-
FIG4	1	1	-	-	-	-	-	-	-
FIGN	1	0	-	-	-	-	-	-	-
FIGNL1	1	0	-	-	-	-	-	-	-
FIP1L1	1	0	-	-	-	-	-	-	-
FITM1	1	0	-	-	-	-	-	-	-
FKBP11	1	2	-	-	-	-	-	-	-
FKBP14	1	1	-	-	-	-	-	-	-
FKBP7	1	0	-	-	-	-	-	-	-
FKRP	1	0	1	-	-	-	-	-	-
FKN	1	0	-	-	-	-	-	-	-
FLCN	1	1	1	-	-	-	-	-	Yes
FLII	1	3	-	-	-	-	-	-	-
FLJ44313	1	0	-	-	-	-	-	-	-
FLNA	1	0	-	-	-	-	-	-	-
FLYWCH1	1	1	-	-	-	-	-	-	-
FLYWCH2	1	0	-	-	-	-	-	-	-
FMNL3	1	0	-	-	-	-	-	-	-
FMO2	1	3	-	-	-	-	-	-	-
FMO3	1	1	1	-	-	-	-	-	-
FNDC3A	1	0	-	-	-	-	-	-	-
FNDC7	1	0	-	-	-	-	-	-	-
FOCAD	1	1	-	-	-	-	-	-	-
FOXB2	1	0	1	-	-	-	-	-	-
FOXH1	1	2	-	-	-	-	-	-	-
FOXP2	1	0	-	-	-	-	-	-	-
FOXP1	1	0	-	-	-	-	-	-	-
FOXPRED2	1	0	-	-	-	-	-	-	-
FPGS	1	0	-	-	-	-	-	-	-
FREM2	1	1	-	-	-	-	-	-	-

FRK	1	0	-	-	-	-	-	-
FRYL	1	0	-	-	-	-	-	-
FSCB	1	1	-	-	-	-	-	-
FSCN2	1	0	-	-	-	-	-	-
FSCN3	1	1	-	-	-	-	-	-
FSIP1	1	3	-	-	-	-	-	-
FUBP3	1	0	-	-	-	-	-	-
FUCA1	1	0	-	-	-	-	-	-
FUCA2	1	0	-	-	-	-	-	-
FUK	1	2	-	-	-	-	-	-
FUOM	1	0	-	-	-	-	-	-
FUT1	1	0	-	-	-	-	-	-
FUT10	1	1	-	-	-	-	-	-
FUT2	1	1	-	-	-	-	-	-
FXYD3	1	0	-	-	-	-	-	-
FXYD5	1	0	-	-	-	-	-	-
FYN	1	0	-	-	-	-	-	-
G6PC2	1	2	-	-	-	-	-	-
GABRA6	1	1	1	-	-	-	-	-
GABRD	1	1	-	-	-	-	-	-
GABRR3	1	1	-	-	-	-	-	-
GAL3ST2	1	0	-	-	-	-	-	-
GALNT3	1	0	-	-	-	-	-	-
GALNT7	1	1	-	-	-	-	-	-
GALNTL5	1	0	-	-	-	-	-	-
GALP	1	0	-	-	-	-	-	-
GARNL3	1	0	-	-	-	-	-	-
GAST	1	0	-	-	-	-	-	-
GATC	1	0	-	-	-	-	-	-
GBA2	1	0	-	-	-	-	-	-
GBP1	1	2	-	-	-	-	-	-
GBP3	1	0	-	-	-	-	-	-
GBP7	1	1	-	-	-	-	-	-
GCC2	1	3	-	-	-	-	-	-
GCDH	1	1	-	-	-	-	-	-
GCGR	1	0	-	-	-	-	-	-
GCKR	1	3	-	-	-	-	-	-
GCNT1	1	0	-	-	-	-	-	-
GCOM1	1	1	-	-	-	-	-	-
GDAP2	1	0	-	-	-	-	-	-
GDE1	1	0	-	-	-	-	-	-
GDF1	1	0	-	-	-	-	-	-
GDF3	1	0	-	-	-	-	-	-
GD12	1	0	-	-	-	-	-	-
GDPD3	1	0	-	-	-	-	-	-
GEMIN5	1	1	1	-	-	-	-	-
GEN1	1	2	-	Yes	-	-	-	-
GF11B	1	0	-	-	-	-	-	-
GFFT2	1	2	-	-	-	-	-	-
GFRA1	1	0	-	-	-	-	-	-
GFRAL	1	0	-	-	-	-	-	-
GGA CT	1	0	-	-	-	-	-	-
GGCT	1	0	-	-	-	-	-	-
GGT6	1	0	-	-	-	-	-	-
GHRHR	1	1	-	-	-	-	-	-
GHRL	1	0	-	-	-	-	-	-
GIMAP1-GIMAP5	1	0	-	-	-	-	-	-
GIMAP7	1	0	-	-	-	-	-	-
GIMD1	1	0	-	-	-	-	-	-
GINS2	1	0	-	-	-	-	-	-
GINS3	1	0	-	-	-	-	-	-
GINS4	1	0	-	-	-	-	-	-
GIPC2	1	2	-	-	-	-	-	-
GIPC3	1	0	-	-	-	-	-	-
GJB4	1	0	-	-	-	-	-	-
GJB7	1	1	-	-	-	-	-	-
GJD4	1	2	-	-	-	-	-	-
GK2	1	1	-	-	-	-	-	-
GLB1L	1	0	-	-	-	-	-	-
GLDC	1	1	-	-	-	-	-	-
GLDN	1	1	-	-	-	-	-	-
GLI4	1	1	-	-	-	-	-	-
GLI PR2	1	1	-	-	-	-	-	-
GLRX2	1	1	-	-	-	-	-	-
GLS2	1	1	-	-	-	-	-	-
GLT8D2	1	1	-	-	-	-	-	-
GLTPD2	1	0	-	-	-	-	-	-
GLYAT	1	0	-	-	-	-	-	-
GMFG	1	0	-	-	-	-	-	-
GMIP	1	0	1	-	-	-	-	-
GMPR2	1	0	-	-	-	-	-	-
GNA15	1	0	-	-	-	-	-	-
GNAT2	1	1	-	-	-	-	-	-
GNB5	1	0	-	-	-	-	-	-
GNE	1	0	-	-	-	-	-	-
GOLGA1	1	0	-	-	-	-	-	-
GOLGA7B	1	0	-	-	-	-	-	-
GON4L	1	0	-	-	-	-	-	-
GORAB	1	0	-	-	-	-	-	-
GOSR2	1	0	-	-	-	-	-	-
GOTIL1	1	0	-	-	-	-	-	-
GP2	1	0	-	-	-	-	-	-
GP5	1	0	-	-	-	-	-	-
GP6	1	2	-	-	-	-	-	-
GPAM	1	0	-	-	-	-	-	-
GPATCH2	1	0	-	-	-	-	-	-
GPATCH2L	1	0	-	-	-	-	-	-
GPC2	1	0	-	-	-	-	-	-
GPD2	1	0	-	-	-	-	-	-
GPER1	1	0	-	-	-	-	-	-
GPLD1	1	1	-	-	-	-	-	-
GPR1	1	1	-	-	-	-	-	-
ADGRF1	1	1	-	-	-	-	-	-
ADGRA1	1	0	-	-	-	-	-	-
ADGRA2	1	0	-	-	-	-	-	-
GPR135	1	0	-	-	-	-	-	-

GPR137	1	1	-	-	-	-	-	-	-
GPR137B	1	0	-	-	-	-	-	-	-
GPR146	1	0	-	-	-	-	-	-	-
GPR149	1	3	-	-	-	-	-	-	-
GPR150	1	1	-	-	-	-	-	-	-
GPR151	1	1	-	-	-	-	-	-	-
GPR156	1	3	1	-	-	-	-	-	-
GPR158	1	0	-	-	-	-	-	-	-
GPR17	1	2	-	-	-	-	-	-	-
GPR171	1	0	-	-	-	-	-	-	-
GPR18	1	0	-	-	-	-	-	-	-
GPR31	1	1	-	-	-	-	-	-	-
GPR39	1	2	1	-	-	-	-	-	-
GPR68	1	0	-	-	-	-	-	-	-
GPR78	1	0	-	-	-	-	-	-	-
GPR84	1	2	-	-	-	-	-	-	-
GPR88	1	0	-	-	-	-	-	-	-
GPRASP1	1	0	-	-	-	-	-	-	-
GPRCSC	1	0	-	-	-	-	-	-	-
GPXI	1	0	-	-	-	-	-	-	-
GPX6	1	0	-	-	-	-	-	-	-
GRAMD3	1	3	-	-	-	-	-	-	-
GREB1	1	0	-	-	-	-	-	-	-
GRHPR	1	0	-	-	-	-	-	-	-
GRIK1	1	1	-	-	-	-	-	-	-
GRIK5	1	0	-	-	-	-	-	-	-
GRINA	1	0	-	-	-	-	-	-	-
GRK1	1	0	1	-	-	-	-	-	-
GRK7	1	3	1	-	-	-	-	-	-
GRM4	1	0	-	-	-	-	-	-	-
GRM6	1	2	-	-	-	-	-	-	-
GRSF1	1	1	-	-	-	-	-	-	-
GSAP	1	1	-	-	-	-	-	-	-
GSCC	1	1	-	-	-	-	-	-	-
GSDMC	1	1	-	-	-	-	-	-	-
GSG2	1	0	-	-	-	-	-	-	-
GSR	1	0	-	-	-	-	-	-	-
GSTA3	1	1	-	-	-	-	-	-	-
GSTCD	1	0	-	-	Yes	-	-	-	-
GSTM3	1	0	-	-	-	-	-	-	-
GSTM5	1	1	-	-	-	-	-	-	-
GTDC1	1	0	-	-	-	-	-	-	-
GTF2A2	1	0	-	-	-	-	-	-	-
GTF2F1	1	1	-	-	-	-	-	-	-
GTF3A	1	1	-	-	-	-	-	-	-
GTF3C5	1	0	-	-	-	-	-	-	-
MTG2	1	1	-	-	-	-	-	-	-
GUCA1B	1	0	-	-	-	-	-	-	-
GUCA1C	1	0	-	-	-	-	-	-	-
GUF1	1	2	-	-	-	-	-	-	-
GXYLT1	1	0	-	-	-	-	-	-	-
GZMA	1	3	-	-	-	-	-	-	-
H6PD	1	1	-	-	-	-	-	-	-
HACE1	1	0	-	-	-	-	-	-	-
HAGH	1	0	-	-	-	-	-	-	-
HAGHL	1	0	-	-	-	-	-	-	-
HAL	1	4	-	-	-	-	-	-	-
HAO1	1	1	-	-	-	-	-	-	-
HAP1	1	0	-	-	-	-	-	-	-
HAPLN2	1	1	-	-	-	-	-	-	-
HAPLN4	1	0	-	-	-	-	-	-	-
HARS	1	0	-	-	-	-	-	-	-
HAUS4	1	0	-	-	-	-	-	-	-
HAUS6	1	1	-	-	-	-	-	-	-
HAX1	1	0	-	-	-	-	-	-	-
HBE1	1	0	-	-	-	-	-	-	-
HBS1L	1	0	-	-	-	-	-	-	-
HDAC4	1	0	-	-	-	-	-	-	-
HDC	1	0	-	-	-	-	-	-	-
HDDC3	1	0	-	-	-	-	-	-	-
HDHD2	1	0	-	-	-	-	-	-	-
HEATR5A	1	1	-	-	-	-	-	-	-
HEATR5B	1	3	-	-	-	-	-	-	-
HECW2	1	0	-	-	-	-	-	-	-
HELZ2	1	1	-	-	-	-	-	-	-
HEPHL1	1	5	-	-	-	-	-	-	-
HEFN1	1	0	1	-	-	-	-	-	-
HERC1	1	3	1	-	-	-	-	-	-
HERC6	1	2	-	-	-	-	-	-	-
HERPUD1	1	0	-	-	-	-	-	-	-
HEXA	1	4	-	-	-	-	-	-	-
HEXB	1	2	-	-	-	-	-	-	-
HEXDC	1	0	-	-	-	-	-	-	-
HFM1	1	1	1	-	-	-	-	-	-
HGSNAT	1	0	-	-	-	-	-	-	-
HHATL	1	1	-	-	-	-	-	-	-
HHIPL2	1	0	-	-	-	-	-	-	-
HHLA1	1	0	-	-	-	-	-	-	-
HIF3A	1	1	-	-	-	-	-	-	-
HIPK3	1	0	-	-	-	-	-	-	-
HIPK4	1	0	-	-	-	-	-	-	-
HIST1H2AA	1	0	-	-	-	-	-	-	-
HIST1H2AB	1	0	-	-	-	-	-	-	-
HIST1H2AJ	1	0	-	-	-	-	-	-	-
HIST1H2AK	1	0	-	-	-	-	-	-	-
HIST1H2BE	1	0	-	-	-	-	-	-	-
HIST1H2BH	1	0	-	-	-	-	-	-	-
HIST1H3A	1	2	-	-	-	-	-	-	-
HIST1H3E	1	0	-	-	-	-	-	-	-
HIST1H3H	1	0	-	-	-	-	-	-	-
HIST1H4E	1	5	-	-	-	-	-	-	-
HIST1H4H	1	0	-	-	-	-	-	-	-
HIST2H2AC	1	0	-	-	-	-	-	-	-
HIST3H2A	1	0	-	-	-	-	-	-	-
HIVEP3	1	1	1	-	-	-	-	-	-
HKDC1	1	1	-	-	-	-	-	-	-

HKR1	1	2	-	-	-	-	-	-	-	-
HLC5	1	1	-	-	-	-	-	-	-	-
HLCF	1	2	-	-	-	-	-	-	-	-
HMCN1	1	1	1	-	-	-	-	-	-	-
HMGCS2	1	0	-	-	-	-	-	-	-	-
HMHA1	1	0	-	-	-	-	-	-	-	-
HMOX2	1	0	-	-	-	-	-	-	-	-
HNF4A	1	1	-	-	-	-	-	-	-	-
HNF4G	1	0	-	-	-	-	-	-	-	-
HNMT	1	0	-	-	-	-	-	-	-	-
HNRNP1	1	0	-	-	-	-	-	-	-	-
HNRNPUL1	1	0	-	-	-	-	-	-	-	-
HOXB2	1	0	-	-	-	-	-	-	-	-
HOXB3	1	0	-	-	-	-	-	-	-	-
HOXD1	1	0	-	-	-	-	-	-	-	-
HOXD11	1	0	-	-	-	-	-	-	-	-
HOXD8	1	0	-	-	-	-	-	-	-	-
HP1BP3	1	0	-	-	-	-	-	-	-	-
HPRT1	1	0	-	-	-	-	-	-	-	-
HPSE2	1	2	-	-	-	-	-	-	-	-
HRASLS5	1	1	-	-	-	-	-	-	-	-
HS3ST3A1	1	0	-	-	-	-	-	-	-	-
HS6ST2	1	0	-	-	-	-	-	-	-	-
HSD11B1L	1	0	-	-	-	-	-	-	-	-
HSD17B11	1	0	-	-	-	-	-	-	-	-
HSD17B2	1	0	1	-	-	-	-	-	-	-
HSD17B3	1	0	1	-	-	-	-	-	-	-
HSD17B4	1	0	-	-	-	-	-	-	-	-
HSP90B1	1	0	-	-	-	-	-	-	-	-
HSPA6	1	1	1	-	-	-	-	-	-	-
HSPBP1	1	1	-	-	-	-	-	-	-	-
HSPG2	1	1	1	-	-	-	-	-	-	-
HTR3D	1	0	-	-	-	-	-	-	-	-
HYAL3	1	0	-	-	-	-	-	-	-	-
HYI	1	0	-	-	-	-	-	-	-	-
HYLS1	1	0	-	-	-	-	-	-	-	-
LARS	1	2	1	-	-	-	-	-	-	-
ICA1L	1	2	-	-	-	-	-	-	-	-
ICAM2	1	0	-	-	-	-	-	-	-	-
ICAM3	1	0	-	-	-	-	-	-	-	-
IDH3G	1	0	-	-	-	-	-	-	-	-
IDO2	1	2	-	-	-	-	-	-	-	-
IFI16	1	0	-	-	-	Yes	-	-	-	-
IFI27	1	1	-	-	-	-	-	-	-	-
IFI27L1	1	0	-	-	-	-	-	-	-	-
IFI27L2	1	1	-	-	-	-	-	-	-	-
IFI30	1	0	-	-	-	-	-	-	-	-
IFI35	1	1	-	-	-	-	-	-	-	-
IFI44	1	0	-	-	-	-	-	-	-	-
IFITM10	1	0	-	-	-	-	-	-	-	-
LMNTD1	1	1	-	-	-	-	-	-	-	-
IFNL2	1	0	-	-	-	-	-	-	-	-
IFNLR1	1	0	-	-	-	-	-	-	-	-
IFT122	1	1	-	-	-	-	-	-	-	-
IFT172	1	1	-	-	-	-	-	-	-	-
IFT43	1	1	-	-	-	-	-	-	-	-
IGDCC4	1	1	-	-	-	-	-	-	-	-
IGF1	1	0	-	-	-	Yes	-	-	-	-
IGF2	1	1	-	-	-	-	-	-	-	-
IGFALS	1	0	-	-	-	-	-	-	-	-
IGFBP2	1	0	-	-	-	-	-	-	-	-
IGFBP4	1	0	-	-	-	-	-	-	-	-
IGFLR1	1	2	-	-	-	-	-	-	-	-
IGHMBP2	1	1	-	-	-	Yes	-	-	-	-
IGLL5	1	1	-	-	-	-	-	-	-	-
IK	1	1	-	-	-	-	-	-	-	-
IL11RA	1	0	-	-	-	-	-	-	-	-
IL13	1	0	-	-	-	-	-	-	-	-
IL15RA	1	1	-	-	-	-	-	-	-	-
IL16	1	1	-	-	-	-	-	-	-	-
IL17B	1	0	1	-	-	-	-	-	-	-
IL1R2	1	2	-	-	-	-	-	-	-	-
IL20	1	1	-	-	-	-	-	-	-	-
IL23R	1	1	-	-	-	-	-	-	-	-
IL27	1	0	-	-	-	-	-	-	-	-
IL27RA	1	0	-	-	-	-	-	-	-	-
IL31RA	1	1	-	-	-	-	-	-	-	-
IL36B	1	2	-	-	-	-	-	-	-	-
IL36G	1	0	-	-	-	-	-	-	-	-
IL37	1	2	-	-	-	-	-	-	-	-
IL3RA	1	0	-	-	-	-	-	-	-	-
IL4R	1	0	-	-	-	-	-	-	-	-
IL5RA	1	0	-	-	-	-	-	-	-	-
CXCL8	1	0	-	-	-	-	-	-	-	-
ILVBL	1	1	-	-	-	-	-	-	-	-
IMPACT	1	0	-	-	-	-	-	-	-	-
IMPACT	1	0	-	-	-	-	-	-	-	-
IMPACT	1	3	-	-	-	-	-	-	-	-
INADL	1	1	-	-	-	-	-	-	-	-
INCENP	1	2	-	-	-	-	-	-	-	-
INF2	1	1	-	-	-	-	-	-	-	-
ING1	1	1	-	-	-	-	-	-	-	-
ING4	1	0	-	-	-	-	-	-	-	-
INHBC	1	1	-	-	-	-	-	-	-	-
INO80E	1	0	-	-	-	-	-	-	-	-
INPP4A	1	0	-	-	-	-	-	-	-	-
INPP5D	1	0	-	-	-	-	-	-	-	-
INPP5E	1	0	-	-	-	-	-	-	-	-
INSM2	1	0	-	-	-	-	-	-	-	-
INTS9	1	0	-	-	-	-	-	-	-	-
INTU	1	0	-	-	-	-	-	-	-	-
INVS	1	0	-	-	-	-	-	-	-	-
IP6K3	1	1	-	-	-	-	-	-	-	-
IPO4	1	2	-	-	-	-	-	-	-	-
IPO9	1	0	-	-	-	-	-	-	-	-
IQCF1	1	0	-	-	-	-	-	-	-	-



IQCG	1	1	-	-	-	-	-	-	-
IQGAP1	1	0	-	-	-	-	-	-	-
IRAK3	1	3	-	-	-	-	-	-	-
IRF7	1	1	-	-	-	-	-	-	-
IRGQ	1	1	-	-	-	-	-	-	-
IRX4	1	0	-	-	-	-	-	-	-
IRX6	1	0	1	-	-	-	-	-	-
ISLR	1	0	1	-	-	-	-	-	-
ISLR2	1	0	-	-	-	-	-	-	-
ISOC2	1	0	-	-	-	-	-	-	-
ITGA10	1	0	-	-	-	-	-	-	-
ITGA5	1	0	-	-	-	-	-	-	-
ITGA7	1	0	1	-	-	-	-	-	-
ITGA8	1	1	-	-	-	-	-	-	-
ITGB1	1	0	-	-	-	-	-	-	-
ITGB1BP1	1	0	-	-	-	-	-	-	-
ITGB4	1	1	-	-	-	-	-	-	-
ITIH1	1	1	-	-	-	-	-	-	-
ITIH3	1	0	-	-	-	-	-	-	-
ITIH6	1	0	-	-	-	-	-	-	-
ITLN1	1	1	-	-	-	-	-	-	-
ITPKC	1	0	-	-	-	-	-	-	-
ITPR2	1	0	-	-	-	-	-	-	-
ITPRIP	1	0	-	-	-	-	-	-	-
ITPRIP1	1	0	-	-	-	-	-	-	-
ITSN2	1	1	-	-	-	-	-	-	-
IWS1	1	0	-	-	-	-	-	-	-
JAGN1	1	0	-	-	-	-	-	-	-
JMJD7-PLA2G4B	1	1	-	-	-	-	-	-	-
KANK1	1	0	-	-	-	-	-	-	-
KANK3	1	0	-	-	-	-	-	-	-
KANK4	1	0	-	-	-	-	-	-	-
KATNAL2	1	0	-	-	-	-	-	-	-
KCNA7	1	0	1	-	-	-	-	-	-
KCNE2	1	0	-	-	-	-	-	-	-
KCNE4	1	0	-	-	-	-	-	-	-
KCNH5	1	0	-	-	-	-	-	-	-
KCNIP3	1	0	-	-	-	-	-	-	-
KCNJ14	1	1	-	-	-	-	-	-	-
KCNJ16	1	0	-	-	-	-	-	-	-
KCNJ18	1	1	-	-	-	-	-	-	-
KCNK1	1	1	-	-	-	-	-	-	-
KCNK12	1	0	-	-	-	-	-	-	-
KCNK15	1	0	1	-	-	-	-	-	-
KCNK7	1	0	-	-	-	-	-	-	-
KCNMB3	1	1	1	-	-	-	-	-	-
KCNN4	1	0	-	-	-	-	-	-	-
KCNQ1	1	0	-	-	-	-	-	-	-
KCNT1	1	0	-	-	-	-	-	-	-
KDM2B	1	0	-	-	-	-	-	-	-
KDM4A	1	1	-	-	-	-	-	-	-
KDM4D	1	0	-	-	-	-	-	-	-
KDR	1	0	-	-	-	-	-	-	-
KDSR	1	0	-	-	-	-	-	-	-
KHDRBS2	1	1	-	-	-	-	-	-	-
KIAA0020	1	2	-	-	-	-	-	-	-
SPDR	1	0	-	-	-	-	-	-	-
KIAA0195	1	1	-	-	-	-	-	-	-
KIAA0319	1	2	-	-	-	-	-	-	-
KIAA0319L	1	0	-	-	-	-	-	-	-
KIAA0368	1	2	-	-	-	-	-	-	-
KIAA0825	1	2	-	-	-	-	-	-	-
KIAA1107	1	0	-	-	-	-	-	-	-
KIAA1143	1	0	-	-	-	-	-	-	-
KIAA1191	1	2	-	-	-	-	-	-	-
ARFGEF3	1	0	1	-	-	-	-	-	-
KIAA1324	1	0	-	-	-	-	-	-	-
KIAA1429	1	1	-	-	-	-	-	-	-
KIAA1462	1	0	1	-	-	-	-	-	-
KIAA1468	1	0	-	-	-	-	-	-	-
KIAA1549L	1	0	-	-	-	-	-	-	-
KIAA1551	1	1	-	-	-	-	-	-	-
CFAP74	1	1	-	-	-	-	-	-	-
KIAA1755	1	2	1	-	-	-	-	-	-
KIAA1804	1	0	-	-	-	-	-	-	-
CCDC183	1	0	-	-	-	-	-	-	-
KIF13A	1	0	1	-	-	-	-	-	-
KIF13B	1	2	-	-	-	-	-	-	-
KIF15	1	2	-	-	-	-	-	-	-
KIF17	1	1	-	-	-	-	-	-	-
KIF19	1	1	-	-	-	-	-	-	-
KIF20A	1	1	-	-	-	-	-	-	-
KIF21A	1	1	-	-	-	-	-	-	-
KIF24	1	1	-	-	-	-	-	-	-
KIF26A	1	0	1	-	-	-	-	-	-
KIF26B	1	1	-	-	-	-	-	-	-
KIF27	1	2	-	-	-	-	-	-	-
KIF2C	1	0	-	-	-	-	-	-	-
KIRREL3	1	0	-	-	-	-	-	-	-
KL8	1	1	-	-	-	-	-	-	-
KLC3	1	1	-	-	-	-	-	-	-
KLF1	1	0	-	-	-	-	-	-	-
KLF17	1	1	1	-	-	-	-	-	-
KLHDC4	1	2	-	-	-	-	-	-	-
KLHDC7A	1	0	1	-	-	-	-	-	-
KLHDC8A	1	0	-	-	-	-	-	-	-
KLHDC9	1	0	-	-	-	-	-	-	-
KLHL24	1	0	-	-	-	-	-	-	-
KLHL38	1	2	-	-	-	-	-	-	-
KLHL4	1	0	-	-	-	-	-	-	-
KLHL42	1	0	-	-	-	-	-	-	-
KLHL5	1	1	-	-	-	-	-	-	-
CLK10	1	0	-	-	-	-	-	-	-
CLK14	1	0	-	-	-	-	-	-	-
CLKB1	1	1	-	-	-	-	-	-	-
KNG1	1	0	-	-	-	-	-	-	-

KNTC1	1	2	1	-	-	-	-	-	-
KPNV7	1	2	-	-	-	-	-	-	-
KPTN	1	0	-	-	-	-	-	-	-
KRI1	1	0	-	-	-	-	-	-	-
KRT1	1	2	-	-	-	-	-	-	-
KRT20	1	0	-	-	-	-	-	-	-
KRT24	1	1	1	-	-	-	-	-	-
KRT26	1	1	-	-	-	-	-	-	-
KRT32	1	1	-	-	-	-	-	-	-
KRT35	1	0	-	-	-	-	-	-	-
KRT38	1	0	-	-	-	-	-	-	-
KRT39	1	0	-	-	-	-	-	-	-
KRT40	1	0	-	-	-	-	-	-	-
KRT5	1	0	-	-	Yes	-	-	-	-
KRT74	1	0	-	-	-	-	-	-	-
KRT75	1	1	-	-	-	-	-	-	-
KRT77	1	0	-	-	-	-	-	-	-
KRT81	1	0	-	-	-	-	-	-	-
KRTAP10-10	1	1	-	-	-	-	-	-	-
KRTAP12-1	1	0	-	-	-	-	-	-	-
KRTAP19-2	1	0	-	-	-	-	-	-	-
KRTAP29-1	1	0	-	-	-	-	-	-	-
KRTAP9-1	1	0	-	-	-	-	-	-	-
KTNI	1	0	-	-	-	-	-	-	-
KYNU	1	1	-	-	-	-	-	-	-
L1TD1	1	5	-	-	-	-	-	-	-
L3MBTL1	1	2	-	-	-	-	-	-	-
LACE1	1	0	-	-	-	-	-	-	-
LAG3	1	0	-	-	-	-	-	-	-
LAMA2	1	3	-	-	-	-	-	-	-
LAMA4	1	1	-	-	-	-	-	-	-
LAMA5	1	2	1	-	-	-	-	-	-
LBP	1	0	-	-	-	-	-	-	-
LBR	1	0	-	-	-	-	-	-	-
LCASL	1	1	-	-	-	-	-	-	-
LCE24	1	0	-	-	-	-	-	-	-
LCN6	1	1	-	-	-	-	-	-	-
LCNL1	1	0	-	-	-	-	-	-	-
LCT	1	2	-	-	-	-	-	-	-
LDLRAD2	1	0	-	-	-	-	-	-	-
LECT1	1	0	-	-	-	-	-	-	-
LEPROT	1	0	-	-	-	-	-	-	-
LETM2	1	1	-	-	-	-	-	-	-
LGALS12	1	1	-	-	-	-	-	-	-
LGALS2	1	0	-	-	-	-	-	-	-
LGALS3	1	0	-	-	-	-	-	-	-
LGALS8	1	0	-	-	-	-	-	-	-
LILRB4	1	0	-	-	-	-	-	-	-
LIMA1	1	1	-	-	-	-	-	-	-
LINS2	1	0	-	-	-	-	-	-	-
LIPC	1	1	-	-	-	-	-	-	-
LIPF	1	1	1	-	-	-	-	-	-
LIPH	1	0	1	-	-	-	-	-	-
LIPJ	1	0	-	-	-	-	-	-	-
LIPK	1	1	-	-	-	-	-	-	-
LIPM	1	0	-	-	-	-	-	-	-
LIPN	1	0	-	-	-	-	-	-	-
LIPT2	1	0	-	-	-	-	-	-	-
LMAN1L	1	2	-	-	-	-	-	-	-
LMAN2L	1	1	-	-	-	-	-	-	-
LMBR1	1	1	-	-	-	-	-	-	-
LMF1	1	1	-	-	-	-	-	-	-
LMO7	1	2	-	-	Yes	-	-	-	-
LOC100129924	1	0	-	-	-	-	-	-	-
LOC100506388	1	0	-	-	-	-	-	-	-
LOC100506422	1	0	-	-	-	-	-	-	-
LOC100507003	1	0	-	-	-	-	-	-	-
LOC100653515	1	0	-	-	-	-	-	-	-
LOC149373	1	0	-	-	-	-	-	-	-
LOC283710	1	0	-	-	-	-	-	-	-
LOC339862	1	0	-	-	-	-	-	-	-
LOC401052	1	0	-	-	-	-	-	-	-
LOC440563	1	2	-	-	-	-	-	-	-
LOC643669	1	0	-	-	-	-	-	-	-
LOC728819	1	0	-	-	-	-	-	-	-
LOC730183	1	0	-	-	-	-	-	-	-
LOC81691	1	2	-	-	-	-	-	-	-
LOXRF2	1	0	-	-	-	-	-	-	-
LOXHD1	1	3	-	-	-	-	-	-	-
LOXL1	1	0	-	-	-	-	-	-	-
LOXL2	1	0	-	-	-	-	-	-	-
LPA	1	1	1	-	-	-	-	-	-
LPIN1	1	0	-	-	-	-	-	-	-
LPPR5	1	0	-	-	-	-	-	-	-
LRCH3	1	1	-	-	-	-	-	-	-
LRCOL1	1	0	-	-	-	-	-	-	-
LRGUK	1	0	-	-	-	-	-	-	-
LRIG1	1	2	-	-	-	-	-	-	-
LRIG3	1	2	-	-	-	-	-	-	-
LRIT1	1	0	-	-	-	-	-	-	-
LRIT2	1	2	-	-	-	-	-	-	-
LRP3	1	0	-	-	-	-	-	-	-
LRPAP1	1	0	-	-	-	-	-	-	-
LRR1	1	1	-	-	-	-	-	-	-
LRRC16B	1	1	-	-	-	-	-	-	-
LRRC2	1	0	-	-	-	-	-	-	-
LRRC20	1	0	-	-	-	-	-	-	-
LRRC23	1	1	-	-	-	-	-	-	-
LRRC24	1	0	1	-	-	-	-	-	-
LRRC29	1	0	-	-	-	-	-	-	-
LRRC3	1	1	-	-	-	-	-	-	-
LRRC30	1	0	-	-	-	-	-	-	-
LRRC31	1	0	-	-	-	-	-	-	-
LRRC36	1	0	-	-	-	-	-	-	-
LRRC39	1	1	-	-	-	-	-	-	-
LRRC56	1	1	-	-	-	-	-	-	-

LRRC6	1	2	-	-	-	-	-	-	-
LRRC72	1	0	-	-	-	-	-	-	-
LRRK2	1	1	1	-	-	-	-	-	-
LSMEM2	1	1	-	-	-	-	-	-	-
LSP1	1	0	-	-	-	-	-	-	-
LSR	1	3	-	-	-	-	-	-	-
LTB4R2	1	0	-	-	-	-	-	-	-
LTC4S	1	1	-	-	-	-	-	-	-
LUZP4	1	0	-	-	-	-	-	-	-
LY6H	1	0	-	-	-	-	-	-	-
LY9	1	1	-	-	-	-	-	-	-
LYG1	1	1	-	-	-	-	-	-	-
LYG2	1	1	-	-	-	-	-	-	-
LYL1	1	0	-	-	-	-	-	-	-
LYN	1	0	-	-	-	-	-	-	-
LYNX1	1	0	1	-	-	-	-	-	-
LYPD4	1	0	-	-	-	-	-	-	-
LYPD5	1	0	-	-	-	-	-	-	-
LYPLAL1	1	1	-	-	-	-	-	-	-
LYRM2	1	0	-	-	-	-	-	-	-
LYZ	1	0	-	-	-	-	-	-	-
LYZL1	1	0	-	-	-	-	-	-	-
LZIC	1	0	-	-	-	-	-	-	-
MAB21L3	1	0	-	-	-	-	-	-	-
MAD2L2	1	0	-	-	-	-	-	-	-
MAGEA4	1	0	-	-	-	-	-	-	-
MAGEC3	1	0	-	-	-	-	-	-	-
MAGED2	1	0	-	-	-	-	-	-	-
MAGEH1	1	0	-	-	-	-	-	-	-
MAMLI1	1	0	-	-	-	-	-	-	-
MAMSTR	1	0	-	-	-	-	-	-	-
MAN2B2	1	0	-	-	-	-	-	-	-
MAP10	1	0	-	-	-	-	-	-	-
MAP2K2	1	0	-	-	-	-	-	-	-
MAP2K3	1	1	-	-	-	-	-	-	-
MAP2K7	1	0	-	-	-	-	-	-	-
MAP3K14	1	0	-	-	-	-	-	-	-
MAP3K15	1	2	-	-	-	-	-	-	-
MAP3K7	1	0	-	-	-	-	-	-	-
MAP4K5	1	0	-	-	-	-	-	-	-
MAPK13	1	0	-	-	-	-	-	-	-
MAPK15	1	1	1	-	-	-	-	-	-
MARK2	1	1	-	-	-	-	-	-	-
MARS	1	0	-	-	-	-	-	-	-
MASP1	1	2	-	-	-	-	-	-	-
MASF4	1	0	-	-	-	-	-	-	-
MAT2A	1	0	-	-	-	-	-	-	-
MATR3	1	0	-	-	-	-	-	-	-
MBD2	1	0	-	-	Yes	-	-	-	-
MBD5	1	0	1	-	-	-	-	-	-
MBLAC1	1	0	-	-	-	-	-	-	-
MBOAT7	1	1	-	-	-	-	-	-	-
MC1R	1	1	-	-	Yes	-	-	-	-
MC3R	1	0	-	-	-	-	-	-	-
MC4R	1	0	-	-	-	-	-	-	-
MCAM	1	1	-	-	-	-	-	-	-
MCAT	1	0	-	-	-	-	-	-	-
MCCC2	1	1	-	-	-	-	-	-	-
MCF2L2	1	0	1	-	-	-	-	-	-
MCM3	1	2	-	-	-	-	-	-	-
MCM7	1	1	-	-	-	-	-	-	-
MCM9	1	0	-	-	-	-	-	-	-
MCOLN3	1	1	-	-	-	-	-	-	-
MCPH1	1	2	-	-	Yes	-	-	-	-
MCU	1	0	-	-	-	-	-	-	-
MDF1	1	0	-	-	-	-	-	-	-
MDN1	1	2	1	-	-	-	-	-	-
MEAF6	1	0	-	-	-	-	-	-	-
MECR	1	1	-	-	-	-	-	-	-
MED16	1	2	-	-	-	-	-	-	-
MED17	1	1	-	-	Yes	-	-	-	-
MED22	1	1	-	-	-	-	-	-	-
MED26	1	1	-	-	-	-	-	-	-
MEDAG	1	0	-	-	-	-	-	-	-
MEF2B	1	0	-	-	-	-	-	-	-
MEGF11	1	1	-	-	-	-	-	-	-
MEGF6	1	2	-	-	-	-	-	-	-
MEIOB	1	1	-	-	-	-	-	-	-
MEPE	1	1	-	-	-	-	-	-	-
MERTK	1	0	-	-	-	-	-	-	-
MET	1	0	-	-	-	Yes	-	Yes	-
METRN	1	0	-	-	-	-	-	-	-
METTL11B	1	0	-	-	-	-	-	-	-
METTL12	1	0	-	-	-	-	-	-	-
METTL17	1	0	-	-	-	-	-	-	-
METTL18	1	0	-	-	-	-	-	-	-
METTL21A	1	1	-	-	-	-	-	-	-
METTL7A	1	1	-	-	-	-	-	-	-
METTL7B	1	0	-	-	-	-	-	-	-
MFGES	1	0	-	-	-	-	-	-	-
MFHAS1	1	1	-	-	-	-	-	-	-
MFN1	1	1	-	-	-	-	-	-	-
MFSD10	1	3	-	-	-	-	-	-	-
MFSD2B	1	1	-	-	-	-	-	-	-
MFSD3	1	2	-	-	-	-	-	-	-
MFSD6L	1	3	-	-	-	-	-	-	-
MGAM	1	4	-	-	-	-	-	-	-
MGAT4C	1	0	-	-	-	-	-	-	-
MGMT	1	0	-	-	Yes	-	-	-	-
MGP	1	0	-	-	-	-	-	-	-
MGST2	1	0	-	-	-	-	-	-	-
MGST3	1	1	-	-	-	-	-	-	-
MIB2	1	1	-	-	-	-	-	-	-
MICU1	1	0	-	-	-	-	-	-	-
MICU2	1	0	-	-	-	-	-	-	-
MICU3	1	0	-	-	-	-	-	-	-

MIER2	1	0	-	-	-	-	-	-
MIP	1	2	-	-	-	-	-	-
MIOX	1	0	-	-	-	-	-	-
MIP	1	1	-	-	-	-	-	-
MITF	1	0	-	-	-	-	-	-
MK167	1	1	-	-	-	-	-	-
NFK	1	1	-	-	-	-	-	-
MKKS	1	2	-	-	-	-	-	-
MKS1	1	0	-	-	-	-	-	-
MLANA	1	0	-	-	-	-	-	-
MLF1	1	0	-	-	-	-	-	-
MLH3	1	0	-	Yes	-	-	-	-
MLKL	1	1	-	-	-	-	-	-
MLLT10	1	0	-	-	-	-	-	-
MLNR	1	1	-	-	-	-	-	-
MMAA	1	1	-	-	-	-	-	-
MMACHC	1	1	-	-	-	-	-	-
MMP19	1	2	-	-	-	-	-	-
MMP20	1	0	-	-	-	-	-	-
MMP21	1	1	-	-	-	-	-	-
MMP24	1	0	-	-	-	-	-	-
MMP26	1	0	-	-	-	-	-	-
MMP27	1	0	1	-	-	-	-	-
MMP7	1	0	-	-	-	-	-	-
MMP8	1	3	-	-	-	-	-	-
MMRN2	1	0	-	-	-	-	-	-
MND1	1	1	-	-	-	-	-	-
MOCOS	1	2	-	-	-	-	-	-
MOGAT1	1	0	1	-	-	-	-	-
MOGS	1	1	-	-	-	-	-	-
MORC3	1	0	-	-	-	-	-	-
MPL	1	2	-	-	Yes	-	-	-
MPP7	1	0	-	-	-	-	-	-
MPRIIP	1	1	-	-	-	-	-	-
MPST	1	0	-	-	-	-	-	-
MPZ3	1	0	-	-	-	-	-	-
MRE11A	1	0	1	Yes	-	-	-	-
MRGPRD	1	0	-	-	-	-	-	-
MRGPRG	1	1	-	-	-	-	-	-
MRII	1	1	-	-	-	-	-	-
MRO	1	0	-	-	-	-	-	-
MROH2B	1	2	-	-	-	-	-	-
MROH5	1	4	-	-	-	-	-	-
MROH6	1	1	1	-	-	-	-	-
MROH7	1	0	-	-	-	-	-	-
MROH9	1	1	-	-	-	-	-	-
MRPL14	1	0	-	-	-	-	-	-
MRPL23	1	0	-	-	-	-	-	-
MRPL30	1	1	1	-	-	-	-	-
MRPL36	1	1	-	-	-	-	-	-
MRPL37	1	0	-	-	-	-	-	-
MRPL39	1	0	-	-	-	-	-	-
MRPL45	1	0	-	-	-	-	-	-
MRPL9	1	0	-	-	-	-	-	-
MRPS15	1	0	-	-	-	-	-	-
MRPS18A	1	0	-	-	-	-	-	-
MRPS30	1	2	-	-	-	-	-	-
MRPS35	1	0	-	-	-	-	-	-
MSA12	1	0	-	-	-	-	-	-
MSA14	1	2	1	-	-	-	-	-
MSA44A	1	1	-	-	-	-	-	-
MSA45	1	0	-	-	-	-	-	-
MSGN1	1	0	-	-	-	-	-	-
MSH2	1	0	-	Yes	Yes	Yes	Yes	-
MSR1	1	2	-	-	-	-	-	-
MSTO1	1	0	-	-	-	-	-	-
MTIX	1	0	-	-	-	-	-	-
MTA1	1	0	-	-	-	-	-	-
MTCH1	1	0	-	-	-	-	-	-
MTERF1	1	1	-	-	-	-	-	-
MTFP1	1	0	-	-	-	-	-	-
MTFR1	1	0	-	-	-	-	-	-
MTHFS	1	0	-	-	-	-	-	-
MTHFSD	1	2	-	-	-	-	-	-
MTIF3	1	1	-	-	-	-	-	-
MTMR12	1	0	1	-	-	-	-	-
MTMR3	1	1	-	-	-	-	-	-
MTNRI1A	1	1	-	-	-	-	-	-
MTO1	1	2	-	-	-	-	-	-
MTRF1	1	2	-	-	-	-	-	-
MTRF1L	1	0	-	-	-	-	-	-
MITP	1	2	-	-	-	-	-	-
MTUS1	1	0	-	-	-	-	-	-
MTX3	1	0	-	-	-	-	-	-
MUC12	1	3	-	-	-	-	-	-
MUC15	1	0	-	-	-	-	-	-
MUC20	1	1	1	-	-	-	-	-
MUC7	1	0	-	-	-	-	-	-
MUCL1	1	1	-	-	-	-	-	-
MUS81	1	0	-	Yes	-	-	-	-
MUT	1	0	-	-	-	-	-	-
MVB12B	1	0	-	-	-	-	-	-
MX1	1	0	-	-	-	-	-	-
MX2	1	2	-	-	-	-	-	-
MXR48	1	0	-	-	-	-	-	-
MYBBP1A	1	2	-	-	-	-	-	-
MYBPC2	1	0	-	-	-	-	-	-
MYBPHL	1	1	-	-	-	-	-	-
MYCBP2	1	1	1	-	-	-	-	-
MYCBPAP	1	1	-	-	-	-	-	-
MYEOV	1	0	-	-	-	-	-	-
MYEOV2	1	0	-	-	-	-	-	-
MYH10	1	0	-	-	-	-	-	-
MYH13	1	1	1	-	-	-	-	-
MYH3	1	0	-	-	-	-	-	-
MYH7	1	0	-	-	-	-	-	-

MYL6	1	0	-	-	-	-	-	-
MYO15A	1	1	-	-	-	-	-	-
MYO16	1	0	-	-	-	-	-	-
MYO18A	1	2	1	-	-	-	-	-
MYO19	1	0	-	-	-	-	-	-
MYO1B	1	0	-	-	-	-	-	-
MYO1C	1	4	-	-	-	-	-	-
MYO5A	1	0	-	-	-	-	-	-
MYO5C	1	1	1	-	-	-	-	-
MYO6	1	0	-	-	-	-	-	-
MYO7A	1	3	-	-	-	-	-	-
MYO9A	1	0	-	-	-	-	-	-
MYOC	1	1	-	-	-	-	-	-
MYOM1	1	2	-	-	-	-	-	-
MYOT	1	0	-	-	-	-	-	-
MYOZ3	1	1	-	-	-	-	-	-
MYSM1	1	1	-	-	-	-	-	-
NAA16	1	0	-	-	-	-	-	-
NAALADL2	1	4	-	-	-	-	-	-
NAE1	1	0	-	-	-	-	-	-
NAGK	1	1	-	-	-	-	-	-
NAIP	1	0	-	-	-	-	-	-
NANOGNB	1	1	-	-	-	-	-	-
NAPA	1	0	-	-	-	-	-	-
NAPSA	1	0	1	-	-	-	-	-
NARF	1	0	-	-	-	-	-	-
NARS2	1	0	-	-	-	-	-	-
NAT1	1	0	-	-	-	-	-	-
NAT10	1	1	-	-	-	-	-	-
NBL1	1	0	-	-	-	-	-	-
NBN	1	1	-	Yes	-	-	-	Yes
NCAPG	1	0	-	-	-	-	-	-
NCAPH	1	0	-	-	-	-	-	-
NCEH1	1	0	-	-	-	-	-	-
NCF2	1	1	-	-	-	-	-	-
NCOA7	1	0	-	-	-	-	-	-
NCR2	1	0	-	-	-	-	-	-
NDC80	1	0	-	-	-	-	-	-
NDN	1	0	1	-	-	-	-	-
NDRG3	1	0	-	-	-	-	-	-
NDS1	1	0	1	-	-	-	-	-
NDS13	1	0	-	-	-	-	-	-
NDUFA12	1	1	-	-	-	-	-	-
NDUFA4L2	1	1	-	-	-	-	-	-
NDUFA9	1	0	-	-	-	-	-	-
NDUFAF3	1	0	1	-	-	-	-	-
NDUFB5	1	0	-	-	-	-	-	-
NDUFB7	1	0	-	-	-	-	-	-
NDUFC1	1	0	-	-	-	-	-	-
NEB	1	4	4	-	-	-	-	-
NEK11	1	2	-	-	-	-	-	-
NEK2	1	0	-	-	-	-	-	-
NEK4	1	0	-	-	-	-	-	-
NEK9	1	3	-	-	-	-	-	-
NELFB	1	1	-	-	-	-	-	-
NEMF	1	0	1	-	-	-	-	-
NEU2	1	0	-	-	-	-	-	-
NEURL1	1	0	-	-	-	-	-	-
NF1	1	1	-	-	Yes	-	-	Yes
NF2	1	0	-	-	Yes	-	-	Yes
NFASC	1	0	-	-	-	-	-	-
NFATC1	1	0	-	-	-	-	-	-
NFATC3	1	1	-	-	-	-	-	-
NFATC4	1	0	-	-	-	-	-	-
NFE2	1	0	-	-	-	-	-	-
NFE2L2	1	0	-	-	Yes	-	-	-
NFKB1B	1	1	-	-	-	-	-	-
NFKB1E	1	0	-	-	-	-	-	-
NFYA	1	0	-	-	-	-	-	-
NIN1	1	0	-	-	-	-	-	-
NIP42	1	0	-	-	-	-	-	-
NIPSNAP3A	1	0	-	-	-	-	-	-
NIPSNAP3B	1	1	-	-	-	-	-	-
NIT1	1	0	-	-	-	-	-	-
NKIRAS2	1	0	-	-	-	-	-	-
NKTR	1	0	-	-	-	-	-	-
NKY6-3	1	0	1	-	-	-	-	-
NLRP14	1	3	-	-	-	-	-	-
NLRP5	1	0	2	-	-	-	-	-
NLRP7	1	2	-	-	-	-	-	-
NLRP9	1	2	-	-	-	-	-	-
NMD3	1	0	-	-	-	-	-	-
NME7	1	0	-	-	-	-	-	-
NME8	1	3	-	-	-	-	-	-
NMI	1	2	-	-	-	-	-	-
NMU	1	0	-	-	-	-	-	-
NOBOX	1	0	-	-	-	-	-	-
NOD1	1	1	-	-	-	-	-	-
NOL8	1	2	-	-	-	-	-	-
NOL9	1	0	-	-	-	-	-	-
NOLC1	1	0	-	-	-	-	-	-
NOS2	1	0	-	-	-	-	-	-
NOSIP	1	0	-	-	-	-	-	-
NOTO	1	0	-	-	-	-	-	-
NOX3	1	0	-	-	-	-	-	-
NOXA1	1	3	-	-	-	-	-	-
NPAS1	1	0	-	-	-	-	-	-
NPAT	1	0	-	-	-	-	-	-
NPHP3	1	2	-	-	-	-	-	-
NPHP4	1	3	-	-	-	-	-	-
NPR2	1	0	-	-	-	-	-	-
NPSR1	1	0	-	-	-	-	-	-
NPTXR	1	0	-	-	-	-	-	-
NPW	1	0	-	-	-	-	-	-
NPY1R	1	0	-	-	-	-	-	-
NPY4R	1	0	-	-	-	-	-	-





PCDHGB3	1	1	-	-	-	-	-	-
PCE11A	1	0	-	-	-	-	-	-
PCGF3	1	0	-	-	-	-	-	-
PCK2	1	3	-	-	-	-	-	-
PCMI	1	1	-	-	-	-	-	-
PCNX	1	1	-	-	-	-	-	-
PCNXL4	1	2	-	-	-	-	-	-
PCP2	1	0	-	-	-	-	-	-
PCSK4	1	1	1	-	-	-	-	-
PCSK9	1	2	-	-	-	-	-	-
PCTP	1	0	-	-	-	-	-	-
PCYOX1	1	1	-	-	-	-	-	-
PCYT2	1	1	-	-	-	-	-	-
PDCD6	1	1	-	-	-	-	-	-
PDE11A	1	1	-	-	-	-	-	-
PDE12	1	0	-	-	-	-	-	-
PDE1A	1	0	-	-	-	-	-	-
PDE1C	1	1	-	-	-	-	-	-
PDE4D	1	0	-	-	-	-	-	-
PDE5A	1	0	-	-	-	-	-	-
PDE9A	1	0	-	-	-	-	-	-
PDGFRB	1	2	-	-	-	-	-	-
PDGFRL	1	0	-	-	-	-	-	-
PDHA1	1	0	-	-	-	-	-	-
PDHB	1	0	-	-	-	-	-	-
PDLA2	1	3	-	-	-	-	-	-
PDK4	1	0	-	-	-	-	-	-
PDLIM2	1	0	-	-	-	-	-	-
PDPK1	1	0	-	-	-	-	-	-
PDX1	1	1	-	-	-	-	-	-
PDZRN4	1	0	1	-	-	-	-	-
PEAK1	1	0	-	-	-	-	-	-
PEAR1	1	1	2	-	-	-	-	-
PEBP4	1	0	-	-	-	-	-	-
PEF1	1	0	-	-	-	-	-	-
PER2	1	1	-	-	-	-	-	-
PER3	1	1	-	-	-	-	-	-
PEX11A	1	0	-	-	-	-	-	-
PEX11G	1	0	-	-	-	-	-	-
PEX16	1	0	-	-	-	-	-	-
PEX5	1	0	-	-	-	-	-	-
PFDN5	1	0	-	-	-	-	-	-
PFKFB1	1	2	-	-	-	-	-	-
PFKM	1	2	-	-	-	-	-	-
PFKP	1	2	-	-	-	-	-	-
PGAM2	1	0	-	-	-	-	-	-
PGAP1	1	2	-	-	-	-	-	-
PGAP2	1	1	-	-	-	-	-	-
PGRD2	1	1	-	-	-	-	-	-
PGC	1	2	-	-	-	-	-	-
PGLS	1	1	-	-	-	-	-	-
PGLYRP1	1	1	-	-	-	-	-	-
PGM5	1	0	-	-	-	-	-	-
PGPEP1L	1	0	-	-	-	-	-	-
PHF11	1	0	-	-	-	-	-	-
PHF3	1	0	-	-	-	-	-	-
PHIP	1	0	-	-	-	-	-	-
PHKA1	1	0	-	-	-	-	-	-
PHKB	1	2	-	-	-	-	-	-
PHLDB1	1	0	-	-	-	-	-	-
PHLDB3	1	0	-	-	-	-	-	-
PHPT1	1	0	-	-	-	-	-	-
PI16	1	0	-	-	-	-	-	-
PI4KA	1	1	-	-	-	-	-	-
PIAS2	1	0	-	-	-	-	-	-
PIGB	1	1	-	-	-	-	-	-
PIGG	1	3	-	-	-	-	-	-
PIGL	1	0	-	-	-	-	-	-
PIGP	1	0	-	-	-	-	-	-
PIGZ	1	1	-	-	-	-	-	-
PIK3C2A	1	0	-	-	-	-	-	-
PIK3C2B	1	1	-	-	-	-	-	-
PIK3C3	1	0	-	-	-	-	-	-
PIK3R1	1	2	-	-	-	Yes	-	-
PIIRA	1	0	-	-	-	-	-	-
PIPSK1B	1	0	-	-	-	-	-	-
PIPSKL1	1	0	-	-	-	-	-	-
PITRM1	1	0	-	-	-	-	-	-
PKD2	1	0	-	-	-	-	-	-
PKP3	1	0	-	-	-	-	-	-
PLA2G10	1	0	-	-	-	-	-	-
PLA2G1B	1	0	-	-	-	-	-	-
PLA2G2F	1	0	-	-	-	-	-	-
PLA2G4C	1	1	-	-	-	-	-	-
PLA2G4D	1	2	-	-	-	-	-	-
PLA2G6	1	0	-	-	-	-	-	-
PLA2R1	1	3	-	-	-	-	-	-
OOSP2	1	0	-	-	-	-	-	-
PLAUR	1	2	-	-	-	-	-	-
PLCD3	1	0	-	-	-	-	-	-
PLCD4	1	0	1	-	-	-	-	-
PLCE1	1	0	-	-	-	-	-	-
PLCG1	1	0	-	-	-	-	-	-
PLCZ1	1	1	-	-	-	-	-	-
PLD2	1	2	-	-	-	-	-	-
PLD5	1	0	-	-	-	-	-	-
PLD6	1	1	-	-	-	-	-	-
PLEC	1	2	2	-	-	-	-	-
PLEKHA7	1	0	-	-	-	-	-	-
PLEKHG3	1	0	1	-	-	-	-	-
PLEKHH3	1	1	-	-	-	-	-	-
PLEKHN1	1	0	-	-	-	-	-	-
PLEKHS1	1	0	-	-	-	-	-	-
PLIN5	1	0	-	-	-	-	-	-
KIZ	1	2	-	-	-	-	-	-
PLK4	1	1	-	-	-	-	-	-



PLS3	1	0	-	-	-	-	-	-
PLSCR2	1	0	-	-	-	-	-	-
PLSCR4	1	0	-	-	-	-	-	-
PLSCR5	1	1	-	-	-	-	-	-
PLXNA1	1	0	-	-	-	-	-	-
PLXNB1	1	0	-	-	-	-	-	-
PM20D1	1	0	-	-	-	-	-	-
PMEL	1	1	-	-	-	-	-	-
PMEPA1	1	0	-	-	-	-	-	-
PMF1-BGLAP	1	2	-	-	-	-	-	-
PMM1	1	0	-	-	-	-	-	-
PMPCA	1	1	-	-	-	-	-	-
PMS2	1	0	-	Yes	-	Yes	-	Yes
PNLIP	1	0	1	-	-	-	-	-
PNMA3	1	1	-	-	-	-	-	-
PNMAL1	1	0	-	-	-	-	-	-
PNPLA3	1	1	-	-	-	-	-	-
PNPLA7	1	1	-	-	-	-	-	-
PNPO	1	2	-	-	-	-	-	-
PODXL	1	0	-	-	-	-	-	-
POLB	1	0	-	Yes	-	-	-	-
POLD1	1	1	-	Yes	-	-	-	Yes
POLE3	1	0	-	-	-	-	-	-
POLI	1	1	-	Yes	-	-	-	-
POLM	1	2	-	-	-	-	-	-
POLR1C	1	1	-	-	-	-	-	-
POLR2C	1	1	-	-	-	-	-	-
POLR3A	1	0	-	-	-	-	-	-
POLR3C	1	1	-	-	-	-	-	-
POLR3GL	1	0	-	-	-	-	-	-
POM121L12	1	1	-	-	-	-	-	-
POM121L2	1	2	-	-	-	-	-	-
POMGNT1	1	2	-	-	-	-	-	-
POMT1	1	0	-	-	-	-	-	-
POMZP3	1	0	-	-	-	-	-	-
POP1	1	1	-	-	-	-	-	-
POR	1	2	-	-	-	-	-	-
POSTN	1	3	-	-	-	-	-	-
POUSF2	1	0	-	-	-	-	-	-
PP2D1	1	0	-	-	-	-	-	-
PPAN-P2RY11	1	1	-	-	-	-	-	-
PPAP2A	1	0	-	-	-	-	-	-
PPAP2C	1	1	-	-	-	-	-	-
PPHLN1	1	2	-	-	-	-	-	-
PPIL4	1	0	-	-	-	-	-	-
PPM1E	1	1	-	-	-	-	-	-
PPM1M	1	0	-	-	-	-	-	-
PPOX	1	0	-	-	-	-	-	-
PPP1R12A	1	0	-	-	-	-	-	-
PPP1R13L	1	0	-	-	-	-	-	-
PPP1R17	1	1	-	-	-	-	-	-
PPP1R26	1	1	-	-	-	-	-	-
PPP1R32	1	1	1	-	-	-	-	-
PPP1R35	1	1	-	-	-	-	-	-
PPP1R36	1	0	-	-	-	-	-	-
PPP1R3A	1	1	-	-	-	-	-	-
PPP1R3E	1	0	-	-	-	-	-	-
PPP1R3G	1	2	-	-	-	-	-	-
PPP1R9B	1	0	-	-	-	-	-	-
PPP6R1	1	0	-	-	-	-	-	-
PRDM12	1	0	-	-	-	-	-	-
PRDM15	1	3	-	-	-	-	-	-
PRDM4	1	0	-	-	-	-	-	-
PRDM5	1	0	-	-	-	-	-	-
PRDX1	1	0	-	-	-	-	-	-
PREX1	1	0	-	-	-	-	-	-
PRG2	1	0	-	-	-	-	-	-
PRH2	1	0	-	-	-	-	-	-
PRICKLE4	1	0	-	-	-	-	-	-
PRKAA2	1	0	-	-	-	-	-	-
PRKACG	1	1	-	-	-	-	-	-
PRKD2	1	0	1	-	-	-	-	-
PRLR	1	0	-	-	-	-	-	-
PRM3	1	1	-	-	-	-	-	-
PRMT9	1	0	-	-	-	-	-	-
PRMT2	1	0	-	-	-	-	-	-
PRMT6	1	0	-	Yes	-	-	-	-
PRMT7	1	0	-	-	-	-	-	-
PRODH2	1	0	-	-	-	-	-	-
PROM2	1	0	-	-	-	-	-	-
PROP1	1	0	-	-	-	-	-	-
PROS1	1	1	-	-	-	-	-	-
PROSC	1	2	-	-	-	-	-	-
PROSER1	1	0	-	-	-	-	-	-
PROX2	1	2	1	-	-	-	-	-
PROZ	1	1	-	-	-	-	-	-
PRPF40A	1	3	-	-	-	-	-	-
PRPF6	1	0	1	-	-	-	-	-
PRR18	1	0	-	-	-	-	-	-
PRR22	1	1	-	-	-	-	-	-
PRR25	1	1	-	-	-	-	-	-
PRR5	1	0	-	-	-	-	-	-
PRR5L	1	0	-	-	-	-	-	-
PRR9	1	0	-	-	-	-	-	-
PRRG3	1	0	-	-	-	-	-	-
PRRX2	1	0	-	-	-	-	-	-
PRSS23	1	0	-	-	-	-	-	-
PRSS35	1	0	1	-	-	-	-	-
PRSS36	1	0	-	-	-	-	-	-
PRSS37	1	0	-	-	-	-	-	-
PRSS45	1	1	-	-	-	-	-	-
PRSS53	1	3	-	-	-	-	-	-
PRSS55	1	0	-	-	-	-	-	-
PRSS56	1	0	-	-	-	-	-	-
PRSS57	1	3	-	-	-	-	-	-
PRTFDC1	1	1	-	-	-	-	-	-

PRTN3	1	1	-	-	-	-	-	-	-
PRUNE2	1	1	1	-	-	-	-	-	-
PSAPL1	1	1	-	-	-	-	-	-	-
PSD2	1	1	-	-	-	-	-	-	-
PSEN2	1	0	-	-	-	-	-	-	-
PSENE1	1	0	-	-	-	-	-	-	-
PSM48	1	0	-	-	-	-	-	-	-
PSMB2	1	0	-	-	-	-	-	-	-
PSMC4	1	0	-	-	-	-	-	-	-
PSMD8	1	0	-	-	-	-	-	-	-
PSMF1	1	0	-	-	-	-	-	-	-
PSMG3	1	0	-	-	-	-	-	-	-
PSTK	1	1	1	-	-	-	-	-	-
PTCD3	1	2	-	-	-	-	-	-	-
PTCHD3	1	2	-	-	-	-	-	-	-
PTER	1	1	-	-	-	-	-	-	-
PTGES2	1	0	-	-	-	-	-	-	-
PTGR1	1	1	-	-	-	-	-	-	-
PTGR2	1	0	-	-	-	-	-	-	-
HACD1	1	1	-	-	-	-	-	-	-
PTPMT1	1	0	-	-	-	-	-	-	-
PTPN12	1	0	1	-	-	-	-	-	-
PTPN21	1	3	-	-	-	-	-	-	-
PTPN23	1	0	-	-	-	-	-	-	-
PTPN4	1	0	-	-	-	-	-	-	-
PTPN7	1	0	-	-	-	-	-	-	-
PTPRC	1	1	-	-	-	-	-	-	-
PTPRE	1	0	-	-	-	-	-	-	-
PTPRM	1	0	-	-	-	-	-	-	-
PTPRQ	1	0	-	-	-	-	-	-	-
PTPRU	1	1	-	-	-	-	-	-	-
PTPRZ1	1	0	-	-	-	-	-	-	-
PTX4	1	1	-	-	-	-	-	-	-
PUS7	1	0	-	-	-	-	-	-	-
PUSL1	1	0	-	-	-	-	-	-	-
PXD1	1	1	1	-	-	-	-	-	-
PXDNL	1	0	2	-	-	-	-	-	-
PYCRL	1	0	-	-	-	-	-	-	-
PYDC1	1	1	-	-	-	-	-	-	-
PYGL	1	1	-	-	-	-	-	-	-
PYG01	1	0	1	-	-	-	-	-	-
PYHIN1	1	2	-	-	-	-	-	-	-
PYROXD1	1	1	-	-	-	-	-	-	-
PYROXD2	1	4	-	-	-	-	-	-	-
QPCT	1	0	-	-	-	-	-	-	-
QRFPR	1	0	-	-	-	-	-	-	-
QRICH2	1	0	-	-	-	-	-	-	-
QTRTD1	1	0	-	-	-	-	-	-	-
R3HCC1	1	0	-	-	-	-	-	-	-
R3HCC1L	1	3	-	-	-	-	-	-	-
RAB17	1	0	-	-	-	-	-	-	-
RAB34	1	1	-	-	-	-	-	-	-
RAB39A	1	0	-	-	-	-	-	-	-
RAB3GAP1	1	0	-	-	-	-	-	-	-
RAB3GAP2	1	1	-	-	-	-	-	-	-
RAB3L1	1	0	-	-	-	-	-	-	-
RAB44	1	0	-	-	-	-	-	-	-
RABEP2	1	0	-	-	-	-	-	-	-
RABL3	1	0	-	-	-	-	-	-	-
RAD1	1	2	-	Yes	-	-	-	-	-
RAD17	1	0	-	Yes	-	-	-	-	-
RAD18	1	0	-	Yes	-	-	-	-	-
RAD51AP2	1	0	-	-	-	-	-	-	-
RAD54B	1	3	-	Yes	-	-	-	-	-
RADIL	1	1	1	-	-	-	-	-	-
RAG1	1	1	1	-	-	-	-	-	-
RAI1	1	0	-	-	-	-	-	-	-
RALYL	1	0	-	-	-	-	-	-	-
RANBP2	1	0	-	-	-	-	-	-	-
RANBP6	1	1	-	-	-	-	-	-	-
RAP1A	1	0	-	-	-	-	-	-	-
RAP1GDS1	1	0	-	-	-	-	-	-	-
RARG	1	0	-	-	-	-	-	-	-
RARS2	1	4	-	-	-	-	-	-	-
RASAL3	1	0	1	-	-	-	-	-	-
RASEF	1	0	-	-	-	-	-	-	-
RASGRF1	1	0	-	Yes	-	-	-	-	-
RASGRF2	1	0	-	-	-	-	-	-	-
RASL10A	1	1	-	-	-	-	-	-	-
RASSF1	1	1	-	Yes	-	-	-	-	-
RASSF2	1	0	-	-	-	-	-	-	-
RASSF4	1	1	-	-	-	-	-	-	-
RASSF6	1	0	-	-	-	-	-	-	-
RASSF7	1	0	-	-	-	-	-	-	-
RB1	1	0	1	Yes	Yes	-	-	Yes	-
RBBP8	1	0	-	Yes	-	-	-	-	-
RBCK1	1	0	-	-	-	-	-	-	-
RBFA	1	1	-	-	-	-	-	-	-
RBKS	1	2	-	-	-	-	-	-	-
RBM14	1	0	-	Yes	-	-	-	-	-
RBM23	1	2	-	-	-	-	-	-	-
RBM28	1	0	-	-	-	-	-	-	-
RBM44	1	2	-	-	-	-	-	-	-
RBMS1	1	1	-	-	-	-	-	-	-
RBMY	1	2	-	-	-	-	-	-	-
RCBTB1	1	1	-	-	-	-	-	-	-
RCBTB2	1	1	-	-	-	-	-	-	-
RCOR2	1	0	-	-	-	-	-	-	-
RCS1	1	0	-	-	-	-	-	-	-
RDH13	1	0	-	-	-	-	-	-	-
RECQL	1	2	1	Yes	-	-	-	-	-
RECQL5	1	1	-	Yes	-	-	-	-	-
REG4	1	0	-	-	-	-	-	-	-
REM2	1	1	-	-	-	-	-	-	-
RENB1	1	0	-	-	-	-	-	-	-
REPS2	1	0	-	-	-	-	-	-	-

RERGL	1	1	-	-	-	-	-	-	-
RESP18	1	0	-	-	-	-	-	-	-
REST	1	1	-	-	-	-	-	-	-
RFC2	1	0	-	Yes	-	-	-	-	-
RFC3	1	0	-	Yes	-	-	-	-	-
RFIG	1	2	-	-	-	-	-	-	-
RFL4B	1	1	-	-	-	-	-	-	-
RFTN2	1	0	-	-	-	-	-	-	-
RFX2	1	0	-	-	-	-	-	-	-
RFX3	1	2	-	-	-	-	-	-	-
RFX8	1	1	-	-	-	-	-	-	-
RFXANK	1	0	-	-	-	-	-	-	-
RGL3	1	0	-	-	-	-	-	-	-
RGL4	1	2	-	-	-	-	-	-	-
RGMA	1	0	-	-	-	-	-	-	-
RGMB	1	0	-	-	-	-	-	-	-
RGS11	1	1	-	-	-	-	-	-	-
RGS13	1	0	-	-	-	-	-	-	-
RGS18	1	1	-	-	-	-	-	-	-
RGS20	1	0	1	-	-	-	-	-	-
RGSL1	1	2	-	-	-	-	-	-	-
RHBDD2	1	0	-	-	-	-	-	-	-
RHBDF1	1	0	-	-	-	-	-	-	-
RHOBTB1	1	0	-	-	-	-	-	-	-
RHOBTB3	1	1	-	-	-	-	-	-	-
RHOD	1	0	-	-	-	-	-	-	-
RHPN1	1	0	-	-	-	-	-	-	-
RHAD1	1	0	-	-	-	-	-	-	-
RIMKLB	1	0	-	-	-	-	-	-	-
RINT1	1	2	-	-	-	-	-	-	-
RIOK2	1	0	-	-	-	-	-	-	-
RIPK2	1	0	-	-	-	-	-	-	-
RIPK4	1	2	-	-	-	-	-	-	-
RIPPLY2	1	0	-	-	-	-	-	-	-
RIT1	1	0	-	-	-	-	-	-	-
RLN1	1	0	-	-	-	-	-	-	-
RLTPR	1	1	-	-	-	-	-	-	-
RMDN2	1	0	-	-	-	-	-	-	-
RNASE2	1	1	-	-	-	-	-	-	-
RNASE4	1	0	-	-	-	-	-	-	-
RNASE6	1	0	-	-	-	-	-	-	-
RNASEH2B	1	0	-	-	-	-	-	-	-
RNF115	1	0	-	-	-	-	-	-	-
RNF13	1	0	-	-	-	-	-	-	-
RNF145	1	0	-	-	-	-	-	-	-
RNF148	1	0	-	-	-	-	-	-	-
RNF166	1	0	-	-	-	-	-	-	-
RNF168	1	0	1	Yes	-	-	-	-	-
RNF17	1	1	1	-	-	-	-	-	-
RNF181	1	0	-	-	-	-	-	-	-
RNF183	1	0	-	-	-	-	-	-	-
RNF186	1	0	-	-	-	-	-	-	-
RNF20	1	0	-	-	-	-	-	-	-
RNF212	1	2	-	-	-	-	-	-	-
RNF217	1	1	-	-	-	-	-	-	-
RNF219	1	0	-	-	-	-	-	-	-
RNF224	1	0	-	-	-	-	-	-	-
RNF24	1	0	-	-	-	-	-	-	-
RNF25	1	0	-	-	-	-	-	-	-
RNF4	1	0	-	-	-	-	-	-	-
RNF40	1	0	-	-	-	-	-	-	-
RNF6	1	1	-	-	-	-	-	-	-
RNGTT	1	0	-	-	-	-	-	-	-
ROBO1	1	4	-	-	-	-	-	-	-
ROGDI	1	1	-	-	-	-	-	-	-
ROM1	1	0	-	-	-	-	-	-	-
ROPN1B	1	1	-	-	-	-	-	-	-
ROS1	1	1	-	-	-	-	-	-	-
RP1	1	2	1	-	-	-	-	-	-
RPAP1	1	1	-	-	-	-	-	-	-
RPAP2	1	1	-	-	-	-	-	-	-
RPAP3	1	0	-	-	-	-	-	-	-
RPGRIPL	1	2	-	-	-	-	-	-	-
RPH3A	1	1	-	-	-	-	-	-	-
RPL27	1	0	-	-	-	-	-	-	-
RPL28	1	1	-	-	-	-	-	-	-
RPP25	1	0	-	-	-	-	-	-	-
RPP25L	1	0	-	-	-	-	-	-	-
RPS6KB2	1	0	-	-	-	-	-	-	-
RPTN	1	0	-	-	-	-	-	-	-
RPUSD3	1	0	-	-	-	-	-	-	-
RRAD	1	0	-	Yes	-	-	-	-	-
RRAGC	1	0	-	-	-	-	-	-	-
RRH	1	1	-	-	-	-	-	-	-
RRM2	1	0	-	-	-	-	-	-	-
RRNAD1	1	1	-	-	-	-	-	-	-
RRP1	1	1	-	-	-	-	-	-	-
RRP12	1	0	-	-	-	-	-	-	-
RRP1B	1	1	-	-	-	-	-	-	-
RRP8	1	1	-	-	-	-	-	-	-
RSBN1	1	0	-	-	-	-	-	-	-
RSPH1	1	2	-	-	-	-	-	-	-
RSPH10B	1	0	-	-	-	-	-	-	-
RSPH64	1	1	-	-	-	-	-	-	-
RTF1	1	0	-	-	-	-	-	-	-
RTKN2	1	0	-	-	-	-	-	-	-
RTN3	1	1	-	-	-	-	-	-	-
RTP2	1	1	-	-	-	-	-	-	-
RUNDC1	1	0	1	-	-	-	-	-	-
RUSC1-AS1	1	0	-	-	-	-	-	-	-
RWDD4	1	0	-	-	-	-	-	-	-
RXFP2	1	0	-	-	-	-	-	-	-
RXFP3	1	1	-	-	-	-	-	-	-
S100A14	1	0	-	-	-	-	-	-	-
S100A2	1	0	-	-	-	-	-	-	-
SAMD15	1	0	1	-	-	-	-	-	-

SAMD3	1	2	-	-	-	-	-	-	-	-
SAMD9	1	3	-	-	-	-	-	-	-	-
SAMM50	1	1	-	-	-	-	-	-	-	-
SAP18	1	0	-	-	-	-	-	-	-	-
SAP25	1	0	-	-	-	-	-	-	-	-
SAR1B	1	1	-	-	-	-	-	-	-	-
SARDH	1	1	-	-	-	-	-	-	-	-
SASS6	1	1	-	-	-	-	-	-	-	-
SATL1	1	0	-	-	-	-	-	-	-	-
SBF2	1	1	1	-	-	-	-	-	-	-
SBNO1	1	0	-	-	-	-	-	-	-	-
SBNO2	1	0	-	-	-	-	-	-	-	-
SBSN	1	0	-	-	-	-	-	-	-	-
SCAF1	1	0	-	-	-	-	-	-	-	-
SCAF4	1	0	1	-	-	-	-	-	-	-
SCAMP3	1	0	-	-	-	-	-	-	-	-
ZBED9	1	0	-	-	-	-	-	-	-	-
SCAP	1	2	-	-	-	-	-	-	-	-
SCCPDH	1	0	-	-	-	-	-	-	-	-
SCEL	1	0	-	-	-	-	-	-	-	-
SCG3	1	0	-	-	-	-	-	-	-	-
SCG5	1	0	-	-	-	-	-	-	-	-
SCGB1C1	1	1	-	-	-	-	-	-	-	-
SCGB1D2	1	0	-	-	-	-	-	-	-	-
SCN2B	1	0	-	-	-	-	-	-	-	-
SCN7A	1	3	-	-	-	-	-	-	-	-
SCO1	1	2	-	-	-	-	-	-	-	-
SCO2	1	2	-	-	-	-	-	-	-	-
SCPEP1	1	1	-	-	-	-	-	-	-	-
SCT	1	0	-	-	-	-	-	-	-	-
SCTR	1	1	-	-	-	-	-	-	-	-
SDCCAG3	1	0	-	-	-	-	-	-	-	-
SDF2L1	1	0	-	-	-	-	-	-	-	-
SDF4	1	0	1	-	-	-	-	-	-	-
SDHB	1	0	-	-	-	-	-	-	Yes	-
SDHC	1	2	-	-	-	-	-	-	Yes	-
SDK2	1	0	-	-	-	-	-	-	-	-
SEBOX	1	1	-	-	-	-	-	-	-	-
SEC14L2	1	0	-	-	-	-	-	-	-	-
SEC14L4	1	1	-	-	-	-	-	-	-	-
SEC14L5	1	2	-	-	-	-	-	-	-	-
SEC16B	1	0	-	-	-	-	-	-	-	-
SEC23IP	1	0	-	-	-	-	-	-	-	-
SEC24A	1	0	1	-	-	-	-	-	-	-
SEC31B	1	3	-	-	-	-	-	-	-	-
SECTM1	1	0	-	-	-	-	-	-	-	-
SELENBP1	1	0	-	-	-	-	-	-	-	-
SELL	1	0	-	-	-	-	-	-	-	-
SELP	1	1	-	-	-	-	-	-	-	-
SEM43E	1	1	-	-	-	-	-	-	-	-
SEM44A	1	0	-	-	-	-	-	-	-	-
SEM44F	1	1	-	-	-	-	-	-	-	-
SENP5	1	0	-	-	-	-	-	-	-	-
SEPN1	1	0	-	-	-	-	-	-	-	-
SEPP1	1	1	-	-	-	-	-	-	-	-
SEPW1	1	0	-	-	-	-	-	-	-	-
SERHL2	1	3	-	-	-	-	-	-	-	-
SERINC3	1	0	-	-	-	-	-	-	-	-
SERPINA12	1	0	-	-	-	-	-	-	-	-
SERPINA3	1	0	-	-	-	-	-	-	-	-
SERPINB13	1	1	-	-	-	-	-	-	-	-
SERPINB5	1	2	-	-	-	-	-	-	-	-
SERPINB6	1	0	-	-	-	-	-	-	-	-
SERPINB8	1	0	-	-	-	-	-	-	-	-
SERPINI2	1	2	-	-	-	-	-	-	-	-
SETD1B	1	1	-	-	-	-	-	-	-	-
SETD4	1	2	-	-	-	-	-	-	-	-
SETD9	1	0	-	-	-	-	-	-	-	-
SETDB1	1	1	1	-	-	-	-	-	-	-
SEZ6L2	1	0	-	-	-	-	-	-	-	-
SFT2D2	1	0	-	-	-	-	-	-	-	-
SFTPD	1	2	-	-	-	-	-	-	-	-
SFXN5	1	1	-	-	-	-	-	-	-	-
SGK223	1	1	-	-	-	-	-	-	-	-
SGK3	1	1	-	-	-	-	-	-	-	-
SGSM3	1	0	-	-	-	-	-	-	-	-
SH2D2A	1	0	-	-	-	-	-	-	-	-
SH2D3A	1	0	-	-	-	-	-	-	-	-
SH3BGRL	1	0	-	-	-	-	-	-	-	-
SH3BGRL3	1	0	-	-	-	-	-	-	-	-
SH3BP2	1	0	-	-	-	-	-	-	-	-
SH3BP4	1	1	-	-	-	-	-	-	-	-
SH3D21	1	2	-	-	-	-	-	-	-	-
SH3GLB1	1	0	-	-	-	-	-	-	-	-
SH3PXD2B	1	1	-	-	-	-	-	-	-	-
SH3RF3	1	1	-	-	-	-	-	-	-	-
SH3TC1	1	1	-	-	-	-	-	-	-	-
SH3YL1	1	1	-	-	-	-	-	-	-	-
SHANK2	1	0	-	-	-	-	-	-	-	-
SHBG	1	1	-	-	-	-	-	-	-	-
SHCBP1L	1	3	-	-	-	-	-	-	-	-
SHD	1	0	-	-	-	-	-	-	-	-
SHF	1	0	-	-	-	-	-	-	-	-
SHISA5	1	0	-	-	-	-	-	-	-	-
SHMT1	1	0	-	-	-	-	-	-	-	-
SHPK	1	1	-	-	-	-	-	-	-	-
SHPRH	1	0	-	Yes	-	-	-	-	-	-
SHROOM1	1	0	-	-	-	-	-	-	-	-
SI	1	2	-	-	-	-	-	-	-	-
SIAH2	1	0	-	-	-	-	-	-	-	-
SIAH3	1	0	1	-	-	-	-	-	-	-
SIDT1	1	0	-	-	-	-	-	-	-	-
SIGLEC1	1	2	-	-	-	-	-	-	-	-
SIGLEC10	1	1	-	-	-	-	-	-	-	-
SIGLEC12	1	2	-	-	-	-	-	-	-	-
SIGLEC6	1	2	1	-	-	-	-	-	-	-

SIGLEC8	1	2	-	-	-	-	-	-	-
SIGLEC9	1	2	-	-	-	-	-	-	-
SIPA1L3	1	0	-	-	-	-	-	-	-
SIRPB1	1	0	-	-	-	-	-	-	-
SIRPG	1	0	-	-	-	-	-	-	-
SKA1	1	0	-	-	-	-	-	-	-
SKIV2L2	1	2	-	-	-	-	-	-	-
SLA2	1	0	-	-	-	-	-	-	-
SLAIN1	1	0	-	-	-	-	-	-	-
SLAMP6	1	0	-	-	-	-	-	-	-
SLAMP8	1	1	-	-	-	-	-	-	-
SLC12A9	1	2	-	-	-	-	-	-	-
SLC13A1	1	2	-	-	-	-	-	-	-
SLC13A2	1	1	-	-	-	-	-	-	-
SLC13A5	1	0	-	-	-	-	-	-	-
SLC14A2	1	2	1	-	-	-	-	-	-
SLC15A2	1	1	-	-	-	-	-	-	-
SLC15A3	1	1	1	-	-	-	-	-	-
SLC15A4	1	0	-	-	-	-	-	-	-
SLC16A7	1	1	-	-	-	-	-	-	-
SLC17A3	1	0	-	-	-	-	-	-	-
SLC17A8	1	1	-	-	-	-	-	-	-
SLC17A9	1	0	-	-	-	-	-	-	-
SLC18A1	1	0	1	-	-	-	-	-	-
SLC18A2	1	0	-	-	-	-	-	-	-
SLC19A1	1	0	-	-	-	-	-	-	-
SLC1A1	1	0	-	-	-	-	-	-	-
SLC22A13	1	1	-	-	-	-	-	-	-
SLC22A18	1	0	-	-	-	-	-	-	-
SLC22A24	1	0	-	-	-	-	-	-	-
SLC22A25	1	3	-	-	-	-	-	-	-
SLC22A6	1	0	-	-	-	-	-	-	-
SLC23A3	1	0	1	-	-	-	-	-	-
SLC25A10	1	0	-	-	-	-	-	-	-
SLC25A13	1	0	-	-	-	-	-	-	-
SLC25A18	1	0	-	-	-	-	-	-	-
SLC25A2	1	0	-	-	-	-	-	-	-
SLC25A24	1	2	-	-	-	-	-	-	-
SLC25A34	1	0	-	-	-	-	-	-	-
SLC25A41	1	0	-	-	-	-	-	-	-
SLC25A45	1	0	-	-	-	-	-	-	-
SLC25A48	1	1	-	-	-	-	-	-	-
SLC26A1	1	1	-	-	-	-	-	-	-
SLC26A11	1	1	-	-	-	-	-	-	-
SLC26A2	1	1	-	-	-	-	-	-	-
SLC26A3	1	1	-	-	-	-	-	-	-
SLC26A9	1	1	-	-	-	-	-	-	-
SLC27A6	1	1	1	-	-	-	-	-	-
SLC2A11	1	1	-	-	-	-	-	-	-
SLC2A3	1	0	-	-	-	-	-	-	-
SLC2A5	1	0	-	-	-	-	-	-	-
SLC2A8	1	0	-	-	-	-	-	-	-
SLC30A6	1	0	-	-	-	-	-	-	-
SLC31A2	1	0	-	-	-	-	-	-	-
SLC34A1	1	1	1	-	-	-	-	-	-
SLC35B3	1	0	-	-	-	-	-	-	-
SLC35C2	1	1	-	-	-	-	-	-	-
SLC35E4	1	1	-	-	-	-	-	-	-
SLC35F2	1	0	-	-	-	-	-	-	-
SLC35F4	1	1	-	-	-	-	-	-	-
SLC36A2	1	2	-	-	-	-	-	-	-
SLC36A4	1	0	-	-	-	-	-	-	-
SLC37A3	1	1	-	-	-	-	-	-	-
SLC39A1	1	0	-	-	-	-	-	-	-
SLC39A2	1	2	-	-	-	-	-	-	-
SLC39A8	1	0	-	-	-	-	-	-	-
SLC3A1	1	3	-	-	-	-	-	-	-
SLC41A2	1	0	-	-	-	-	-	-	-
SLC41A3	1	0	-	-	-	-	-	-	-
SLC44A3	1	0	-	-	-	-	-	-	-
SLC46A1	1	0	1	-	-	-	-	-	-
SLC47A2	1	1	-	-	-	-	-	-	-
SLC5A10	1	4	1	-	-	-	-	-	-
SLC5A6	1	1	-	-	-	-	-	-	-
SLC6A16	1	0	-	-	-	-	-	-	-
SLC6A18	1	3	-	-	-	-	-	-	-
SLC7A13	1	0	-	-	-	-	-	-	-
SLC7A4	1	0	-	-	-	-	-	-	-
SLC7A5	1	0	-	-	-	-	-	-	-
SLC9A3R1	1	1	-	-	-	-	-	-	-
SLC9A5	1	1	-	-	-	-	-	-	-
SLC9A9	1	1	-	-	-	-	-	-	-
SLC9C1	1	0	-	-	-	-	-	-	-
SLC9C2	1	0	-	-	-	-	-	-	-
SLCO1A2	1	1	-	-	-	-	-	-	-
SLCO1C1	1	0	1	-	-	-	-	-	-
SLCO4C1	1	0	-	-	-	-	-	-	-
SLCO6A1	1	1	-	-	-	-	-	-	-
SLFN12L	1	2	-	-	-	-	-	-	-
SLFN14	1	0	-	-	-	-	-	-	-
SLFN5	1	0	-	-	-	-	-	-	-
SLIRP	1	0	-	-	-	-	-	-	-
SLIT3	1	1	1	-	-	-	-	-	-
SLPI	1	0	-	-	-	-	-	-	-
SLX4	1	0	-	-	-	-	-	-	-
SMAP1	1	0	-	-	-	-	-	-	-
SMC5	1	0	-	-	-	-	-	-	-
SMC6	1	2	-	-	-	-	-	-	-
SMCO2	1	0	-	-	-	-	-	-	-
SMCP	1	0	-	-	-	-	-	-	-
MIEF2	1	1	-	-	-	-	-	-	-
SMCR8	1	0	-	-	-	-	-	-	-
SMG1	1	1	3	-	-	-	-	-	-
SMIM12	1	0	-	-	-	-	-	-	-
SMTN	1	1	-	-	-	-	-	-	-
SMTNL1	1	0	-	-	-	-	-	-	-



SVIL	1	1	-	-	-	-	-	-	-
SVOPL	1	1	-	-	-	-	-	-	-
SYCN	1	0	-	-	-	-	-	-	-
SYCP2L	1	0	-	-	-	-	-	-	-
SYDE2	1	2	-	-	-	-	-	-	-
SYK	1	0	-	-	-	-	-	-	-
SYMPK	1	0	-	-	-	-	-	-	-
SYN3	1	0	-	-	-	-	-	-	-
SYNC	1	0	-	-	-	-	-	-	-
SYNE1	1	4	2	-	-	-	-	-	-
SYNE2	1	7	-	-	-	-	-	-	-
SYNE4	1	0	-	-	-	-	-	-	-
SYNGR4	1	1	-	-	-	-	-	-	-
SYNJ1	1	1	1	-	-	-	-	-	-
SYNPO2	1	1	-	-	-	-	-	-	-
SYNPO2L	1	1	-	-	-	-	-	-	-
SYPL2	1	0	-	-	-	-	-	-	-
SYT17	1	0	-	-	-	-	-	-	-
SYT3	1	0	-	-	-	-	-	-	-
SYT8	1	1	-	-	-	-	-	-	-
SYTL1	1	0	-	-	-	-	-	-	-
SYTL3	1	2	-	-	-	-	-	-	-
SYTL4	1	0	-	-	-	-	-	-	-
TAAR1	1	1	-	-	-	-	-	-	-
TAAR5	1	0	-	-	-	-	-	-	-
TAC3	1	0	-	-	-	-	-	-	-
TACR1	1	0	-	-	-	-	-	-	-
TAD42A	1	1	-	-	-	-	-	-	-
TAD43	1	0	-	-	-	-	-	-	-
TAF1A	1	1	-	-	-	-	-	-	-
TAF1B	1	1	-	-	-	-	-	-	-
TAF1D	1	1	-	-	-	-	-	-	-
TAF6L	1	1	-	-	-	-	-	-	-
TANK	1	0	1	-	-	-	-	-	-
TARP	1	0	-	-	-	-	-	-	-
TARS	1	0	-	-	-	-	-	-	-
TAS1R1	1	0	1	-	-	-	-	-	-
TAS2R10	1	0	-	-	-	-	-	-	-
TAS2R19	1	0	-	-	-	-	-	-	-
TAS2R3	1	0	-	-	-	-	-	-	-
TBC1D17	1	0	-	-	-	-	-	-	-
TBC1D26	1	0	-	-	-	-	-	-	-
TBC1D4	1	1	-	-	-	-	-	-	-
TBCCD1	1	0	-	-	-	-	-	-	-
TBCD	1	0	-	-	-	-	-	-	-
TBL1X	1	0	-	-	-	-	-	-	-
TBPL2	1	0	-	-	-	-	-	-	-
TCEB3B	1	0	-	-	-	-	-	-	-
TCF3	1	1	-	-	-	-	-	-	-
TCHHL1	1	0	-	-	-	-	-	-	-
TCHP	1	2	-	Yes	-	-	-	-	-
TCN1	1	0	-	-	-	-	-	-	-
TCP10L2	1	0	-	-	-	-	-	-	-
TCP11L2	1	2	-	-	-	-	-	-	-
TCTE1	1	0	-	-	-	-	-	-	-
TCTEX1D4	1	2	-	-	-	-	-	-	-
TCTN3	1	3	-	-	-	-	-	-	-
TDP1	1	0	-	Yes	-	-	-	-	-
TDRD1	1	0	-	-	-	-	-	-	-
TDRD9	1	2	1	-	-	-	-	-	-
TECPR1	1	0	-	-	-	-	-	-	-
TECPR2	1	0	-	-	-	-	-	-	-
TECTA	1	2	-	-	-	-	-	-	-
TEFM	1	0	-	-	-	-	-	-	-
TEKT1	1	2	-	-	-	-	-	-	-
TEKT3	1	2	2	-	-	-	-	-	-
TEP1	1	5	-	-	-	-	-	-	-
TERT	1	0	-	-	-	-	-	Yes	-
TES	1	0	-	-	-	-	-	-	-
TESK2	1	0	-	-	-	-	-	-	-
TEX30	1	0	-	-	-	-	-	-	-
TEX33	1	1	-	-	-	-	-	-	-
TEX38	1	1	-	-	-	-	-	-	-
TEX40	1	0	-	-	-	-	-	-	-
TFB1M	1	1	-	-	-	-	-	-	-
TFB2M	1	0	-	-	-	-	-	-	-
TGM5	1	1	-	-	-	-	-	-	-
TGM7	1	3	-	-	-	-	-	-	-
TGS1	1	3	-	-	-	-	-	-	-
THADA	1	3	-	-	-	-	-	-	-
THAP2	1	0	1	-	-	-	-	-	-
THAP8	1	0	-	-	-	-	-	-	-
THAP9	1	1	-	-	-	-	-	-	-
THBS2	1	1	-	-	-	-	-	-	-
THEG5	1	0	-	-	-	-	-	-	-
THEM5	1	1	-	-	-	-	-	-	-
THEM6	1	1	-	-	-	-	-	-	-
THNSL2	1	0	-	-	-	-	-	-	-
THSD4	1	1	-	-	-	-	-	-	-
THSD7B	1	0	1	-	-	-	-	-	-
THYN1	1	1	-	-	-	-	-	-	-
TICRR	1	0	-	-	-	-	-	-	-
TIGD3	1	0	-	-	-	-	-	-	-
TIGD6	1	1	-	-	-	-	-	-	-
TIMD4	1	0	-	-	-	-	-	-	-
TIMM17B	1	0	-	-	-	-	-	-	-
TIMP4	1	0	-	-	-	-	-	-	-
TJP3	1	1	1	-	-	-	-	-	-
TKTL2	1	1	-	-	-	-	-	-	-
TLCD2	1	0	-	-	-	-	-	-	-
TLK2	1	0	-	-	-	-	-	-	-
TLN2	1	1	-	-	-	-	-	-	-
TLR4	1	2	-	-	-	-	-	-	-
TLR5	1	0	-	-	-	-	-	-	-
TMA16	1	0	-	-	-	-	-	-	-
TMC5	1	0	-	-	-	-	-	-	-

TMCO2	1	0	-	-	-	-	-	-	-
TMCO6	1	1	-	-	-	-	-	-	-
TMED10	1	1	-	-	-	-	-	-	-
TMED3	1	1	-	-	-	-	-	-	-
TMED4	1	0	-	-	-	-	-	-	-
TMED7-TICAM2	1	2	-	-	-	-	-	-	-
TMEM100	1	0	-	-	-	-	-	-	-
TMEM102	1	1	-	-	-	-	-	-	-
TMEM106C	1	0	-	-	-	-	-	-	-
TMEM110-MUSTN1	1	1	-	-	-	-	-	-	-
TMEM116	1	0	-	-	-	-	-	-	-
TMEM120A	1	0	-	-	-	-	-	-	-
TMEM128	1	1	-	-	-	-	-	-	-
TMEM129	1	0	-	-	-	-	-	-	-
TMEM132C	1	1	-	-	-	-	-	-	-
TMEM134	1	0	-	-	-	-	-	-	-
TMEM136	1	1	-	-	-	-	-	-	-
TMEM151A	1	0	-	-	-	-	-	-	-
TMEM160	1	0	-	-	-	-	-	-	-
TMEM170A	1	1	-	-	-	-	-	-	-
TMEM178B	1	0	-	-	-	-	-	-	-
TMEM186	1	0	-	-	-	-	-	-	-
TMEM2	1	0	1	-	-	-	-	-	-
TMEM200A	1	0	-	-	-	-	-	-	-
TMEM200B	1	0	-	-	-	-	-	-	-
TMEM200C	1	0	-	-	-	-	-	-	-
TMEM205	1	0	-	-	-	-	-	-	-
TMEM211	1	0	-	-	-	-	-	-	-
TMEM213	1	0	1	-	-	-	-	-	-
TMEM214	1	0	-	-	-	-	-	-	-
TMEM217	1	0	-	-	-	-	-	-	-
TMEM218	1	0	-	-	-	-	-	-	-
TMEM219	1	0	-	-	-	-	-	-	-
TMEM229A	1	0	-	-	-	-	-	-	-
TMEM231	1	1	-	-	-	-	-	-	-
TMEM235	1	0	-	-	-	-	-	-	-
TMEM242	1	0	-	-	-	-	-	-	-
TMEM245	1	1	-	-	-	-	-	-	-
TMEM249	1	0	-	-	-	-	-	-	-
TMEM253	1	0	-	-	-	-	-	-	-
TMEM45B	1	1	-	-	-	-	-	-	-
TMEM5	1	0	1	-	-	-	-	-	-
TMEM52B	1	0	-	-	-	-	-	-	-
TMEM62	1	0	-	-	-	-	-	-	-
TMEM63C	1	0	1	-	-	-	-	-	-
TMEM67	1	1	-	-	-	-	-	-	-
TMEM81	1	0	-	-	-	-	-	-	-
TMEM88B	1	0	-	-	-	-	-	-	-
TMEM8A	1	3	-	-	-	-	-	-	-
TMEM91	1	0	-	-	-	-	-	-	-
TMEM97	1	0	-	-	-	-	-	-	-
TMPO	1	0	-	-	-	-	-	-	-
TMPRSS11A	1	0	-	-	-	-	-	-	-
TMPRSS11B	1	0	-	-	-	-	-	-	-
TMPRSS11F	1	0	-	-	-	-	-	-	-
TMPRSS12	1	0	-	-	-	-	-	-	-
TMPRSS7	1	0	-	-	-	-	-	-	-
TMPRSS9	1	1	-	-	-	-	-	-	-
TMTC1	1	0	-	-	-	-	-	-	-
TMTC2	1	0	-	-	-	-	-	-	-
TMTC3	1	0	1	-	-	-	-	-	-
TNF-ALP6	1	1	1	-	-	-	-	-	-
TNFRSF18	1	2	-	-	-	-	-	-	-
TNFRSF6B	1	0	-	-	-	-	-	-	-
TNFRSF9	1	0	-	-	-	-	-	-	-
TNIK	1	0	-	-	-	-	-	-	-
TNIP3	1	0	-	-	-	-	-	-	-
TNK2	1	0	-	-	-	-	-	-	-
TNNT1	1	0	-	-	-	-	-	-	-
TNPO3	1	0	-	-	-	-	-	-	-
TNRC6A	1	0	-	-	-	-	-	-	-
TOLLIP	1	0	-	-	-	-	-	-	-
TOP1MT	1	3	-	-	-	-	-	-	-
TOP2B	1	0	-	-	-	-	-	-	-
TOP3B	1	1	-	-	-	-	-	-	-
TP53INP1	1	0	-	-	-	-	-	-	-
TPBG	1	1	-	-	-	-	-	-	-
TPBGL	1	0	-	-	-	-	-	-	-
TPGS2	1	0	-	-	-	-	-	-	-
TPO	1	2	-	-	-	-	-	-	-
TPP1	1	2	-	-	-	-	-	-	-
TRABD24	1	1	-	-	-	-	-	-	-
TRAF3IP2	1	0	-	-	-	-	-	-	-
TRAF5	1	0	-	-	-	-	-	-	-
TRAK1	1	0	-	-	-	-	-	-	-
TRANK1	1	0	-	-	-	-	-	-	-
TRAP1	1	2	-	-	-	-	-	-	-
TRAPPC11	1	0	-	-	-	-	-	-	-
TRAPPC3L	1	0	-	-	-	-	-	-	-
TRAPPC9	1	1	-	-	-	-	-	-	-
TRDN	1	0	-	-	-	-	-	-	-
TRHR	1	1	-	-	-	-	-	-	-
TRIM16L	1	1	-	-	-	-	-	-	-
TRIM2	1	0	-	-	-	-	-	-	-
TRIM25	1	0	-	-	-	-	-	-	-
TRIM45	1	2	-	-	-	-	-	-	-
TRIM5	1	0	-	-	-	-	-	-	-
TRIM52	1	0	-	-	-	-	-	-	-
TRIM58	1	0	-	-	-	-	-	-	-
TRIM59	1	1	-	-	-	-	-	-	-
TRIM65	1	3	-	-	-	-	-	-	-
TRIM66	1	0	-	-	-	-	-	-	-
TRIM67	1	0	-	-	-	-	-	-	-
TRIM72	1	0	-	-	-	-	-	-	-
TRIM77	1	0	-	-	-	-	-	-	-
TRIP4	1	0	-	-	-	-	-	-	-



TRIT1	1	2	-	-	-	-	-	-	-
TRMT10C	1	0	1	-	-	-	-	-	-
TRMT11	1	0	-	-	-	-	-	-	-
TRMT112	1	1	-	-	-	-	-	-	-
TRMT5	1	1	-	-	-	-	-	-	-
TRMT61B	1	0	-	-	-	-	-	-	-
TRNT1	1	3	-	-	-	-	-	-	-
TRPA1	1	1	-	-	-	-	-	-	-
TRPC7	1	0	-	-	-	-	-	-	-
TRPM5	1	3	1	-	-	-	-	-	-
TRPM6	1	2	-	-	-	-	-	-	-
TRPM8	1	2	-	-	-	-	-	-	-
TRUB2	1	1	-	-	-	-	-	-	-
TSACC	1	0	-	-	-	-	-	-	-
TSGA10IP	1	0	-	-	-	-	-	-	-
TSHB	1	0	-	-	-	-	-	-	-
TSNAXIP1	1	3	-	-	-	-	-	-	-
TSPAN10	1	0	1	-	-	-	-	-	-
TSPAN18	1	0	-	-	-	-	-	-	-
TSPAN32	1	0	-	-	-	-	-	-	-
TSPEAR	1	5	1	-	-	-	-	-	-
TSRI	1	3	-	-	-	-	-	-	-
TSSK3	1	0	-	-	-	-	-	-	-
TSTA3	1	0	-	-	-	-	-	-	-
TSTD2	1	1	-	-	-	-	-	-	-
TSTD3	1	0	-	-	-	-	-	-	-
TTC12	1	1	-	-	-	-	-	-	-
TTC16	1	0	-	-	-	-	-	-	-
CFAP70	1	2	-	-	-	-	-	-	-
TTC21A	1	1	-	-	-	-	-	-	-
TTC22	1	0	-	-	-	-	-	-	-
TTC26	1	0	-	-	-	-	-	-	-
TTC30B	1	0	-	-	-	-	-	-	-
TTC37	1	1	-	-	-	-	-	-	-
TTC39A	1	0	-	-	-	-	-	-	-
TTC39C	1	0	-	-	-	-	-	-	-
TKK	1	2	-	-	-	-	-	-	-
TLL110	1	2	-	-	-	-	-	-	-
TLL4	1	0	-	-	-	-	-	-	-
TLL9	1	1	-	-	-	-	-	-	-
TUBE1	1	0	-	-	-	-	-	-	-
TUBGCP2	1	4	-	-	-	-	-	-	-
TUT1	1	2	-	-	-	-	-	-	-
TXK	1	0	-	-	-	-	-	-	-
TXNDC11	1	0	-	-	-	-	-	-	-
TXNDC5	1	1	-	-	-	-	-	-	-
TXNRD2	1	2	-	-	-	-	-	-	-
TXNRD3	1	0	-	-	-	-	-	-	-
TYMP	1	0	-	-	-	-	-	-	-
TYW1B	1	0	-	-	-	-	-	-	-
TYW3	1	0	-	-	-	-	-	-	-
UACA	1	3	-	-	-	-	-	-	-
UAP1L1	1	0	-	-	-	-	-	-	-
UBA6	1	0	-	-	-	-	-	-	-
UBAC2	1	0	-	-	-	-	-	-	-
UBAP1L	1	0	-	-	-	-	-	-	-
UBAP2	1	1	-	-	-	-	-	-	-
UBASH3A	1	2	-	-	-	-	-	-	-
UBE2C	1	0	-	-	-	-	-	-	-
UBE2D3	1	0	-	-	Yes	-	-	-	-
UBE4B	1	1	-	-	Yes	-	-	-	-
UBL4B	1	0	-	-	-	-	-	-	-
UBL7	1	0	-	-	-	-	-	-	-
UBQLNL	1	0	-	-	-	-	-	-	-
UBR3	1	0	1	-	-	-	-	-	-
UBR4	1	3	2	-	-	-	-	-	-
UBR7	1	0	-	-	-	-	-	-	-
UBTF	1	2	-	-	-	-	-	-	-
UBXN10	1	0	-	-	-	-	-	-	-
UBXN11	1	0	-	-	-	-	-	-	-
UCKL1	1	0	-	-	-	-	-	-	-
UGT1A4	1	1	-	-	-	-	-	-	-
UGT2A1	1	0	-	-	-	-	-	-	-
UGT2A3	1	0	-	-	-	-	-	-	-
UGT2B4	1	1	-	-	-	-	-	-	-
ULBP3	1	0	-	-	-	-	-	-	-
UMODL1	1	1	-	-	-	-	-	-	-
UNC13B	1	0	-	-	-	-	-	-	-
UNC13C	1	2	-	-	-	-	-	-	-
UNC5A	1	0	1	-	-	-	-	-	-
UNC5CL	1	2	-	-	-	-	-	-	-
UNC80	1	2	-	-	-	-	-	-	-
UNKL	1	0	-	-	-	-	-	-	-
UPK2	1	1	-	-	-	-	-	-	-
UPK3A	1	2	1	-	-	-	-	-	-
UQCC1	1	1	-	-	-	-	-	-	-
UR11	1	1	-	-	-	-	-	-	-
UROCI	1	1	-	-	-	-	-	-	-
USH1C	1	0	-	-	-	-	-	-	-
USH1G	1	0	-	-	-	-	-	-	-
USMG5	1	0	-	-	-	-	-	-	-
USP28	1	1	-	-	Yes	-	-	-	-
USP35	1	0	1	-	-	-	-	-	-
USP38	1	0	-	-	-	-	-	-	-
USP40	1	4	-	-	-	-	-	-	-
USP42	1	0	-	-	-	-	-	-	-
USP47	1	0	-	-	-	-	-	-	-
USP6	1	0	-	-	-	-	-	-	-
UTRN	1	1	-	-	-	-	-	-	-
UVSSA	1	0	-	-	-	-	-	-	-
VASH1	1	0	-	-	-	-	-	-	-
VAT1L	1	1	-	-	-	-	-	-	-
VAV1	1	0	-	-	-	-	-	-	-
VAV3	1	1	-	-	-	-	-	-	-
VCAM1	1	1	-	-	-	-	-	-	-
VEGFB	1	0	-	-	-	-	-	-	-

VEPH1	1	3	-	-	-	-	-	-	-
VHLL	1	1	1	-	-	-	-	-	-
VIPR1	1	1	-	-	-	-	-	-	-
VMAC	1	0	-	-	-	-	-	-	-
YMO1	1	0	-	-	-	-	-	-	-
VN1R2	1	0	-	-	-	-	-	-	-
VN1R4	1	0	-	-	-	-	-	-	-
VPS11	1	0	-	-	-	-	-	-	-
VPS13B	1	2	-	-	-	-	-	-	-
VPS16	1	0	-	-	-	-	-	-	-
VPS28	1	0	-	-	-	-	-	-	-
VPS37B	1	0	-	-	-	-	-	-	-
VPS8	1	0	1	-	-	-	-	-	-
VRK3	1	1	1	-	-	-	-	-	-
VSIG10L	1	0	-	-	-	-	-	-	-
VSIG4	1	1	-	-	-	-	-	-	-
VSTM2B	1	0	-	-	-	-	-	-	-
VW42	1	0	-	-	-	-	-	-	-
VW43A	1	1	-	-	-	-	-	-	-
VW43B	1	0	1	-	-	-	-	-	-
VW45B2	1	1	-	-	-	-	-	-	-
VW49	1	1	-	-	-	-	-	-	-
VWCE	1	0	1	-	-	-	-	-	-
WBP2NL	1	1	-	-	-	-	-	-	-
WDR11	1	3	-	-	-	-	-	-	-
CFAP52	1	1	-	Yes	-	-	-	-	-
WDR17	1	2	1	-	-	-	-	-	-
WDR19	1	0	-	-	-	-	-	-	-
WDR27	1	1	-	-	-	-	-	-	-
WDR3	1	0	1	-	-	-	-	-	-
WDR31	1	2	-	-	-	-	-	-	-
WDR35	1	0	-	-	-	-	-	-	-
WDR36	1	1	-	-	-	-	-	-	-
WDR38	1	1	-	-	-	-	-	-	-
WDR49	1	1	-	-	-	-	-	-	-
CFAP44	1	3	-	-	-	-	-	-	-
WDR5B	1	1	-	-	-	-	-	-	-
WDR70	1	0	-	-	-	-	-	-	-
WDR72	1	1	-	-	-	-	-	-	-
WDR76	1	0	-	-	-	-	-	-	-
WDR77	1	0	-	-	-	-	-	-	-
WDR78	1	0	1	-	-	-	-	-	-
WDR81	1	0	1	-	-	-	-	-	-
WDR83	1	1	-	-	-	-	-	-	-
WDR89	1	1	-	-	-	-	-	-	-
WDSUB1	1	0	-	-	-	-	-	-	-
WEE2	1	0	-	-	-	-	-	-	-
WFDC1	1	0	-	-	-	-	-	-	-
WFDC10B	1	0	-	-	-	-	-	-	-
WFDC5	1	0	-	-	-	-	-	-	-
WFS1	1	1	1	-	-	-	-	-	-
WHAMM	1	1	-	-	-	-	-	-	-
WISP2	1	0	-	-	-	-	-	-	-
WISP3	1	0	-	-	-	-	-	-	-
WNK2	1	1	-	-	-	-	-	-	-
WRN	1	2	-	Yes	-	-	-	Yes	-
WWP2	1	1	-	Yes	-	-	-	-	-
XDH	1	2	-	-	-	-	-	-	-
XIRP1	1	0	-	-	-	-	-	-	-
XKR5	1	2	1	-	-	-	-	-	-
XXYLT1	1	0	-	-	-	-	-	-	-
XYLB	1	0	-	-	-	-	-	-	-
XYLT2	1	0	-	-	-	-	-	-	-
YBX3	1	0	-	-	-	-	-	-	-
YDJC	1	1	-	-	-	-	-	-	-
YJEFN3	1	0	-	-	-	-	-	-	-
YLPM1	1	2	-	-	-	-	-	-	-
ZACN	1	3	-	-	-	-	-	-	-
ZAP70	1	1	-	-	-	-	-	-	-
ZBED3	1	0	-	-	-	-	-	-	-
ZBTB21	1	0	1	-	-	-	-	-	-
ZBTB3	1	0	-	-	-	-	-	-	-
ZBTB32	1	0	-	-	-	-	-	-	-
ZC2HC1B	1	1	-	-	-	-	-	-	-
ZC3H12C	1	0	-	-	-	-	-	-	-
ZC3H6	1	0	-	-	-	-	-	-	-
ZC3HAV1	1	0	-	-	-	-	-	-	-
ZCCHC2	1	0	-	-	-	-	-	-	-
ZCCHC3	1	0	-	-	-	-	-	-	-
ZCWPW2	1	0	-	-	-	-	-	-	-
ZDHH11	1	0	-	-	-	-	-	-	-
ZDHH13	1	0	-	-	-	-	-	-	-
ZDHH15	1	0	-	-	-	-	-	-	-
ZDHH14	1	1	-	-	-	-	-	-	-
ZDHH16	1	0	-	-	-	-	-	-	-
ZDHH18	1	0	-	-	-	-	-	-	-
ZFAND6	1	0	-	-	-	-	-	-	-
ZFP14	1	0	-	-	-	-	-	-	-
ZFP28	1	1	-	-	-	-	-	-	-
ZFP37	1	1	-	-	-	-	-	-	-
ZFP64	1	0	-	-	-	-	-	-	-
ZFP92	1	0	-	-	-	-	-	-	-
ZFYVE19	1	1	-	-	-	-	-	-	-
ZFYVE27	1	0	-	-	-	-	-	-	-
ZIK1	1	0	-	-	-	-	-	-	-
ZKSCAN3	1	0	-	-	-	-	-	-	-
ZKSCAN7	1	1	-	-	-	-	-	-	-
ZMYND15	1	1	-	-	-	-	-	-	-
ZNF106	1	0	-	-	-	-	-	-	-
ZNF114	1	1	-	-	-	-	-	-	-
ZNF14	1	1	-	-	-	-	-	-	-
ZNF154	1	0	-	-	-	-	-	-	-
ZNF17	1	2	-	-	-	-	-	-	-
ZNF177	1	0	-	-	-	-	-	-	-
ZNF181	1	0	-	-	-	-	-	-	-
ZNF195	1	0	-	-	-	-	-	-	-

ZNF200	1	0	-	-	-	-	-	-
ZNF214	1	1	-	-	-	-	-	-
ZNF215	1	2	-	-	-	-	-	-
ZNF221	1	1	-	-	-	-	-	-
ZNF225	1	1	-	-	-	-	-	-
ZNF234	1	1	1	-	-	-	-	-
ZNF236	1	0	-	-	-	-	-	-
ZNF251	1	1	-	-	-	-	-	-
ZPR1	1	0	-	-	-	-	-	-
ZNF263	1	0	-	-	-	-	-	-
ZNF280C	1	0	-	-	-	-	-	-
ZNF283	1	0	-	-	-	-	-	-
ZNF3	1	1	-	-	-	-	-	-
ZNF300	1	0	-	-	-	-	-	-
ZNF333	1	1	-	-	-	-	-	-
ZNF334	1	0	-	-	-	-	-	-
ZNF335	1	0	-	-	-	-	-	-
ZNF337	1	1	1	-	-	-	-	-
ZNF338	1	1	-	-	-	-	-	-
ZNF34	1	0	-	-	-	-	-	-
ZNF341	1	0	-	-	-	-	-	-
ZNF347	1	1	-	-	-	-	-	-
ZNF354C	1	0	-	-	-	-	-	-
ZNF365	1	0	-	-	-	-	-	-
ZNF366	1	0	-	-	-	-	-	-
ZNF385B	1	0	-	-	-	-	-	-
ZNF396	1	1	-	-	-	-	-	-
ZNF417	1	2	-	-	-	-	-	-
ZNF425	1	0	-	-	-	-	-	-
ZNF44	1	1	-	-	-	-	-	-
ZNF443	1	0	-	-	-	-	-	-
ZNF461	1	1	-	-	-	-	-	-
ZNF467	1	1	-	-	-	-	-	-
ZNF469	1	0	-	-	-	-	-	-
ZNF470	1	2	-	-	-	-	-	-
ZNF484	1	0	-	-	-	-	-	-
ZNF501	1	1	-	-	-	-	-	-
ZNF502	1	0	-	-	-	-	-	-
ZNF511	1	1	-	-	-	-	-	-
ZNF512B	1	0	-	-	-	-	-	-
ZNF526	1	2	-	-	-	-	-	-
ZNF534	1	2	-	-	-	-	-	-
ZNF536	1	0	-	-	-	-	-	-
ZNF544	1	2	-	-	-	-	-	-
ZNF546	1	2	-	-	-	-	-	-
ZNF550	1	1	-	-	-	-	-	-
ZNF557	1	0	-	-	-	-	-	-
ZNF559	1	1	-	-	-	-	-	-
ZNF560	1	3	-	-	-	-	-	-
ZNF565	1	1	-	-	-	-	-	-
ZNF566	1	0	-	-	-	-	-	-
ZNF567	1	0	-	-	-	-	-	-
ZNF568	1	1	-	-	-	-	-	-
ZNF576	1	1	-	-	-	-	-	-
ZNF582	1	2	-	-	-	-	-	-
ZNF593	1	0	-	-	-	-	-	-
ZNF607	1	1	-	-	-	-	-	-
ZNF615	1	1	-	-	-	-	-	-
ZNF618	1	0	-	-	-	-	-	-
ZNF626	1	0	-	-	-	-	-	-
ZNF648	1	1	-	-	-	-	-	-
ZNF665	1	0	-	-	-	-	-	-
ZNF674	1	1	-	-	-	-	-	-
ZNF677	1	1	-	-	-	-	-	-
ZNF678	1	0	-	-	-	-	-	-
ZNF688	1	0	-	-	-	-	-	-
ZNF691	1	0	-	-	-	-	-	-
ZNF7	1	1	-	-	-	-	-	-
ZNF700	1	0	-	-	-	-	-	-
ZNF708	1	0	-	-	-	-	-	-
ZNF713	1	0	-	-	-	-	-	-
ZNF727	1	1	-	-	-	-	-	-
ZNF729	1	0	-	-	-	-	-	-
ZNF76	1	0	-	-	-	-	-	-
ZNF766	1	1	-	-	-	-	-	-
ZNF780A	1	1	-	-	-	-	-	-
ZNF789	1	0	-	-	-	-	-	-
ZNF79	1	0	-	-	-	-	-	-
ZNF790	1	1	-	-	-	-	-	-
ZNF793	1	1	-	-	-	-	-	-
ZNF804A	1	1	-	-	-	-	-	-
ZNF814	1	1	-	-	-	-	-	-
ZNF831	1	0	-	-	-	-	-	-
ZNF835	1	2	-	-	-	-	-	-
ZNF836	1	0	-	-	-	-	-	-
ZNF837	1	1	-	-	-	-	-	-
ZNF839	1	0	-	-	-	-	-	-
ZNF84	1	0	-	-	-	-	-	-
ZNF841	1	0	1	-	-	-	-	-
ZNF843	1	0	-	-	-	-	-	-
ZNF844	1	0	-	-	-	-	-	-
ZNF862	1	0	-	-	-	-	-	-
ZNF883	1	0	-	-	-	-	-	-
ZNFX1	1	2	1	-	-	-	-	-
ZNHIT1	1	0	-	-	-	-	-	-
ZP4	1	2	-	-	-	-	-	-
ZPLD1	1	1	-	-	-	-	-	-
ZRANB3	1	3	-	-	-	-	-	-
ZRSR2	1	0	-	-	-	-	-	-
ZSCAN23	1	0	-	-	-	-	-	-
ZSCAN25	1	0	-	-	-	-	-	-
ZSCAN31	1	0	-	-	-	-	-	-
ZSCAN32	1	0	-	-	-	-	-	-
ZSCAN35B	1	1	-	-	-	-	-	-
ZSWIM4	1	1	-	-	-	-	-	-
ZXDC	1	0	-	-	-	-	-	-

BCCS - Bipolar Case Control Study. FPC - familial pancreatic cancer. PTVs - premature truncating variants.

**Supplementary Table S2.** FPC patients harboring a private PTVs *ASXL1*, *DNMT3A*, and *TET2*

Gene	Transcript	Sample ID	Type	Consequence	Genomic change <sup>a</sup>	Amino acid change <sup>b</sup>	Percentage of reads supporting the variant
<i>ASXL1</i>	NM_015338	FPC0083	Insertion	Frameshift	g.chr20:31022414_T>TA	p.H633fs	26.7
		FPC0172	Deletion	Frameshift	g.chr20:31023040_ATG>A	p.842_843del	16.7
		FPC0206	Deletion	Frameshift	g.chr20:31022674_AC>A	p.D720fs	16.7
		FPC0500	Substitution	Nonsense	g.chr20:31022245_C>G	p.S577X	22.2
		FPC0511	Deletion	Frameshift	g.chr20:31022402_TCACCCTGCCATAGAGAGCGGC>T	p.630_637del	13.9
<i>DNMT3A</i>	NM_175629	FPC0003	Insertion	Frameshift	g.chr2:25463554_A>AGG	p.C710fs	11.6
		FPC0113	Deletion	Frameshift	g.chr2:25468162_TC>T	p.E505fs	28.6
		FPC0291	Deletion	Frameshift	g.chr2:25469529_GC>G	p.G413fs	34.3
		FPC0306	Substitution	Nonsense	g.chr2:25462023_C>T	p.W795X	20.0
		FPC0306	Substitution	Nonsense	g.chr2:25470583_C>T	p.W297X	21.4
		FPC0443	Substitution	Splicing	g.chr2:25470905_C>T	sp	36.6
		FPC0557	Deletion	Frameshift	g.chr2:25463577_TCGAATGGGCCCA>T	p.698_702del	18.0
<i>TET2</i>	NM_001127208	FPC0072	Substitution	Nonsense	g.chr4:106196537_C>T	p.Q1624X	33.3
		FPC0113	Deletion	Frameshift	g.chr4:106158407_ATT>A	p.1103_1104del	35.0
		FPC0267	Insertion	Frameshift	g.chr4:106197096_C>CT	p.A1810fs	12.8
		FPC0274	Insertion	Frameshift	g.chr4:106157833_G>GC	p.A912fs	28.2
		FPC0319	Substitution	Nonsense	g.chr4:106156729_C>T	p.R544X	25.0
		FPC0399	Substitution	Nonsense	g.chr4:106197276_C>A	p.S1870X	28.6
		FPC0637	Deletion	Frameshift	g.chr4:106156656_TG>T	p.G520fs	32.4
		FPC0639	Substitution	Nonsense	g.chr4:106190903_T>A	p.L1394X	35.7
		FPC0694	Deletion	Frameshift	g.chr4:106157427_TG>T	p.G777fs	52.5

<sup>a</sup>Genomic coordinates are in hg19 human genome format and are on the + strand. All changes are heterozygous. g - genomic sequence. <sup>b</sup>p - protein sequence; fs - frameshift; sp - splicing variant. FPC - familial pancreatic cancer.

**Supplementary Table S3.** 87 genes analyzed in-depth in FPC patients and kindreds

<b>Gene</b>	<b>FPC susceptibility gene</b>	<b>Hereditary cancer gene</b>	<b>Hereditary pancreatitis gene</b>
<i>ATM</i>	X	X	
<i>BRCA1</i>	X	X	
<i>BRCA2</i> <sup>a</sup>	X	X	
<i>CDKN2A</i>	X	X	
<i>MLH1</i>	X	X	
<i>MSH2</i>	X	X	
<i>MSH6</i>	X	X	
<i>PALB2</i> <sup>b</sup>	X	X	
<i>PMS2</i>	X	X	
<i>PRSS1</i>	X	X	X
<i>STK11</i>	X	X	
<i>TP53</i>	X	X	
<i>BRIP1</i> <sup>c</sup>		X	
<i>ERCC4</i> <sup>d</sup>		X	
<i>FANCA</i>		X	
<i>FANCB</i>		X	
<i>FANCC</i>		X	
<i>FANCD2</i>		X	
<i>FANCE</i>		X	
<i>FANCF</i>		X	
<i>FANCG</i>		X	
<i>FANCI</i>		X	
<i>FANCL</i>		X	
<i>FANCM</i>		X	
<i>RAD51C</i> <sup>e</sup>		X	
<i>SLX4</i> <sup>f</sup>		X	
<i>CPA1</i>			X
<i>ALK</i>		X	
<i>APC</i>		X	
<i>AXIN2</i>		X	
<i>BAP1</i>		X	
<i>BLM</i>		X	
<i>BMPRI1A</i>		X	
<i>BUB1B</i>		X	
<i>CDC73</i>		X	
<i>CDH1</i>		X	
<i>CDK4</i>		X	
<i>CHEK2</i>		X	
<i>CREBBP</i>		X	
<i>CYLD</i>		X	
<i>DDB2</i>		X	
<i>DICER1</i>		X	
<i>EP300</i>		X	
<i>ERCC2</i>		X	

<i>ERCC3</i>	X
<i>ERCC5</i>	X
<i>EXT1</i>	X
<i>EXT2</i>	X
<i>FH</i>	X
<i>FLCN</i>	X
<i>GPC3</i>	X
<i>KIT</i>	X
<i>MEN1</i>	X
<i>MET</i>	X
<i>MUTYH</i>	X
<i>NBN</i>	X
<i>NF1</i>	X
<i>NF2</i>	X
<i>PDGFRA</i>	X
<i>PHOX2B</i>	X
<i>PMS1</i>	X
<i>POLD1</i>	X
<i>POLE</i>	X
<i>POLH</i>	X
<i>POT1</i>	X
<i>PRKARIA</i>	X
<i>PTCH1</i>	X
<i>PTEN</i>	X
<i>RB1</i>	X
<i>RECQL4</i>	X
<i>RET</i>	X
<i>SBDS</i>	X
<i>SDHAF2</i>	X
<i>SDHB</i>	X
<i>SDHC</i>	X
<i>SDHD</i>	X
<i>SMAD4</i>	X
<i>SUFU</i>	X
<i>TERT</i>	X
<i>TSC1</i>	X
<i>TSC2</i>	X
<i>VHL</i>	X
<i>WAS</i>	X
<i>WRN</i>	X
<i>WT1</i>	X
<i>XPA</i>	X
<i>XPC</i>	X

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<sup>a</sup>Also known as *FANCD1*. <sup>b</sup>Also known as *FANCN*. <sup>c</sup>Also known as *FANCI*. <sup>d</sup>Also known as *FANCG*.

<sup>e</sup>Also known as *FANCP*. <sup>f</sup>Also known as *FANCO*. FPC - familial pancreatic cancer.

Supplementary Table S4. Deleterious variants in FPC patients and kindreds

Gene	FPC patients					FPC kindred				
	SNVs & INDELS	Number of deleterious variants SVDs	SNVs, INDELS & SVDs	Number of VUS SNVs & INDELS	Number of benign variants SNVs & INDELS	SNVs & INDELS	Number of deleterious variants SVDs	SNVs, INDELS & SVDs	Number of VUS SNVs & INDELS	Number of benign variants SNVs & INDELS
ATM	21	1	22	77	1701	19	0	19	71	1576
BRCA1	7	6	13	15	3312	7	6	13	14	3144
BRCA2	10	1	11	15	5380	10	0	10	12	4989
CDKN2A	16	0	16	17	33	12	0	12	15	32
MLH1	0	0	0	14	457	0	0	0	12	422
MSH2	0	0	0	19	47	0	0	0	18	44
MSH6	0	0	0	16	1103	0	0	0	14	1020
PALB2	5	0	5	13	257	5	0	5	13	246
PMS2	0	0	0	10	3034	0	0	0	10	2830
PRSS1	1	0	1	2	0	1	0	1	2	0
STK11	0	0	0	3	10	0	0	0	3	9
TP53	2	0	2	7	978	2	0	2	7	924
BRIP1	4	1	5	15	2264	4	1	5	13	2108
ERCC4	6	0	6	18	592	4	0	4	17	557
FANCA	0	7	7	45	2538	0	6	6	41	2350
FANCB	0	0	0	12	93	0	0	0	12	86
FANCC	3	0	3	16	13	3	0	3	14	11
FANCD2	0	4	4	367	292	0	4	4	332	264
FANCE	0	0	0	16	1012	0	0	0	15	941
FANCF	2	0	2	5	97	2	0	2	5	92
FANCG	4	0	4	15	30	4	0	4	13	28
FANCI	1	1	2	23	2888	1	1	2	21	2672
FANCL	8	0	8	13	793	7	0	7	12	732
FANCM	3	2	5	37	715	3	1	4	32	679
RAD51C	0	0	0	8	14	0	0	0	7	14
SLX4	1	0	1	63	1763	1	0	1	56	1629
CPA1	4	0	4	13	1041	4	0	4	13	976
ALK	1	0	1	14	6998	1	0	1	14	6490
APC	11	0	11	41	5592	11	0	11	39	5181
AXIN2	0	0	0	27	2709	0	0	0	24	2516
BAP1	1	0	1	5	19	1	0	1	4	18
BLM	1	3	4	26	860	1	2	3	26	806
BMPRIA	0	0	0	4	388	0	0	0	3	364
BUB1B	3	0	3	11	1512	3	0	3	11	1412
CDC73	0	0	0	3	0	0	0	0	3	0
CDH1	0	3	3	7	852	0	3	3	7	794
CDK4	1	0	1	3	0	1	0	1	3	0
CHEK2	4	6	10	6	41	4	6	10	6	38
CREBBP	0	0	0	36	220	0	0	0	32	211
CYLD	0	1	1	3	112	0	1	1	2	109
DDB2	0	0	0	2	1280	0	0	0	2	1190
DICER1	0	0	0	20	58	0	0	0	18	54
EP300	1	2	3	35	1198	1	2	3	34	1135
ERCC2	2	2	4	11	2006	2	1	3	10	1879
ERCC3	1	0	1	11	9	1	0	1	11	6
ERCC5	0	0	0	0	0	0	0	0	0	0
EXT1	0	2	2	7	798	0	2	2	7	752
EXT2	0	0	0	11	36	0	0	0	11	34
FH	1	0	1	3	46	1	0	1	3	42
FLCN	1	1	2	18	117	1	1	2	17	109
GPC3	0	0	0	7	8	0	0	0	7	8
KIT	0	0	0	12	350	0	0	0	12	317
MEN1	0	0	0	3	3160	0	0	0	3	2940
MET	1	0	1	23	2129	1	0	1	21	1984
MUTYH	2	0	2	15	417	2	0	2	14	388
NBN	5	0	5	9	1680	5	0	5	9	1563
NF1	1	0	1	11	912	1	0	1	11	860
NF2	1	0	1	6	0	1	0	1	5	0
PDGFRA	0	0	0	21	3271	0	0	0	20	3016
PHOX2B	0	0	0	4	62	0	0	0	4	61
PMS1	2	0	2	16	28	2	0	2	16	24
POLD1	2	0	2	24	524	1	0	1	21	496
POLE	0	0	0	58	2384	0	0	0	55	2209
POLH	0	0	0	12	145	0	0	0	12	139
POT1	0	0	0	12	30	0	0	0	11	29
PRKAR1A	0	0	0	1	245	0	0	0	1	232
PTCH1	1	0	1	30	988	1	0	1	29	910
PTEN	0	0	0	1	0	0	0	0	1	0
RB1	1	0	1	8	2	1	0	1	7	2



<i>RECQL4</i>	3	0	3	52	4900	1	0	1	45	4568
<i>RET</i>	7	0	7	16	3359	5	0	5	16	3121
<i>SBDS</i>	4	0	4	4	269	4	0	4	4	249
<i>SDHAF2</i>	0	0	0	0	0	0	0	0	0	0
<i>SDHB</i>	1	0	1	3	1257	1	0	1	3	1165
<i>SDHC</i>	1	0	1	1	0	1	0	1	1	0
<i>SDHD</i>	0	0	0	0	1287	0	0	0	0	1195
<i>SMAD4</i>	0	0	0	2	0	0	0	0	2	0
<i>SUFU</i>	0	0	0	5	145	0	0	0	5	135
<i>TERT</i>	10	0	10	11	505	10	0	10	11	473
<i>TSC1</i>	0	0	0	12	511	0	0	0	12	479
<i>TSC2</i>	0	0	0	13	612	0	0	0	12	570
<i>VHL</i>	0	0	0	10	0	0	0	0	10	0
<i>WAS</i>	2	0	2	16	1	2	0	2	16	1
<i>WRN</i>	1	0	1	44	2934	1	0	1	41	2733
<i>WT1</i>	0	0	0	3	800	0	0	0	3	748
<i>XPA</i>	0	0	0	3	4	0	0	0	3	3
<i>XPC</i>	0	0	0	19	2827	0	0	0	17	2618
<b>Total</b>	<b>171</b>	<b>43</b>	<b>214</b>	<b>1665</b>	<b>91054</b>	<b>157</b>	<b>37</b>	<b>194</b>	<b>1541</b>	<b>84751</b>

FPC - familial pancreatic cancer. INDELS - insertion or deletion. SNVs - single nucleotide variants. SVDs - structural variant deletions. VUS - variants of unknown significance.

**Supplementary Table S5.** FPC samples with more than one deleterious variant

<b>Sample ID</b>	<b>Gene 1</b>	<b>Gene 2</b>	<b>Gene 3</b>	<b>Gene 4</b>	<b>Gene 5</b>
FPC0025	<u>FANCA</u>	RET	-	-	-
FPC0046	<u>CHEK2</u>	NF1	-	-	-
FPC0050	APC	WAS	-	-	-
FPC0058	CDKN2A	ERCC2	SLX4	-	-
FPC0061	ATM	RBI	-	-	-
FPC0063	<u>CHEK2</u>	<u>FANCA</u>	-	-	-
FPC0075	<u>BRCA1</u>	<u>CHEK2</u>	-	-	-
FPC0076	<u>BLM</u>	<u>BRCA1</u>	<u>CDH1</u>	<u>CHEK2</u>	<u>FANCD2</u>
FPC0091	RET	TERT	-	-	-
FPC0126	ATM	PALB2	-	-	-
FPC0135	APC	BRIP1	-	-	-
FPC0148	ERCC4	FANCM	-	-	-
FPC0171	ATM	FANCL	-	-	-
FPC0191	ATM	RECQL4	-	-	-
FPC0224	<u>BRCA1</u>	FANCL	-	-	-
FPC0228	<u>CYLD</u>	WAS	-	-	-
FPC0235	CDKN2A	WRN	-	-	-
FPC0321	CDKN2A	FANCL	-	-	-
FPC0336	ATM	TERT	-	-	-
FPC0372	FANCL	FH	-	-	-
FPC0472	BRCA1	BRCA2	-	-	-
FPC0506	APC	BRCA2	-	-	-
FPC0539	TP53	TP53	-	-	-
FPC0556	CDK4	FLCN	-	-	-
FPC0591	ATM	ERCC4	-	-	-
FPC0593	<u>FANCM</u>	PTCH1	-	-	-
FPC0622	BRCA1	<u>CHEK2</u>	-	-	-
FPC0628	BRCA1	BRCA2	-	-	-
FPC0710	CDKN2A	RECQL4	-	-	-
FPC0713	<u>BLM</u>	<u>BRCA2</u>	<u>ERCC2</u>	<u>FANCM</u>	-
FPC0738	ATM	FANCF	-	-	-
FPC0755	ATM	BUB1B	-	-	-

Underlined gene symbol indicates structural variant deletion. FPC - familial pancreatic cancer

**Supplementary Table S6.** Deleterious variants in BCCS samples

<b>Gene</b>	<b>Number of deleterious variants</b>	<b>Number of VUS</b>	<b>Number of benign variants</b>
	<b>SNVs &amp; INDELS</b>	<b>SNVs &amp; INDELS</b>	<b>SNVs &amp; INDELS</b>
<i>ATM</i>	1	65	2545
<i>BRCA1</i>	2	20	4872
<i>BRCA2</i>	6	40	8077
<i>CDKN2A</i>	0	14	48
<i>MLH1</i>	0	15	696
<i>MSH2</i>	1	12	55
<i>MSH6</i>	0	21	1456
<i>PALB2</i>	0	29	410
<i>PMS2</i>	0	6	4025
<i>PRSS1</i>	1	2	0
<i>STK11</i>	0	7	7
<i>TP53</i>	0	3	1472
<i>BRIP1</i>	9	38	3553
<i>ERCC4</i>	2	31	872
<i>FANCA</i>	1	48	3798
<i>FANCB</i>	0	13	169
<i>FANCC</i>	0	15	12
<i>FANCD2</i>	2	78	423
<i>FANCE</i>	0	12	1510
<i>FANCF</i>	1	8	144
<i>FANCG</i>	1	12	24
<i>FANCI</i>	2	33	4061
<i>FANCL</i>	6	14	1215
<i>FANCM</i>	5	57	1072
<i>RAD51C</i>	0	18	36
<i>SLX4</i>	0	65	2902
<i>CPA1</i>	1	19	1499
<i>ALK</i>	1	23	9342
<i>APC</i>	4	55	8698
<i>AXIN2</i>	0	39	4085
<i>BAP1</i>	0	3	16
<i>BLM</i>	3	37	1375
<i>BMPR1A</i>	1	6	432
<i>BUB1B</i>	0	19	2368
<i>CDC73</i>	0	2	0
<i>CDH1</i>	0	14	1314
<i>CDK4</i>	0	5	2
<i>CHEK2</i>	7	7	51
<i>CREBBP</i>	1	51	258
<i>CYLD</i>	0	6	121
<i>DDB2</i>	0	8	1942
<i>DICER1</i>	0	29	27
<i>EP300</i>	0	65	1837
<i>ERCC2</i>	1	18	2887

<i>ERCC3</i>	5	14	1
<i>ERCC5</i>	0	0	0
<i>EXT1</i>	0	11	1187
<i>EXT2</i>	1	26	26
<i>FH</i>	1	5	51
<i>FLCN</i>	1	14	142
<i>GPC3</i>	0	24	0
<i>KIT</i>	0	21	524
<i>MEN1</i>	0	5	4783
<i>MET</i>	0	27	2716
<i>MUTYH</i>	2	17	654
<i>NBN</i>	10	25	2449
<i>NF1</i>	1	12	1414
<i>NF2</i>	0	3	0
<i>PDGFRA</i>	1	21	4933
<i>PHOX2B</i>	1	1	48
<i>PMS1</i>	1	21	20
<i>POLD1</i>	1	41	557
<i>POLE</i>	3	71	3813
<i>POLH</i>	2	23	194
<i>POT1</i>	1	25	48
<i>PRKARIA</i>	0	2	55
<i>PTCH1</i>	5	42	1409
<i>PTEN</i>	0	1	0
<i>RB1</i>	0	15	0
<i>RECQL4</i>	0	60	5592
<i>RET</i>	7	16	5115
<i>SBDS</i>	3	4	359
<i>SDHAF2</i>	0	1	0
<i>SDHB</i>	0	6	1868
<i>SDHC</i>	1	0	0
<i>SDHD</i>	0	0	21
<i>SMAD4</i>	0	5	0
<i>SUFU</i>	1	6	177
<i>TERT</i>	8	7	820
<i>TSC1</i>	0	16	716
<i>TSC2</i>	1	23	968
<i>VHL</i>	0	15	0
<i>WAS</i>	0	21	3
<i>WRN</i>	2	63	4591
<i>WT1</i>	0	5	465
<i>XPA</i>	0	3	0
<i>XPC</i>	0	21	3571
<b>Total</b>	<b>118</b>	<b>1821</b>	<b>128998</b>

BCCS - Bipolar Case Control Study. INDELs - insertions and deletions. SNVs - single nucleotide variants. VUS - variants of unknown significance.

**Supplementary Table S7.** Deleterious variants in FPC kindreds and BCCS samples

Gene	Number of deleterious variants		
	FPC kindreds (n=593)	FPC kindreds with $\geq 3$ affected members (n=245)	BCCS samples (n=967)
<i>ATM</i>	19	9	1
<i>BRCA1</i>	7	3	2
<i>BRCA2</i>	10	4	6
<i>CDKN2A</i>	12	7	0
<i>MLH1</i>	0	0	0
<i>MSH2</i>	0	0	1
<i>MSH6</i>	0	0	0
<i>PALB2</i>	5	3	0
<i>PMS2</i>	0	0	0
<i>PRSS1</i>	1	1	1
<i>STK11</i>	0	0	0
<i>TP53</i>	2	0	0
<i>BRIP1</i>	4	1	9
<i>ERCC4</i>	4	1	2
<i>FANCA</i>	0	0	1
<i>FANCB</i>	0	0	0
<i>FANCC</i>	3	0	0
<i>FANCD2</i>	0	0	2
<i>FANCE</i>	0	0	0
<i>FANCF</i>	2	1	1
<i>FANCG</i>	4	1	1
<i>FANCI</i>	1	0	2
<i>FANCL</i>	7	3	6
<i>FANCM</i>	3	0	5
<i>RAD51C</i>	0	0	0
<i>SLX4</i>	1	1	0
<i>CPA1</i>	4	0	1
<i>ALK</i>	1	1	1
<i>APC</i>	11	8	4
<i>AXIN2</i>	0	0	0
<i>BAP1</i>	1	0	0
<i>BLM</i>	1	1	3
<i>BMPR1A</i>	0	0	1
<i>BUB1B</i>	3	3	0
<i>CDC73</i>	0	0	0
<i>CDH1</i>	0	0	0
<i>CDK4</i>	1	0	0
<i>CHEK2</i>	4	1	7
<i>CREBBP</i>	0	0	1
<i>CYLD</i>	0	0	0
<i>DDB2</i>	0	0	0
<i>DICER1</i>	0	0	0

<i>EP300</i>	1	0	0
<i>ERCC2</i>	2	2	1
<i>ERCC3</i>	1	0	5
<i>ERCC5</i>	0	0	0
<i>EXT1</i>	0	0	0
<i>EXT2</i>	0	0	1
<i>FH</i>	1	1	1
<i>FLCN</i>	1	0	1
<i>GPC3</i>	0	0	0
<i>KIT</i>	0	0	0
<i>MEN1</i>	0	0	0
<i>MET</i>	1	1	0
<i>MUTYH</i>	2	0	2
<i>NBN</i>	5	3	10
<i>NF1</i>	1	1	1
<i>NF2</i>	1	0	0
<i>PDGFRA</i>	0	0	1
<i>PHOX2B</i>	0	0	1
<i>PMS1</i>	2	1	1
<i>POLD1</i>	1	0	1
<i>POLE</i>	0	0	3
<i>POLH</i>	0	0	2
<i>POT1</i>	0	0	1
<i>PRKARIA</i>	0	0	0
<i>PTCH1</i>	1	0	5
<i>PTEN</i>	0	0	0
<i>RBI</i>	1	1	0
<i>RECQL4</i>	1	1	0
<i>RET</i>	5	3	7
<i>SBDS</i>	4	2	3
<i>SDHAF2</i>	0	0	0
<i>SDHB</i>	1	1	0
<i>SDHC</i>	1	0	1
<i>SDHD</i>	0	0	0
<i>SMAD4</i>	0	0	0
<i>SUFU</i>	0	0	1
<i>TERT</i>	10	4	8
<i>TSC1</i>	0	0	0
<i>TSC2</i>	0	0	1
<i>VHL</i>	0	0	0
<i>WAS</i>	2	1	0
<i>WRN</i>	1	1	2
<i>WT1</i>	0	0	0
<i>XPA</i>	0	0	0
<i>XPC</i>	0	0	0

BCCS - Bipolar Case Control Study. FPC - familial pancreatic cancer.

**Supplementary Table S8.** Differences in deleterious variants between FPC kindreds with three or more affected members and BCCS samples

<b>Genetic Ancestry</b>	<b>Gene</b>	<b>Deleterious variants in FPC kindred</b>	<b>Deleterious variants in BCCS samples</b>	<b>P-value</b>
All (n=245)	<i>ATM</i>	9	1	4.4x10 <sup>-6</sup>
	<i>APC</i>	8	5	0.0013
	<i>BUB1B</i>	3	0	0.0082
	<i>CDKN2A</i>	7	0	1.3x10 <sup>-5</sup>
	<i>PALB2</i>	3	0	0.0082
European (n=240)	<i>ATM</i>	9	1	3.8x10 <sup>-6</sup>
	<i>APC</i>	8	5	0.0012
	<i>BUB1B</i>	2	0	0.0395
	<i>CDKN2A</i>	7	0	1.2x10 <sup>-5</sup>
	<i>PALB2</i>	3	0	0.0078

BCCS - Bipolar Case Control Study. FPC - familial pancreatic cancer.

**Supplementary Table S9.** Private heterozygous PTVs present in all sequenced affected members of a kindred

<b>Gene</b>	<b>Number of FPC kindred (n=38) with a shared private heterozygous PTV</b>	<b>Number of private heterozygous PTVs in FPC kindred (n=593)</b>	<b>Number of private heterozygous PTVs in BCCS samples</b>
<i>CEP290</i>	2	5	5
<i>WDR87</i>	2	6	7
<i>ABCB10</i>	1	2	0
<i>AGBL1</i>	1	2	3
<i>AIG1</i>	1	1	0
<i>ATG12</i>	1	1	0
<i>ATM</i>	1	19	1
<i>ATP10B</i>	1	4	1
<i>B3GNT8</i>	1	1	0
<i>C16orf89</i>	1	3	0
<i>C1orf123</i>	1	1	1
<i>C4orf27</i>	1	1	0
<i>CDKN2A</i>	1	4	0
<i>CHAC2</i>	1	1	0
<i>CHPF</i>	1	1	1
<i>CNGB1</i>	1	1	1
<i>CR1</i>	1	1	1
<i>CRIP2</i>	1	2	1
<i>CXCL5</i>	1	1	0
<i>CXorf40B</i>	1	1	0
<i>DHX58</i>	1	4	3
<i>DNAH6</i>	1	5	1
<i>DSC1</i>	1	2	0
<i>DUSP28</i>	1	1	0
<i>EDN1</i>	1	1	0
<i>EGFL6</i>	1	1	0
<i>EGR4</i>	1	1	0
<i>ENAM</i>	1	1	0
<i>ERCC6L</i>	1	1	0
<i>FAM136A</i>	1	1	0
<i>FAM13A</i>	1	1	3
<i>FBXL18</i>	1	1	0
<i>FIGNL1</i>	1	1	0
<i>GEMIN5</i>	1	1	1
<i>GRHPR</i>	1	1	0
<i>HACE1</i>	1	1	0
<i>HELZ2</i>	1	1	1
<i>HEPN1</i>	1	1	0
<i>HIF3A</i>	1	1	1
<i>HTR5A</i>	1	2	0
<i>IDUA</i>	1	2	0
<i>INPP5D</i>	1	1	0
<i>ISLR2</i>	1	1	0
<i>ITIH2</i>	1	2	2
<i>KIAA0368</i>	1	1	2
<i>KRT4</i>	1	2	2
<i>LACE1</i>	1	1	0
<i>LAG3</i>	1	1	0
<i>LCNL1</i>	1	1	0
<i>LGALS8</i>	1	1	0
<i>LIPT2</i>	1	1	0
<i>MANBA</i>	1	2	0
<i>MCCC1</i>	1	2	1
<i>MCTP2</i>	1	5	1
<i>MF12</i>	1	3	1



<i>MXRA8</i>	1	1	0
<i>MYBPC2</i>	1	1	0
<i>MYO3B</i>	1	3	1
<i>NDUFA12</i>	1	1	1
<i>NFYA</i>	1	1	0
<i>NOS2</i>	1	1	0
<i>NSG1</i>	1	1	0
<i>NT5E</i>	1	2	0
<i>NUDT1</i>	1	1	0
<i>OPLAH</i>	1	2	1
<i>OR1E1</i>	1	2	1
<i>PCDHGA8</i>	1	1	0
<i>PCP2</i>	1	1	0
<i>PGBD2</i>	1	1	1
<i>PKHD1L1</i>	1	7	9
<i>PLA2G10</i>	1	1	0
<i>PLCD1</i>	1	2	0
<i>PNLIP</i>	1	1	0
<i>POLD1</i>	1	1	1
<i>POLM</i>	1	1	2
<i>POLR1C</i>	1	1	1
<i>POLR3B</i>	1	2	1
<i>PRDM4</i>	1	1	0
<i>PSD2</i>	1	1	1
<i>RABL3</i>	1	1	0
<i>RADIL</i>	1	1	1
<i>RASSF6</i>	1	1	0
<i>RECQL</i>	1	1	2
<i>RGS12</i>	1	2	0
<i>RYR1</i>	1	4	5
<i>SAR1B</i>	1	1	1
<i>SCCPDH</i>	1	1	0
<i>SLC14A1</i>	1	3	0
<i>SLC22A18</i>	1	1	0
<i>SLC45A2</i>	1	2	1
<i>SPAG4</i>	1	4	0
<i>SPEM1</i>	1	1	1
<i>SYT15</i>	1	5	3
<i>TAAR5</i>	1	1	0
<i>TACR1</i>	1	1	0
<i>TLR1</i>	1	2	4
<i>TMEM200B</i>	1	1	0
<i>TMEM30B</i>	1	2	0
<i>TXNDC5</i>	1	1	1
<i>UNC80</i>	1	1	2
<i>VAT1L</i>	1	1	1
<i>VPS16</i>	1	1	0
<i>ZFP92</i>	1	1	0
<i>ZNF180</i>	1	2	0
<i>ZNF407</i>	1	2	0
<i>ZNF433</i>	1	2	2
<i>ZNF443</i>	1	1	0
<i>ZNF488</i>	1	2	1
<i>ZNF534</i>	1	1	2
<i>ZNF764</i>	1	2	1

BCCS - Bipolar Case Control Study. FPC - familial pancreatic cancer. PTVs - premature truncating variants.

**Supplementary Table S10.** Deleterious variants shared between affected members of an FPC kindred

1 <sup>st</sup> affected member of kindred	Gene with deleterious variant	Type	Consequence	Genomic change <sup>a</sup>	Amino acid change <sup>b</sup>	2 <sup>nd</sup> affected member of kindred	Deleterious variant present <sup>c</sup>	3 <sup>rd</sup> affected member of kindred	Deleterious variant present <sup>f</sup>
FPC0044	<i>BUB1B</i>	Deletion	Frameshift	g.chr15:40477557_ACAGG>A	p.fs	FPC0679	NP	-	-
FPC0105	<i>POLD1</i>	Substitution	Splicing	g.chr19:50887648_G>C	p.sp	FPC0112	P	-	-
FPC0171	<i>ATM</i>	Substitution	Nonsense	g.chr11:108124573_C>A	p.S644X	FPC0231	NP	-	-
FPC0171	<i>FANCL</i>	Deletion	Frameshift	g.chr2:58386928_G>GTAAT	p.fs	FPC0231	NP	-	-
FPC0347	<i>PALB2</i>	Deletion	Frameshift	g.chr16:23647356_ATC>A	p.fs	FPC0612	NP	-	-
FPC0364	<i>ALK</i>	Substitution	Splicing	g.chr2:29541271_C>T	p.sp	FPC0146	NP	-	-
FPC0450	<i>ATM</i>	Deletion	Frameshift	chr11:108124619_GA>G	p.fs	FPC0505	P	-	-
FPC0461	<i>BRCA1</i>	Deletion	Frameshift	g.chr17:41246849_TAC>T	p.fs	FPC0486	NP	FPC0572	NP
FPC0462	<i>CDKN2A</i>	Substitution	Nonsynonymous	g.chr9:21971057_C>A	p.G101W	FPC0483	P	-	-
FPC0476	<i>CDKN2A</i>	Substitution	Nonsense	g.chr9:21970901_C>A	p.E153X	FPC0497	P	-	-
FPC0572	<i>ERCC4</i>	Substitution	Nonsynonymous	g.chr16:14041848_C>T	p.R799W	FPC0486	P	FPC0461	NP
FPC0689	<i>CDKN2A</i>	Substitution	Nonsynonymous	g.chr9:21970981_A>T	p.V126D	FPC0741	P	FPC0687	NP
FPC0690	<i>BRIP1</i>	Substitution	Nonsynonymous	g.chr17:59937223_G>C	p.P47A	FPC0675	NP	-	-
FPC0705	<i>RECQL4</i>	Deletion	Frameshift	g.chr8:145738491_CAT>C	p.fs	FPC0709	NP	FPC0710	P
FPC0709	<i>CDKN2A</i>	Substitution	Nonsynonymous	g.chr9:21970981_A>T	p.V126D	FPC0710	P	FPC0705	NP
FPC0712	<i>NBN</i>	Substitution	Nonsynonymous	g.chr8:90990521_T>C	p.I171V	FPC0713	NP	-	-
FPC0718	<i>RET</i>	Substitution	Nonsynonymous	g.chr10:43613908_A>T	p.Y791F	FPC0717	P	FPC0719	NP

FPC - familial pancreatic cancer. <sup>a</sup>Genomic coordinates are in hg19 human genome format and are on the + strand. All changes are heterozygous. g - genomic sequence. <sup>b</sup>p - protein sequence; fs - frameshift; sp - splicing variant. <sup>c</sup>NP - deleterious variant not present in sequenced FPC patient; P - deleterious variant present in sequenced FPC patient.

**Supplementary Table S11.** Somatic mutations in FPC patient tumors

Sample ID	Gene	Genomic position <sup>a</sup>	Amino acid change <sup>b</sup>	Type	Consequence
Pa102	<i>AADAC</i>	chr3_151545829-151545829_C_T	357R>C	Substitution	Nonsynonymous
FPC0625	<i>ABCA1</i>	chr9_107556794-107556794_A_	NA	Deletion	Splicing
FPC0494	<i>ABCA10</i>	chr17_67178849-67178849_G_T	866Y>X	Substitution	Nonsense
FPC0728	<i>ABCA13</i>	chr7_48311386-48311386_C_T	708A>V	Substitution	Nonsynonymous
FPC0728	<i>ABCA13</i>	chr7_48311639-48311639_A_C	792K>N	Substitution	Nonsynonymous
FPC0070	<i>ABCA6</i>	chr17_67109393-67109393_G_A	671Q>X	Substitution	Nonsense
FPC0728	<i>ABCA8</i>	chr17_66913554-66913554_C_T	656A>T	Substitution	Nonsynonymous
Pa229	<i>ABCC11</i>	chr16_48264361-48264361_G_A	75R>C	Substitution	Nonsynonymous
FPC0625	<i>ABCC4</i>	chr13_95673939-95673939_A_	NA	Deletion	Splicing
Pa222	<i>ABCC5</i>	chr3_183655723-183655723_G_T	1274P>T	Substitution	Nonsynonymous
FPC0751	<i>ABCC6</i>	chr16_16269772-16269772_C_T	888E>K	Substitution	Nonsynonymous
Pa231	<i>ABCG4</i>	chr11_119024786-119024786_C_G	97L>V	Substitution	Nonsynonymous
FPC0625	<i>ABI3BP</i>	chr3_100570788-100570788_A_	NA	Deletion	Splicing
FPC0625	<i>ABI3BP</i>	chr3_100570788-100570788_AA	NA	Insertion	Splicing
FPC0728	<i>AC009336.1</i>	chr2_176993688-176993688_G_A	73P>L	Substitution	Nonsynonymous
FPC0627	<i>AC034236.1</i>	chr5_115320315-115320315_C_A	296T>N	Substitution	Nonsynonymous
Pa230	<i>AC134980.3</i>	chr15_22319415-22319415_C_T	67R>H	Substitution	Nonsynonymous
FPC0344	<i>ACACA</i>	chr17_35487054-35487054_C_T	1924D>N	Substitution	Nonsynonymous
FPC0744	<i>ACACB</i>	chr12_109577809-109577809_C_G	200S>C	Substitution	Nonsynonymous
FPC0347	<i>ACADS</i>	chr12_121176190-121176190_G_C	244E>D	Substitution	Nonsynonymous
FPC0649	<i>ACHE</i>	chr7_100491669-100491669_G_T	62A>D	Substitution	Nonsynonymous
FPC0347	<i>ACLY</i>	chr17_40061793-40061793_G_A	329R>X	Substitution	Nonsense
Pa230	<i>ACTR10</i>	chr14_58698990-58698990_TGGGAGGTAA	NA	Insertion	Frameshift
FPC0135	<i>ACVR1B</i>	chr12_52370236-52370236_C_T	153Q>X	Substitution	Nonsense
FPC0728	<i>ACVR2A</i>	chr2_148683686-148683686_A_	NA	Deletion	Frameshift
FPC0745	<i>ACVR2A</i>	chr2_148653906-148653907_TT_	NA	Deletion	Frameshift
Pa229	<i>ADAM11</i>	chr17_42837122-42837122_C_T	32R>X	Substitution	Nonsense
Pa230	<i>ADAM23</i>	chr2_207414826-207414826_G_A	292R>H	Substitution	Nonsynonymous
Pa230	<i>ADAM29</i>	chr4_175898400-175898400_G_A	575R>H	Substitution	Nonsynonymous
FPC0135	<i>ADAMTS3</i>	chr4_73433121-73433121_G_T	NA	Substitution	Splicing
FPC0627	<i>ADAMTSL2</i>	chr9_136420796-136420796_G_A	465A>T	Substitution	Nonsynonymous
FPC0344	<i>ADAT3</i>	chr19_1912345-1912345_C_	NA	Deletion	Frameshift
Pa222	<i>ADCY1</i>	chr7_45724597-45724597_C_T	668T>M	Substitution	Nonsynonymous
FPC0745	<i>ADCY7</i>	chr16_50338848-50338848_C_T	525R>C	Substitution	Nonsynonymous
FPC0747	<i>ADCY8</i>	chr8_132052530-132052530_G_T	17T>N	Substitution	Nonsynonymous
FPC0745	<i>ADD2</i>	chr2_70910895-70910895_G_A	318S>L	Substitution	Nonsynonymous
FPC0745	<i>ADD2</i>	chr2_70919573-70919573_G_A	223R>C	Substitution	Nonsynonymous
FPC0649	<i>ADIPOQ</i>	chr3_186571011-186571011_G_A	55R>H	Substitution	Nonsynonymous
FPC0649	<i>ADPRHL1</i>	chr13_114077229-114077229_C_T	325V>I	Substitution	Nonsynonymous
FPC0728	<i>ADRA2B</i>	chr2_96781506-96781506_C_T	128R>H	Substitution	Nonsynonymous
FPC0625	<i>ADRA2C</i>	chr4_3769025-3769025_C_T	231A>V	Substitution	Nonsynonymous
FPC0476	<i>AFF1</i>	chr4_87967347-87967347_G_A	16R>Q	Substitution	Nonsynonymous
FPC0135	<i>AGBL5</i>	chr2_27278109-27278109_G_A	299R>Q	Substitution	Nonsynonymous
Pa230	<i>AGPAT3</i>	chr21_45387878-45387878_C_T	77T>M	Substitution	Nonsynonymous
Pa102	<i>AGPS</i>	chr2_178301489-178301489_T_C	NA	Substitution	Splicing
Pa227	<i>AHSP</i>	chr16_31539518-31539518_G_A	20V>I	Substitution	Nonsynonymous
FPC0625	<i>AK9</i>	chr6_109820315-109820315_C_T	1660D>N	Substitution	Nonsynonymous
FPC0744	<i>AKNA</i>	chr9_117105990-117105990_G_A	1252A>V	Substitution	Nonsynonymous
FPC0744	<i>AKR1C3</i>	chr10_5144399-5144399_G_A	226R>Q	Substitution	Nonsynonymous
FPC0627	<i>AL117190.6</i>	chr14_101302515-101302515_G_A	77R>W	Substitution	Nonsynonymous
FPC0625	<i>AL365190.16</i>	chr9_84275256-84275256_C_A	9V>L	Substitution	Nonsynonymous
FPC0347	<i>ALCAM</i>	chr3_105271329-105271329_G_A	522V>M	Substitution	Nonsynonymous
Pa227	<i>ALDH3B1</i>	chr11_67795378-67795378_G_C	NA	Substitution	Splicing
FPC0745	<i>ALDH9A1</i>	chr1_165649901-165649901_T_	NA	Deletion	Frameshift
FPC0737	<i>ALDOA</i>	chr16_30081526-30081526_C_T	363A>V	Substitution	Nonsynonymous
Pa227	<i>ALG9</i>	chr11_111742145-111742145_C_G	NA	Substitution	Splicing
FPC0649	<i>ALOX12B</i>	chr17_7984476-7984476_C_T	128V>I	Substitution	Nonsynonymous
FPC0347	<i>ALPK3</i>	chr15_85401414-85401414_A_G	1351T>A	Substitution	Nonsynonymous
FPC0438	<i>AMER3</i>	chr2_131519880-131519880_G_A	79A>T	Substitution	Nonsynonymous
FPC0751	<i>AMER3</i>	chr2_131521687-131521687_C_A	681A>E	Substitution	Nonsynonymous
FPC0476	<i>AMOT</i>	chrX_112065537-112065537_C_A	273R>I	Substitution	Nonsynonymous
FPC0744	<i>AMOT</i>	chrX_112058741-112058741_C_G	413A>P	Substitution	Nonsynonymous
Pa227	<i>AMY2A</i>	chr1_104166497-104166497_G_C	371D>H	Substitution	Nonsynonymous
Pa230	<i>ANAPC1</i>	chr2_112542959-112542959_G_T	1632A>D	Substitution	Nonsynonymous
FPC0652	<i>ANKDD1B</i>	chr5_74949004-74949004_G_A	218G>D	Substitution	Nonsynonymous

FPC0438	<i>ANKHD1</i>	chr5_139884703-139884703_C_T	NA	Substitution	Splicing
FPC0751	<i>ANKRD17</i>	chr4_73987464-73987464_A_C	1169L>V	Substitution	Nonsynonymous
FPC0746	<i>ANKRD40</i>	chr17_48776867-48776867_G_C	224P>R	Substitution	Nonsynonymous
Pa231	<i>ANKS1B</i>	chr12_100048865-100048865_C_A	418G>C	Substitution	Nonsynonymous
FPC0625	<i>ANO2</i>	chr12_5708667-5708667_G_A	739P>L	Substitution	Nonsynonymous
FPC0746	<i>ANO2</i>	chr12_6030300-6030300_G_A	143P>L	Substitution	Nonsynonymous
Pa230	<i>ANO7</i>	chr2_242140720-242140720_G_A	242G>R	Substitution	Nonsynonymous
Pa222	<i>AP2A1</i>	chr19_50309015-50309015_C_T	878R>C	Substitution	Nonsynonymous
FPC0438	<i>AP4B1</i>	chr1_114445487-114445487_G_C	NA	Substitution	Splicing
FPC0728	<i>APCDD1L</i>	chr20_57036249-57036249_G_A	368T>M	Substitution	Nonsynonymous
FPC0625	<i>APIP</i>	chr11_34909836-34909836_A_T	NA	Substitution	Splicing
FPC0525	<i>APLP1</i>	chr19_36370266-36370266_G_T	627E>X	Substitution	Nonsense
FPC0625	<i>AQP12A</i>	chr2_241631462-241631462_G_T	NA	Deletion	Frameshift
FPC0627	<i>AQR</i>	chr15_35207278-35207278_C_T	482R>H	Substitution	Nonsynonymous
Pa102	<i>ARFGEF1</i>	chr8_68139458-68139458_T_C	1277N>S	Substitution	Nonsynonymous
Pa231	<i>ARHGAP17</i>	chr16_24931459-24931459_C_A	880A>S	Substitution	Nonsynonymous
FPC0756	<i>ARHGAP18</i>	chr6_129899731-129899731_T_A	640D>V	Substitution	Nonsynonymous
Pa101	<i>ARHGAP20</i>	chr11_110450490-110450490_C_A	1060E>D	Substitution	Nonsynonymous
Pa228	<i>ARHGAP22</i>	chr10_49663160-49663160_G_A	226T>M	Substitution	Nonsynonymous
Pa102	<i>ARHGAP23</i>	chr17_36622972-36622972_C_T	256R>C	Substitution	Nonsynonymous
FPC0476	<i>ARHGAP26</i>	chr5_142281569-142281569_G_T	223D>Y	Substitution	Nonsynonymous
Pa231	<i>ARHGAP27</i>	chr17_43507456-43507456_C_T	64V>M	Substitution	Nonsynonymous
Pa227	<i>ARHGAP44</i>	chr17_12799823-12799823_C_T	65R>C	Substitution	Nonsynonymous
FPC0751	<i>ARHGEF1</i>	chr19_42396140-42396140_G_T	105K>N	Substitution	Nonsynonymous
FPC0476	<i>ARHGEF4</i>	chr2_131674239-131674239_C_A	577A>E	Substitution	Nonsynonymous
FPC0645	<i>ARHGEF4</i>	chr2_131674043-131674043_G_A	512G>S	Substitution	Nonsynonymous
FPC0745	<i>ARHGEF4</i>	chr2_131673863-131673863_C_T	452R>C	Substitution	Nonsynonymous
FPC0070	<i>ARID1A</i>	chr1_27101362-27101362_T	NA	Insertion	Frameshift
FPC0745	<i>ARID1A</i>	chr1_27087503-27087503_C_T	693R>X	Substitution	Nonsense
Pa102	<i>ARID1A</i>	chr1_27093058-27093058_G_A	NA	Substitution	Splicing
Pa227	<i>ARID2</i>	chr12_46246680-46246680_G_T	NA	Substitution	Splicing
FPC0744	<i>ARID3C</i>	chr9_34624029-34624029_C_T	136R>H	Substitution	Nonsynonymous
Pa231	<i>ARMC4</i>	chr10_28229593-28229593_G_A	629R>C	Substitution	Nonsynonymous
FPC0737	<i>ARMCX5</i>	chrX_101858005-101858005_T_A	312F>L	Substitution	Nonsynonymous
FPC0737	<i>ARR3</i>	chrX_69489739-69489739_C_T	29T>M	Substitution	Nonsynonymous
FPC0494	<i>ARSK</i>	chr5_94936704-94936704_A_G	417Y>C	Substitution	Nonsynonymous
FPC0494	<i>ART3</i>	chr4_77003038-77003038_C_T	44T>M	Substitution	Nonsynonymous
FPC0625	<i>ASB2</i>	chr14_94423185-94423185_G_A	32R>W	Substitution	Nonsynonymous
FPC0747	<i>ASH1L</i>	chr1_155408136-155408136_T_G	1937E>A	Substitution	Nonsynonymous
FPC0737	<i>ASIC2</i>	chr17_32483254-32483254_A_G	100S>P	Substitution	Nonsynonymous
FPC0625	<i>ASPH</i>	chr8_62550925-62550925_A	NA	Deletion	Splicing
FPC0135	<i>ASTL</i>	chr2_96799269-96799269_C_T	117R>H	Substitution	Nonsynonymous
FPC0494	<i>ATAD2B</i>	chr2_24033199-24033199_T_G	814E>A	Substitution	Nonsynonymous
Pa222	<i>ATAD3B</i>	chr1_1407310-1407310_G_C	16A>P	Substitution	Nonsynonymous
FPC0728	<i>ATF6B</i>	chr6_32084867-32084867_C_A	544K>N	Substitution	Nonsynonymous
Pa228	<i>ATP10D</i>	chr4_47538913-47538913_A_G	452R>G	Substitution	Nonsynonymous
FPC0347	<i>ATP8A2</i>	chr13_26114529-26114529_A_C	NA	Substitution	Splicing
FPC0649	<i>ATRX</i>	chrX_76939044-76939044_T_G	568K>N	Substitution	Nonsynonymous
FPC0625	<i>AUPI</i>	chr2_74756112-74756112_A	NA	Deletion	Splicing
Pa229	<i>B3GALT1</i>	chr2_168725931-168725931_C_A	128Q>K	Substitution	Nonsynonymous
FPC0728	<i>ADGRB2</i>	chr1_32193634-32193634_C_T	1522V>M	Substitution	Nonsynonymous
FPC0751	<i>ADGRB3</i>	chr6_70065727-70065727_G_T	1190K>N	Substitution	Nonsynonymous
FPC0494	<i>BBS12</i>	chr4_123664125-123664125_G_C	360E>Q	Substitution	Nonsynonymous
FPC0649	<i>BCAS1</i>	chr20_52574014-52574014_A_T	458I>N	Substitution	Nonsynonymous
Pa231	<i>BCL2A1</i>	chr15_80263424-80263424_G_C	13A>G	Substitution	Nonsynonymous
Pa228	<i>BCL6</i>	chr3_187449532-187449532_A_T	116H>Q	Substitution	Nonsynonymous
FPC0726	<i>BCLAF1</i>	chr6_136590640-136590640_A_C	718S>R	Substitution	Nonsynonymous
Pa222	<i>BEND4</i>	chr4_42153742-42153742_G_C	140P>R	Substitution	Nonsynonymous
FPC0616	<i>BICD2</i>	chr9_95481525-95481525_C_T	468A>T	Substitution	Nonsynonymous
FPC0525	<i>BIN1</i>	chr2_127821199-127821199_G_A	241T>M	Substitution	Nonsynonymous
Pa227	<i>BIRC6</i>	chr2_32725000-32725000_A_G	2952D>G	Substitution	Nonsynonymous
FPC0494	<i>BOC</i>	chr3_112992014-112992014_G_A	354V>M	Substitution	Nonsynonymous
Pa222	<i>BOC</i>	chr3_113002285-113002285_G_A	820R>Q	Substitution	Nonsynonymous
Pa229	<i>BOLL</i>	chr2_198622125-198622125_C_A	NA	Substitution	Splicing
FPC0344	<i>BPTF</i>	chr17_65919062-65919064_AGA	NA	Deletion	In-frame
FPC0612	<i>BRCA2</i>	chr13_32913342-32913342_G_A	1617S>N	Substitution	Nonsynonymous
FPC0746	<i>BRD9</i>	chr5_891957-891957_T_C	22K>R	Substitution	Nonsynonymous
Pa228	<i>BTBD10</i>	chr11_13410644-13410644_G_A	388R>C	Substitution	Nonsynonymous

FPC0649	<i>BTG2</i>	chr1_203276268-203276268_C_T	60S>F	Substitution	Nonsynonymous
Pa102	<i>BUB1B</i>	chr15_40505650-40505650_C_G	885P>A	Substitution	Nonsynonymous
Pa229	<i>BZW2</i>	chr7_16737718-16737718_G_A	339E>K	Substitution	Nonsynonymous
FPC0494	<i>EDRF1</i>	chr10_127408455-127408455_C_A	27Q>K	Substitution	Nonsynonymous
FPC0625	<i>C10orf76</i>	chr10_103717493-103717493_T_A	NA	Substitution	Splicing
FPC0745	<i>C10orf90</i>	chr10_128147681-128147681_G_C	609L>V	Substitution	Nonsynonymous
FPC0728	<i>C11orf87</i>	chr11_109294667-109294667_G_A	103R>Q	Substitution	Nonsynonymous
FPC0625	<i>C14orf169</i>	chr14_73957988-73957988_G_C	89R>P	Substitution	Nonsynonymous
FPC0625	<i>C15orf40</i>	chr15_83677285-83677285_G_	NA	Deletion	Frameshift
Pa228	<i>PRR35</i>	chr16_615266-615266_G_A	559A>T	Substitution	Nonsynonymous
FPC0616	<i>C16orf71</i>	chr16_4787921-4787921_G_A	84A>T	Substitution	Nonsynonymous
FPC0347	<i>C16orf93</i>	chr16_30771742-30771742_G_A	74P>L	Substitution	Nonsynonymous
Pa231	<i>C16orf96</i>	chr16_4638245-4638245_G_A	835M>I	Substitution	Nonsynonymous
FPC0759	<i>C17orf104</i>	chr17_42734592-42734592_C_T	56T>I	Substitution	Nonsynonymous
FPC0746	<i>C17orf97</i>	chr17_263292-263292_G_A	220D>N	Substitution	Nonsynonymous
FPC0759	<i>C19orf26</i>	chr19_1235067-1235067_G_A	124R>C	Substitution	Nonsynonymous
Pa230	<i>C1orf100</i>	chr1_244541771-244541771_C_T	52P>L	Substitution	Nonsynonymous
FPC0649	<i>C1orf147</i>	chr1_206671019-206671019_G_A	11P>L	Substitution	Nonsynonymous
Pa228	<i>CIART</i>	chr1_150257038-150257038_G_A	185E>K	Substitution	Nonsynonymous
Pa101	<i>CFAP61</i>	chr20_20257854-20257854_G_A	850V>M	Substitution	Nonsynonymous
Pa101	<i>CFAP61</i>	chr20_20269275-20269275_A_C	940K>T	Substitution	Nonsynonymous
FPC0135	<i>C2orf40</i>	chr2_106694362-106694362_G_A	143V>I	Substitution	Nonsynonymous
FPC0747	<i>C5orf47</i>	chr5_173416442-173416442_C_A	59A>E	Substitution	Nonsynonymous
Pa231	<i>C6orf10</i>	chr6_32287756-32287756_A_C	194I>R	Substitution	Nonsynonymous
Pa227	<i>ZBED6CL</i>	chr7_150027554-150027554_C_T	21R>C	Substitution	Nonsynonymous
FPC0747	<i>CABP2</i>	chr11_67288598-67288598_C_T	93D>N	Substitution	Nonsynonymous
FPC0745	<i>CACNAIE</i>	chr1_181705570-181705570_C_T	1141P>L	Substitution	Nonsynonymous
FPC0616	<i>CACNAIG</i>	chr17_48638890-48638890_G_T	24D>Y	Substitution	Nonsynonymous
FPC0625	<i>CACNAIH</i>	chr16_1259401-1259401_G_A	1245D>N	Substitution	Nonsynonymous
Pa102	<i>CACNAIH</i>	chr16_1259257-1259257_G_A	1197E>K	Substitution	Nonsynonymous
FPC0747	<i>CACNAII</i>	chr22_40056361-40056361_C_T	873R>C	Substitution	Nonsynonymous
FPC0747	<i>CACNAII</i>	chr22_40066233-40066233_G_A	1462R>Q	Substitution	Nonsynonymous
Pa230	<i>CAD</i>	chr2_27458210-27458210_G_T	1295R>L	Substitution	Nonsynonymous
FPC0476	<i>CALCR</i>	chr7_93055813-93055813_C_T	427R>H	Substitution	Nonsynonymous
FPC0747	<i>CALD1</i>	chr7_134625945-134625945_G_A	497E>K	Substitution	Nonsynonymous
FPC0344	<i>CAMTA1</i>	chr1_7723748-7723748_G_A	381V>M	Substitution	Nonsynonymous
FPC0625	<i>CAND1</i>	chr12_67700248-67700248_G_A	934A>T	Substitution	Nonsynonymous
FPC0759	<i>CANT1</i>	chr17_76989643-76989643_C_T	399E>K	Substitution	Nonsynonymous
FPC0476	<i>CARD10</i>	chr22_37900230-37900230_G_A	533R>C	Substitution	Nonsynonymous
FPC0751	<i>CARD10</i>	chr22_37887388-37887388_G_A	970R>W	Substitution	Nonsynonymous
FPC0652	<i>CASQ2</i>	chr1_116280945-116280945_G_T	144D>E	Substitution	Nonsynonymous
FPC0625	<i>CATSPERI</i>	chr11_65792902-65792902_C_T	317D>N	Substitution	Nonsynonymous
FPC0344	<i>CBFA2T3</i>	chr16_89043142-89043142_G_A	25T>M	Substitution	Nonsynonymous
FPC0344	<i>CBX8</i>	chr17_77769321-77769321_G_A	95R>X	Substitution	Nonsense
FPC0625	<i>CCBL1</i>	chr9_131602898-131602898_T	NA	Insertion	Frameshift
FPC0625	<i>CCDC109B</i>	chr4_110606404-110606404_A_T	NA	Substitution	Splicing
Pa227	<i>CCDC114</i>	chr19_48809565-48809565_G_A	168H>Y	Substitution	Nonsynonymous
FPC0525	<i>CCDC125</i>	chr5_68599744-68599744_T_G	210E>D	Substitution	Nonsynonymous
Pa101	<i>CCDC13</i>	chr3_42751216-42751216_C_T	650D>N	Substitution	Nonsynonymous
Pa102	<i>CCDC146</i>	chr7_76891535-76891535_C_T	362R>X	Substitution	Nonsense
Pa222	<i>CCDC169</i>	chr13_36822762-36822762_G_A	176Q>X	Substitution	Nonsense
FPC0616	<i>CCDC175</i>	chr14_60027870-60027870_A_	NA	Deletion	Frameshift
FPC0616	<i>CCDC175</i>	chr14_60027871-60027871_G_T	307L>I	Substitution	Nonsynonymous
FPC0476	<i>CCDC39</i>	chr3_180397155-180397155_A_C	5F>C	Substitution	Nonsynonymous
Pa231	<i>CCDC40</i>	chr17_78064104-78064104_G_T	1000C>F	Substitution	Nonsynonymous
Pa227	<i>CCDC53</i>	chr12_102455125-102455125_C_G	NA	Substitution	Splicing
FPC0751	<i>CCDC67</i>	chr11_93118642-93118642_C_T	290R>X	Substitution	Nonsense
Pa229	<i>CCDC71</i>	chr3_49201335-49201335_G_A	103P>S	Substitution	Nonsynonymous
Pa227	<i>CCDC8</i>	chr19_46914753-46914753_C_G	439E>Q	Substitution	Nonsynonymous
FPC0649	<i>CCDS757.1</i>	chr1_99771529-99771529_C_T	419R>X	Substitution	Nonsense
FPC0625	<i>CCNC</i>	chr6_100006296-100006296_A_	NA	Deletion	Frameshift
Pa222	<i>CCNJ</i>	chr10_97816872-97816872_C_A	203S>Y	Substitution	Nonsynonymous
FPC0728	<i>CCPG1</i>	chr15_55652991-55652991_T_G	327E>A	Substitution	Nonsynonymous
FPC0759	<i>CCSER2</i>	chr10_86259707-86259707_G_A	801R>H	Substitution	Nonsynonymous
FPC0525	<i>CCT7</i>	chr2_73477492-73477492_G_T	377G>C	Substitution	Nonsynonymous
FPC0525	<i>CD163</i>	chr12_7639374-7639374_G_A	727R>C	Substitution	Nonsynonymous
FPC0744	<i>CD163L1</i>	chr12_7525999-7525999_T_A	1216H>L	Substitution	Nonsynonymous
Pa222	<i>CD177</i>	chr19_43859815-43859815_C_G	128P>A	Substitution	Nonsynonymous

FPC0747	<i>CD1A</i>	chr1_158227226-158227226_T_C	300V>A	Substitution	Nonsynonymous
FPC0737	<i>CD44</i>	chr11_35219748-35219748_T_G	293S>A	Substitution	Nonsynonymous
FPC0747	<i>CD70</i>	chr19_6586137-6586137_G_A	159T>M	Substitution	Nonsynonymous
FPC0745	<i>CD81</i>	chr11_2411663-2411663_G_A	30G>S	Substitution	Nonsynonymous
FPC0649	<i>CD93</i>	chr20_23065343-23065343_C_T	496R>H	Substitution	Nonsynonymous
Pa231	<i>CDC26</i>	chr9_116029659-116029659_T_C	48I>V	Substitution	Nonsynonymous
FPC0746	<i>CDC42BPB</i>	chr14_103434810-103434810_G_A	747R>W	Substitution	Nonsynonymous
Pa231	<i>CDC7</i>	chr1_91973956-91973956_T_G	NA	Substitution	Splicing
Pa102	<i>CDH19</i>	chr18_64221714-64221714_T_A	180S>C	Substitution	Nonsynonymous
Pa222	<i>CDH19</i>	chr18_64172477-64172477_T_C	631S>G	Substitution	Nonsynonymous
FPC0737	<i>CDH2</i>	chr18_25568548-25568548_G_A	561R>X	Substitution	Nonsense
Pa231	<i>CDH22</i>	chr20_44806708-44806708_G_A	598R>C	Substitution	Nonsynonymous
FPC0744	<i>CDH23</i>	chr10_73466665-73466665_A_T	989N>Y	Substitution	Nonsynonymous
Pa230	<i>CDH3</i>	chr16_68712450-68712450_C_T	146T>M	Substitution	Nonsynonymous
FPC0744	<i>CDH4</i>	chr20_60427876-60427876_G_A	267V>I	Substitution	Nonsynonymous
FPC0135	<i>CDH8</i>	chr16_62055298-62055298_G_A	4R>W	Substitution	Nonsynonymous
FPC0745	<i>CDHR1</i>	chr10_85961671-85961671_G_A	212A>T	Substitution	Nonsynonymous
Pa230	<i>CDK13</i>	chr7_40118416-40118416_C_T	999R>X	Substitution	Nonsense
FPC0476	<i>CDK9</i>	chr9_130551622-130551622_G_A	307D>N	Substitution	Nonsynonymous
FPC0616	<i>CDKN2A</i>	chr9_21971194-21971194_C_	NA	Deletion	Frameshift
FPC0746	<i>CDKN2A</i>	chr9_21971111-21971111_G_A	138A>V	Substitution	Nonsynonymous
Pa102	<i>CDKN2A</i>	chr9_21974772-21974773_CC_	NA	Deletion	Frameshift
Pa227	<i>CDKN2A</i>	chr9_21971111-21971111_G_A	138A>V	Substitution	Nonsynonymous
Pa230	<i>CDKN2A</i>	chr9_21971041-21971041_A	NA	Insertion	Frameshift
FPC0625	<i>CEACAM20</i>	chr19_45016988-45016988_T_G	484D>A	Substitution	Nonsynonymous
FPC0625	<i>CEACAM20</i>	chr19_45016989-45016989_C_T	484D>N	Substitution	Nonsynonymous
FPC0494	<i>CECR2</i>	chr22_18022353-18022353_C_T	819R>X	Substitution	Nonsense
FPC0627	<i>CELF1</i>	chr11_47510493-47510493_C_A	25R>M	Substitution	Nonsynonymous
FPC0747	<i>CELF5</i>	chr19_3281255-3281255_G_A	221R>Q	Substitution	Nonsynonymous
FPC0728	<i>CELF6</i>	chr15_72608245-72608245_C_T	96A>T	Substitution	Nonsynonymous
FPC0625	<i>CEP104</i>	chr1_3759890-3759890_A	NA	Insertion	Splicing
Pa228	<i>CERS4</i>	chr19_8326651-8326651_A_T	310M>L	Substitution	Nonsynonymous
FPC0625	<i>CES1</i>	chr16_55844925-55844925_A	NA	Insertion	Splicing
Pa230	<i>CFP</i>	chrX_47486217-47486217_C_T	299D>N	Substitution	Nonsynonymous
FPC0627	<i>CHD5</i>	chr1_6181216-6181216_G_A	1621R>W	Substitution	Nonsynonymous
FPC0759	<i>CHN2</i>	chr7_29440412-29440412_G_A	182V>I	Substitution	Nonsynonymous
FPC0737	<i>CHRD</i>	chr3_184104440-184104440_G_A	698R>Q	Substitution	Nonsynonymous
FPC0652	<i>CHRNA1</i>	chr2_175613343-175613343_C_T	428A>T	Substitution	Nonsynonymous
FPC0747	<i>CHRN2</i>	chr1_154544311-154544311_G_A	338V>I	Substitution	Nonsynonymous
FPC0745	<i>CHRND</i>	chr2_233391314-233391314_G_A	43R>Q	Substitution	Nonsynonymous
FPC0652	<i>CIITA</i>	chr16_11000517-11000517_C_T	390R>W	Substitution	Nonsynonymous
Pa227	<i>CKAP5</i>	chr11_46780943-46780943_G_A	1482R>X	Substitution	Nonsense
FPC0756	<i>CLCA1</i>	chr1_86959931-86959931_C_T	581S>F	Substitution	Nonsynonymous
FPC0070	<i>CLDN5</i>	chr22_19511835-19511835_C_T	67A>T	Substitution	Nonsynonymous
FPC0649	<i>CLK2</i>	chr1_155234040-155234040_T_C	399I>V	Substitution	Nonsynonymous
FPC0744	<i>CLK4</i>	chr5_178040820-178040820_T_G	189K>N	Substitution	Nonsynonymous
FPC0625	<i>CNTNAP2</i>	chr7_147335947-147335947_C_T	16S>F	Substitution	Nonsynonymous
FPC0344	<i>CNTNAP5</i>	chr2_124999846-124999846_T_C	86V>A	Substitution	Nonsynonymous
FPC0347	<i>CNTROB</i>	chr17_7846846-7846846_C_T	NA	Substitution	Splicing
FPC0494	<i>COA6</i>	chr1_234509384-234509384_C_T	58R>C	Substitution	Nonsynonymous
FPC0747	<i>COG2</i>	chr1_230798923-230798923_G_A	113V>I	Substitution	Nonsynonymous
FPC0747	<i>COL11A1</i>	chr1_103379210-103379210_C_G	1351G>R	Substitution	Nonsynonymous
Pa227	<i>COL11A1</i>	chr1_103488505-103488505_C_A	358E>D	Substitution	Nonsynonymous
Pa228	<i>COL4A5</i>	chrX_107849987-107849987_G_A	754A>T	Substitution	Nonsynonymous
FPC0745	<i>COL5A3</i>	chr19_10071410-10071410_G_A	1670R>C	Substitution	Nonsynonymous
FPC0627	<i>COL6A1</i>	chr21_47421271-47421271_G_A	643D>N	Substitution	Nonsynonymous
FPC0744	<i>COL9A2</i>	chr1_40767487-40767487_G_C	623P>A	Substitution	Nonsynonymous
FPC0525	<i>COLEC10</i>	chr8_120079618-120079618_G_A	33R>H	Substitution	Nonsynonymous
FPC0745	<i>COLEC12</i>	chr18_346619-346619_G_A	335R>C	Substitution	Nonsynonymous
FPC0759	<i>COQ10B</i>	chr2_198324735-198324735_C_T	62R>X	Substitution	Nonsense
Pa222	<i>COQ9</i>	chr16_57481431-57481431_C_T	5A>V	Substitution	Nonsynonymous
FPC0625	<i>CP</i>	chr3_148901396-148901396_A	NA	Deletion	Splicing
Pa222	<i>CPB1</i>	chr3_148562468-148562468_G_A	231R>Q	Substitution	Nonsynonymous
Pa222	<i>CPNE5</i>	chr6_36713231-36713231_C_T	421R>H	Substitution	Nonsynonymous
FPC0347	<i>CPS1</i>	chr2_211541772-211541772_C_G	1445P>R	Substitution	Nonsynonymous
FPC0751	<i>CPXMI</i>	chr20_2775081-2775081_A_G	NA	Substitution	Splicing
FPC0747	<i>CREB3L1</i>	chr11_46299682-46299682_C_T	7P>L	Substitution	Nonsynonymous
Pa227	<i>CREB3L1</i>	chr11_46342082-46342082_G_T	NA	Substitution	Splicing

FPC0625	<i>CREBBP</i>	chr16_3808053-3808053_A	NA	Insertion	Splicing
Pa229	<i>CRMP1</i>	chr4_5841350-5841350_A_T	403H>Q	Substitution	Nonsynonymous
FPC0525	<i>CRYGB</i>	chr2_209010626-209010626_A_T	42C>S	Substitution	Nonsynonymous
Pa231	<i>CSF2RB</i>	chr22_37326752-37326752_G_A	298G>S	Substitution	Nonsynonymous
Pa222	<i>CSMD3</i>	chr8_113332201-113332201_A_T	2392L>Q	Substitution	Nonsynonymous
FPC0744	<i>CSNK1A1L</i>	chr13_37679366-37679366_C_T	10E>K	Substitution	Nonsynonymous
FPC0625	<i>CSNK1G2-AS1</i>	chr19_1954129-1954129_T_C	NA	Substitution	NA
Pa229	<i>CTD-2611O12.2</i>	chr19_56284090-56284090_G_A	137A>T	Substitution	Nonsynonymous
FPC0747	<i>CTNND1</i>	chr11_57564206-57564206_G_A	233R>Q	Substitution	Nonsynonymous
FPC0745	<i>CTSD</i>	chr11_1769246-1769246_G_A	63P>L	Substitution	Nonsynonymous
FPC0347	<i>CTSK</i>	chr1_150779223-150779223_T_G	20E>A	Substitution	Nonsynonymous
Pa222	<i>CUL1</i>	chr7_148486871-148486871_G_A	543G>R	Substitution	Nonsynonymous
Pa229	<i>CUL9</i>	chr6_43164580-43164580_C_T	928P>L	Substitution	Nonsynonymous
Pa230	<i>CUL9</i>	chr6_43181595-43181595_G_A	1878R>H	Substitution	Nonsynonymous
Pa229	<i>CWF19L2</i>	chr11_107299725-107299725_G_C	411N>K	Substitution	Nonsynonymous
FPC0494	<i>CFAP47</i>	chrX_36337360-36337360_G_	NA	Deletion	Frameshift
FPC0745	<i>CFAP47</i>	chrX_36322049-36322049_G_T	132V>F	Substitution	Nonsynonymous
FPC0347	<i>CYP11A1</i>	chr15_75014615-75014615_T_A	275K>M	Substitution	Nonsynonymous
Pa102	<i>CYP21A2</i>	chr6_32008184-32008184_T_G	314I>S	Substitution	Nonsynonymous
FPC0476	<i>CYP26B1</i>	chr2_72360229-72360229_C_T	357V>I	Substitution	Nonsynonymous
FPC0746	<i>CYP46A1</i>	chr14_100157470-100157470_C_T	58R>C	Substitution	Nonsynonymous
FPC0728	<i>DAB1</i>	chr1_57491653-57491653_C_T	NA	Substitution	Splicing
FPC0476	<i>DCAF12L2</i>	chrX_125299721-125299721_G_A	63R>W	Substitution	Nonsynonymous
FPC0438	<i>DCAF13</i>	chr8_104447996-104447996_C_G	462P>A	Substitution	Nonsynonymous
FPC0744	<i>DCC</i>	chr18_50832036-50832036_G_A	667R>H	Substitution	Nonsynonymous
FPC0135	<i>DCHS1</i>	chr11_6651374-6651374_G_A	1551R>C	Substitution	Nonsynonymous
Pa228	<i>DCHS1</i>	chr11_6661487-6661487_C_A	453R>L	Substitution	Nonsynonymous
Pa231	<i>DCHS1</i>	chr11_6646623-6646623_G_A	2318P>S	Substitution	Nonsynonymous
FPC0745	<i>DCLK2</i>	chr4_151000541-151000541_G_A	121R>H	Substitution	Nonsynonymous
FPC0744	<i>DCSTAMP</i>	chr8_105361496-105361496_G_T	239G>V	Substitution	Nonsynonymous
FPC0745	<i>DDX17</i>	chr22_38888114-38888114_C_T	386R>H	Substitution	Nonsynonymous
FPC0759	<i>DDX41</i>	chr5_176942808-176942808_C_T	150R>H	Substitution	Nonsynonymous
FPC0745	<i>DDX42</i>	chr17_61895418-61895418_A_G	826N>S	Substitution	Nonsynonymous
FPC0625	<i>DDX52</i>	chr17_35988719-35988719_A_	NA	Deletion	Splicing
FPC0625	<i>DDX60L</i>	chr4_169312799-169312799_G	NA	Insertion	Splicing
FPC0625	<i>DENND3</i>	chr8_142152436-142152436_G_A	141V>I	Substitution	Nonsynonymous
FPC0525	<i>DGKD</i>	chr2_234377167-234377167_G_C	1175E>Q	Substitution	Nonsynonymous
FPC0747	<i>DGKK</i>	chrX_50213157-50213157_C_T	174R>H	Substitution	Nonsynonymous
Pa101	<i>DHX34</i>	chr19_47870310-47870310_A_G	556T>A	Substitution	Nonsynonymous
Pa102	<i>DHX34</i>	chr19_47870310-47870310_A_G	556T>A	Substitution	Nonsynonymous
FPC0745	<i>DHX57</i>	chr2_39082255-39082255_T_C	617R>G	Substitution	Nonsynonymous
Pa231	<i>DIDO1</i>	chr20_61511246-61511246_G_A	2021P>L	Substitution	Nonsynonymous
FPC0745	<i>DKFZP686J1910</i>	chr16_81183402-81183402_C_T	1549R>H	Substitution	Nonsynonymous
FPC0728	<i>DKFZP779J2370</i>	chr15_100256986-100256986_G_A	6P>L	Substitution	Nonsynonymous
FPC0744	<i>DLC1</i>	chr8_13356764-13356764_C_T	273D>N	Substitution	Nonsynonymous
FPC0746	<i>DLGAP3</i>	chr1_35370171-35370171_C_T	272G>S	Substitution	Nonsynonymous
Pa230	<i>DMBT1</i>	chr10_124347988-124347988_C_T	597R>C	Substitution	Nonsynonymous
FPC0737	<i>DNAH10</i>	chr12_124416293-124416293_G_A	4225G>R	Substitution	Nonsynonymous
FPC0737	<i>DNAH11</i>	chr7_21857903-21857903_C_T	3553T>M	Substitution	Nonsynonymous
FPC0759	<i>DNAH5</i>	chr5_13885215-13885215_G_A	956R>C	Substitution	Nonsynonymous
FPC0525	<i>DNAH6</i>	chr2_84831556-84831556_G_A	988E>K	Substitution	Nonsynonymous
FPC0625	<i>DNAH7</i>	chr2_196762492-196762492_A	NA	Insertion	Splicing
FPC0747	<i>DNAH7</i>	chr2_196642630-196642630_C_T	3653R>H	Substitution	Nonsynonymous
FPC0747	<i>DNAH7</i>	chr2_196661344-196661344_G_C	3491H>D	Substitution	Nonsynonymous
Pa230	<i>DNAH7</i>	chr2_196659235-196659235_C_G	3515D>H	Substitution	Nonsynonymous
FPC0652	<i>DNAH9</i>	chr17_11593283-11593283_C_T	1382R>W	Substitution	Nonsynonymous
FPC0627	<i>DNAJC10</i>	chr2_183593653-183593653_G_T	189D>Y	Substitution	Nonsynonymous
Pa222	<i>DNAJC17</i>	chr15_41068494-41068494_C_A	NA	Substitution	Splicing
FPC0525	<i>DNHD1</i>	chr11_6540881-6540881_A_C	482N>H	Substitution	Nonsynonymous
FPC0751	<i>DNMT3L</i>	chr21_45671514-45671514_C_T	254R>H	Substitution	Nonsynonymous
Pa222	<i>DOK3</i>	chr5_176931211-176931211_C_T	422G>S	Substitution	Nonsynonymous
FPC0728	<i>DOTIL</i>	chr19_2207621-2207621_C_T	302S>L	Substitution	Nonsynonymous
Pa101	<i>DPP3</i>	chr11_66261057-66261057_G_A	448G>S	Substitution	Nonsynonymous
FPC0747	<i>DPP7</i>	chr9_140007735-140007735_A_G	209F>S	Substitution	Nonsynonymous
FPC0745	<i>DRD1</i>	chr5_174869961-174869961_C_A	48V>F	Substitution	Nonsynonymous
FPC0728	<i>DUSP16</i>	chr12_12630227-12630227_T	NA	Insertion	Frameshift
FPC0744	<i>DVL1</i>	chr1_1275456-1275456_C_T	291A>T	Substitution	Nonsynonymous
FPC0135	<i>DVL3</i>	chr3_183888334-183888335_CA_	NA	Deletion	Frameshift

FPC0625	<i>DYNC1L1I</i>	chr3_32571824-32571824_A_	NA	Deletion	Splicing
Pa101	<i>DYNC2H1</i>	chr11_103019309-103019309_A_T	970N>I	Substitution	Nonsynonymous
Pa231	<i>DYNC2H1</i>	chr11_103074479-103074479_G_A	2762G>E	Substitution	Nonsynonymous
FPC0652	<i>DYTN</i>	chr2_207569605-207569605_G_A	149R>X	Substitution	Nonsense
Pa228	<i>EBF1</i>	chr5_158139342-158139342_C_A	NA	Substitution	Splicing
FPC0736	<i>EBNA1BP2</i>	chr1_43634675-43634675_G_A	158Q>X	Substitution	Nonsense
FPC0625	<i>ECD</i>	chr10_74906123-74906123_A_	NA	Deletion	Splicing
Pa231	<i>ECD</i>	chr10_74906123-74906123_A_	NA	Deletion	Splicing
Pa230	<i>EFCAB13</i>	chr17_45451876-45451876_G_C	306D>H	Substitution	Nonsynonymous
FPC0737	<i>EFCAB7</i>	chr1_63999206-63999206_C_T	190R>C	Substitution	Nonsynonymous
Pa228	<i>MICU3</i>	chr8_16961950-16961950_C_A	345H>Q	Substitution	Nonsynonymous
Pa222	<i>EHBP1</i>	chr2_63053349-63053349_C_T	147S>F	Substitution	Nonsynonymous
FPC0625	<i>EI24</i>	chr11_125452295-125452295_C_A	243Q>K	Substitution	Nonsynonymous
FPC0625	<i>EI24</i>	chr11_125452298-125452298_A_G	244R>G	Substitution	Nonsynonymous
FPC0494	<i>EIF2AK3</i>	chr2_88890353-88890353_G_T	329L>M	Substitution	Nonsynonymous
Pa222	<i>EIF2B2</i>	chr14_75469811-75469811_G_A	40G>R	Substitution	Nonsynonymous
FPC0728	<i>AGO2</i>	chr8_141566117-141566117_T_A	383M>L	Substitution	Nonsynonymous
FPC0751	<i>EIF2S3L</i>	chr12_10658881-10658881_T_A	127V>D	Substitution	Nonsynonymous
Pa231	<i>EIF3A</i>	chr10_120829141-120829141_A_C	256I>S	Substitution	Nonsynonymous
FPC0728	<i>ELF4</i>	chrX_129205124-129205124_G_A	234R>X	Substitution	Nonsense
Pa102	<i>ELMO2</i>	chr20_45023111-45023111_G_A	4P>L	Substitution	Nonsynonymous
FPC0525	<i>EP400</i>	chr12_132496183-132496183_T_	NA	Deletion	Splicing
FPC0625	<i>EPB41L4B</i>	chr9_112069508-112069508_T_	NA	Deletion	Frameshift
FPC0652	<i>EPHA6</i>	chr3_97356828-97356828_C_T	896R>W	Substitution	Nonsynonymous
FPC0135	<i>EPHA8</i>	chr1_22927533-22927533_C_T	894A>V	Substitution	Nonsynonymous
Pa227	<i>EPHB1</i>	chr3_134851891-134851891_G_A	433A>T	Substitution	Nonsynonymous
FPC0652	<i>EPHB4</i>	chr7_100417826-100417826_C_T	301V>I	Substitution	Nonsynonymous
FPC0525	<i>EPS8</i>	chr12_15819395-15819395_T_G	193K>T	Substitution	Nonsynonymous
Pa227	<i>EPT1</i>	chr2_26587719-26587719_C_T	49A>V	Substitution	Nonsynonymous
FPC0625	<i>ERAP1</i>	chr5_96116124-96116124_T_A	NA	Substitution	Splicing
FPC0625	<i>ERAP1</i>	chr5_96116125-96116125_A_C	NA	Substitution	Splicing
Pa227	<i>ERF</i>	chr19_42754571-42754571_T_C	57I>V	Substitution	Nonsynonymous
Pa231	<i>ERLIN1</i>	chr10_101911899-101911899_T_G	346S>R	Substitution	Nonsynonymous
Pa222	<i>ESPNL</i>	chr2_239025571-239025571_G_A	295V>M	Substitution	Nonsynonymous
Pa222	<i>EVC</i>	chr4_5803782-5803782_C_A	804H>N	Substitution	Nonsynonymous
FPC0652	<i>EVPL</i>	chr17_74015057-74015057_G_A	408R>X	Substitution	Nonsense
FPC0726	<i>EVPL</i>	chr17_74011034-74011034_C_T	729D>N	Substitution	Nonsynonymous
Pa222	<i>EXOC3L1</i>	chr16_67221600-67221600_C_T	190G>R	Substitution	Nonsynonymous
FPC0652	<i>EXOC6</i>	chr10_94608375-94608375_G_A	29V>M	Substitution	Nonsynonymous
Pa222	<i>EXOC8</i>	chr1_231472042-231472042_C_T	484G>S	Substitution	Nonsynonymous
FPC0438	<i>EXOSC9</i>	chr4_122737994-122737995_AA_	NA	Deletion	Frameshift
FPC0627	<i>EYS</i>	chr6_66042308-66042308_C_A	590R>I	Substitution	Nonsynonymous
Pa102	<i>F2</i>	chr11_46750254-46750254_A_T	447I>F	Substitution	Nonsynonymous
FPC0476	<i>F7</i>	chr13_113771857-113771857_C_T	251A>V	Substitution	Nonsynonymous
FPC0135	<i>FAM109A</i>	chr12_111801054-111801054_C_T	60V>I	Substitution	Nonsynonymous
Pa222	<i>FAM111B</i>	chr11_58893567-58893567_C_G	666T>S	Substitution	Nonsynonymous
FPC0525	<i>FAM117B</i>	chr2_203589708-203589708_G_C	30W>C	Substitution	Nonsynonymous
FPC0070	<i>FAM122A</i>	chr9_71395486-71395486_C_G	136R>G	Substitution	Nonsynonymous
FPC0744	<i>FAM135A</i>	chr6_71235687-71235687_T_G	771L>X	Substitution	Nonsense
FPC0625	<i>FAM171B</i>	chr2_187626520-187626520_C_A	484S>Y	Substitution	Nonsynonymous
FPC0476	<i>FAM194A</i>	chr3_68802094-68802094_T_A	69E>V	Substitution	Nonsynonymous
FPC0745	<i>FAM205BP</i>	chr9_34837695-34837695_C_T	49R>H	Substitution	Nonsynonymous
FPC0476	<i>FAM209B</i>	chr20_55108525-55108525_G_A	43R>Q	Substitution	Nonsynonymous
FPC0627	<i>FAM46A</i>	chr6_82461365-82461365_A_T	165L>Q	Substitution	Nonsynonymous
FPC0728	<i>BRINP3</i>	chr1_190067891-190067891_G_A	520R>C	Substitution	Nonsynonymous
Pa227	<i>FAM63B</i>	chr15_59064335-59064335_G_A	247W>X	Substitution	Nonsense
FPC0625	<i>FANCM</i>	chr14_45605618-45605618_C_G	128F>L	Substitution	Nonsynonymous
FPC0737	<i>FANCM</i>	chr14_45645877-45645877_A_G	1307Y>C	Substitution	Nonsynonymous
FPC0070	<i>FAT1</i>	chr4_187549490-187549490_C_T	1543R>H	Substitution	Nonsynonymous
FPC0344	<i>FAT2</i>	chr5_150925292-150925292_A_G	1799L>S	Substitution	Nonsynonymous
FPC0744	<i>FAT2</i>	chr5_150905452-150905452_G_	NA	Insertion	Frameshift
FPC0747	<i>FAT4</i>	chr4_126412015-126412015_C_T	4680Q>X	Substitution	Nonsense
FPC0344	<i>FBLL1</i>	chr5_167957374-167957374_G_T	289A>S	Substitution	Nonsynonymous
FPC0737	<i>FBLN1</i>	chr22_45996196-45996196_G_A	661R>H	Substitution	Nonsynonymous
Pa222	<i>FBN1</i>	chr15_48805784-48805784_G_A	517A>V	Substitution	Nonsynonymous
FPC0070	<i>FBN2</i>	chr5_127609637-127609637_G_A	2579P>S	Substitution	Nonsynonymous
FPC0746	<i>FBN2</i>	chr5_127636565-127636565_C_G	2037G>A	Substitution	Nonsynonymous
Pa102	<i>FBN2</i>	chr5_127681205-127681205_G_A	1021R>C	Substitution	Nonsynonymous



FPC0652	<i>FBXL13</i>	chr7_102518899-102518899_T_A	NA	Substitution	Splicing
FPC0747	<i>FBXO21</i>	chr12_117610387-117610387_G_C	301P>R	Substitution	Nonsynonymous
FPC0746	<i>FBXO46</i>	chr19_46215346-46215346_G_A	470R>X	Substitution	Nonsense
FPC0744	<i>FCRL4</i>	chr1_157559038-157559038_C_A	88R>L	Substitution	Nonsynonymous
FPC0625	<i>FCRL5</i>	chr1_157504348-157504348_A_T	579H>Q	Substitution	Nonsynonymous
FPC0625	<i>FCRL5</i>	chr1_157504349-157504349_T_G	579H>P	Substitution	Nonsynonymous
Pa230	<i>FEMIC</i>	chr5_114860151-114860151_C_T	570E>K	Substitution	Nonsynonymous
Pa230	<i>FFARI</i>	chr19_35842813-35842813_C_T	120P>L	Substitution	Nonsynonymous
FPC0476	<i>FGD1</i>	chrX_54475297-54475297_G_C	793P>R	Substitution	Nonsynonymous
Pa222	<i>FGF5</i>	chr4_81207633-81207633_G_A	205R>Q	Substitution	Nonsynonymous
FPC0747	<i>FGFR2</i>	chr10_123325147-123325147_G_A	61R>C	Substitution	Nonsynonymous
FPC0070	<i>FGL1</i>	chr8_17731940-17731940_C_A	112C>F	Substitution	Nonsynonymous
FPC0347	<i>FKRP</i>	chr19_47258728-47258728_G_C	7Q>H	Substitution	Nonsynonymous
FPC0627	<i>FLCN</i>	chr17_17118616-17118616_C_T	439V>M	Substitution	Nonsynonymous
FPC0751	<i>FLNC</i>	chr7_128485276-128485276_G_A	1253V>I	Substitution	Nonsynonymous
FPC0347	<i>FLT1</i>	chr13_29005314-29005314_C_G	316G>A	Substitution	Nonsynonymous
FPC0625	<i>FLT4</i>	chr5_180046492-180046492_C_G	NA	Substitution	Splicing
FPC0625	<i>FLT4</i>	chr5_180046493-180046493_A_G	NA	Substitution	Splicing
FPC0625	<i>FLT4</i>	chr5_180046494-180046494_G_C	NA	Substitution	Splicing
FPC0748	<i>FLVCR1</i>	chr1_213032419-213032419_T	NA	Insertion	Frameshift
Pa229	<i>FMO3</i>	chr1_171083479-171083479_G_A	387R>H	Substitution	Nonsynonymous
FPC0347	<i>FOXB2</i>	chr9_79634892-79634892_C_T	108R>C	Substitution	Nonsynonymous
FPC0494	<i>FREM3</i>	chr4_144614358-144614358_A_	NA	Deletion	Splicing
FPC0627	<i>FSCN1</i>	chr7_5632959-5632959_A_C	131K>T	Substitution	Nonsynonymous
FPC0476	<i>FSHR</i>	chr2_49190290-49190290_C_T	557R>Q	Substitution	Nonsynonymous
FPC0625	<i>FUBP1</i>	chr1_78435702-78435702_A_	NA	Deletion	Splicing
Pa227	<i>FUT7</i>	chr9_139926078-139926078_C_T	38R>Q	Substitution	Nonsynonymous
FPC0652	<i>GABBR1</i>	chr6_29589534-29589534_A_	NA	Insertion	Frameshift
FPC0745	<i>GABRA6</i>	chr5_161115971-161115971_T	NA	Insertion	Frameshift
Pa102	<i>GABRB3</i>	chr15_26866684-26866684_G_T	NA	Substitution	Splicing
Pa228	<i>GAD2</i>	chr10_26518619-26518619_G_C	251M>I	Substitution	Nonsynonymous
FPC0476	<i>GAL3ST3</i>	chr11_65811101-65811101_G_A	58P>L	Substitution	Nonsynonymous
FPC0737	<i>GALNT10</i>	chr5_153765887-153765887_C_T	318A>V	Substitution	Nonsynonymous
FPC0747	<i>GALNT14</i>	chr2_31215798-31215798_C_T	69V>I	Substitution	Nonsynonymous
Pa101	<i>GALNT16</i>	chr14_69800300-69800300_G	NA	Insertion	Frameshift
FPC0728	<i>GAMT</i>	chr19_1399000-1399000_G_A	162P>L	Substitution	Nonsynonymous
FPC0135	<i>GANC</i>	chr15_42584990-42584990_C_G	129D>E	Substitution	Nonsynonymous
FPC0625	<i>GAS2</i>	chr11_22770667-22770667_T_A	159Y>N	Substitution	Nonsynonymous
FPC0347	<i>GBAP1</i>	chr1_155186379-155186379_C_G	143Q>H	Substitution	Nonsynonymous
FPC0476	<i>GEMIN5</i>	chr5_154296637-154296637_GCT	NA	Insertion	In-frame
FPC0627	<i>GFM1</i>	chr3_158364654-158364654_C_T	164R>C	Substitution	Nonsynonymous
FPC0746	<i>GN</i>	chr19_38877043-38877043_C_T	287E>K	Substitution	Nonsynonymous
FPC0649	<i>GIPC1</i>	chr19_14589561-14589561_T_C	262E>G	Substitution	Nonsynonymous
FPC0747	<i>GIPR</i>	chr19_46180341-46180341_C_A	256F>L	Substitution	Nonsynonymous
Pa229	<i>GJA3</i>	chr13_20717051-20717051_G_A	126P>L	Substitution	Nonsynonymous
FPC0751	<i>GJA9</i>	chr1_39340662-39340662_T_G	370K>T	Substitution	Nonsynonymous
FPC0747	<i>GKN1</i>	chr2_69207157-69207157_G_A	157R>H	Substitution	Nonsynonymous
FPC0616	<i>GLI3</i>	chr7_42004662-42004662_C_T	1337A>T	Substitution	Nonsynonymous
FPC0746	<i>GLI3</i>	chr7_42011982-42011982_C_T	686R>Q	Substitution	Nonsynonymous
FPC0347	<i>GLS</i>	chr2_191792051-191792051_C_T	423T>I	Substitution	Nonsynonymous
Pa101	<i>GMIP</i>	chr19_19754323-19754323_G_A	6P>S	Substitution	Nonsynonymous
Pa231	<i>GNB2</i>	chr7_100276335-100276335_G_A	312D>N	Substitution	Nonsynonymous
Pa229	<i>GOLGA4</i>	chr3_37368043-37368069_GATATTGAACACAAAGAATTGGTTTNA	NA	Deletion	In-frame
FPC0745	<i>GOLGA6L2</i>	chr15_23686803-23686803_C_G	273E>D	Substitution	Nonsynonymous
FPC0494	<i>GPAT2</i>	chr2_96688929-96688929_G_A	692R>C	Substitution	Nonsynonymous
FPC0751	<i>GPC4</i>	chrX_132437297-132437297_G_T	455S>R	Substitution	Nonsynonymous
FPC0737	<i>GPC5</i>	chr13_92346053-92346053_G_A	313G>E	Substitution	Nonsynonymous
Pa102	<i>GPCPD1</i>	chr20_5560671-5560671_T_A	152L>F	Substitution	Nonsynonymous
FPC0135	<i>GPM6B</i>	chrX_13834996-13834996_C_T	10E>K	Substitution	Nonsynonymous
FPC0347	<i>ADGRG4</i>	chrX_135474445-135474447_GAT_	NA	Deletion	In-frame
FPC0625	<i>ADGRA3</i>	chr4_22457447-22457447_A_G	4V>A	Substitution	Nonsynonymous
FPC0649	<i>ADGRD1</i>	chr12_131569149-131569149_G_A	538V>I	Substitution	Nonsynonymous
FPC0347	<i>GPR142</i>	chr17_72363807-72363807_T	NA	Insertion	Frameshift
FPC0616	<i>GPR156</i>	chr3_119892225-119892225_C_A	342Q>H	Substitution	Nonsynonymous
FPC0725	<i>GPR32</i>	chr19_51274851-51274851_A_C	332T>P	Substitution	Nonsynonymous
FPC0737	<i>GPR39</i>	chr2_133402940-133402940_C_T	375R>C	Substitution	Nonsynonymous
FPC0476	<i>GPR50</i>	chrX_150349064-150349064_C_T	337R>C	Substitution	Nonsynonymous
Pa227	<i>ADGRV1</i>	chr5_89943537-89943537_C_T	1082P>L	Substitution	Nonsynonymous

FPC0476	<i>GPRASP2</i>	chrX_101971979-101971979_A_G	728T>A	Substitution	Nonsynonymous
FPC0751	<i>GRAMD1B</i>	chr11_123448093-123448093_C	NA	Insertion	Frameshift
FPC0744	<i>GRB10</i>	chr7_50737441-50737441_G_A	161P>L	Substitution	Nonsynonymous
Pa231	<i>GRB14</i>	chr2_165365366-165365366_A	NA	Insertion	Splicing
FPC0649	<i>GRIA2</i>	chr4_158281129-158281129_G_A	709E>K	Substitution	Nonsynonymous
FPC0625	<i>GRIA3</i>	chrX_122336604-122336604_C_G	129P>A	Substitution	Nonsynonymous
FPC0737	<i>GRID1</i>	chr10_87966324-87966324_G_A	106T>M	Substitution	Nonsynonymous
FPC0438	<i>GRID2IP</i>	chr7_6565891-6565891_C_T	295G>S	Substitution	Nonsynonymous
FPC0737	<i>GRIK4</i>	chr11_120833172-120833172_G_A	683R>H	Substitution	Nonsynonymous
FPC0751	<i>GRIPAP1</i>	chrX_48844573-48844573_C_T	303R>H	Substitution	Nonsynonymous
FPC0625	<i>GRK1</i>	chr13_114321792-114321792_C_T	31R>W	Substitution	Nonsynonymous
Pa231	<i>GRK7</i>	chr3_141497160-141497160_G_A	12A>T	Substitution	Nonsynonymous
FPC0652	<i>GRM5</i>	chr11_88300941-88300941_G_A	637A>V	Substitution	Nonsynonymous
FPC0745	<i>GSDMB</i>	chr17_38062230-38062230_C_A	286E>D	Substitution	Nonsynonymous
FPC0652	<i>GTF3C1</i>	chr16_27481592-27481592_C_T	1551E>K	Substitution	Nonsynonymous
FPC0652	<i>GYS1</i>	chr19_49472739-49472739_G_A	674R>C	Substitution	Nonsynonymous
Pa227	<i>GYS2</i>	chr12_21733394-21733394_T_C	62N>S	Substitution	Nonsynonymous
FPC0744	<i>H2AFY2</i>	chr10_71851697-71851697_G_A	155R>Q	Substitution	Nonsynonymous
FPC0625	<i>HACL1</i>	chr3_15613280-15613280_A	NA	Insertion	Splicing
FPC0649	<i>HAPLN1</i>	chr5_82937543-82937543_A_C	279C>W	Substitution	Nonsynonymous
FPC0652	<i>HAT1</i>	chr2_172822955-172822955_G_T	213A>S	Substitution	Nonsynonymous
FPC0756	<i>HBB</i>	chr11_5248160-5248160_C_G	31R>T	Substitution	Nonsynonymous
Pa229	<i>HBPI</i>	chr7_106822983-106822983_C_G	112T>R	Substitution	Nonsynonymous
FPC0737	<i>HCN4</i>	chr15_73615456-73615456_G_A	993T>M	Substitution	Nonsynonymous
Pa231	<i>HCN4</i>	chr15_73660208-73660208_C_T	135G>D	Substitution	Nonsynonymous
FPC0748	<i>HDAC7</i>	chr12_48190075-48190075_G_A	237S>F	Substitution	Nonsynonymous
Pa229	<i>HECTD1</i>	chr14_31598240-31598240_GCACTGGAAGATGACCCT	NA	Insertion	In-frame
Pa102	<i>HEPACAM</i>	chr11_124792636-124792636_C_A	294E>D	Substitution	Nonsynonymous
Pa102	<i>HEPN1</i>	chr11_124789852-124789852_G_A	69R>Q	Substitution	Nonsynonymous
Pa227	<i>HERC1</i>	chr15_63948096-63948096_C_T	3310R>Q	Substitution	Nonsynonymous
FPC0747	<i>HERC2</i>	chr15_28357016-28357016_C_T	4800A>T	Substitution	Nonsynonymous
FPC0751	<i>HFM1</i>	chr1_91850795-91850795_A	NA	Deletion	Splicing
FPC0759	<i>HGS</i>	chr17_79658574-79658574_G_T	212C>F	Substitution	Nonsynonymous
FPC0438	<i>HIAT1</i>	chr1_100547707-100547707_A_T	472H>L	Substitution	Nonsynonymous
FPC0728	<i>HIGD2B</i>	chr15_72968711-72968711_G_A	2A>V	Substitution	Nonsynonymous
Pa227	<i>HIP1R</i>	chr12_123340451-123340451_G_T	NA	Substitution	Splicing
FPC0494	<i>HIRA</i>	chr22_19394779-19394779_C_T	77R>Q	Substitution	Nonsynonymous
Pa227	<i>HIST1H4B</i>	chr6_26027365-26027365_G_A	39A>V	Substitution	Nonsynonymous
FPC0745	<i>HIVEP3</i>	chr1_42046318-42046318_C_T	1384S>N	Substitution	Nonsynonymous
FPC0747	<i>HK2</i>	chr2_75107496-75107496_C_T	457T>I	Substitution	Nonsynonymous
FPC0627	<i>HMCN1</i>	chr1_186043907-186043907_C_T	2725A>V	Substitution	Nonsynonymous
FPC0649	<i>HMCN2</i>	chr9_133266657-133266657_G_A	149R>Q	Substitution	Nonsynonymous
Pa230	<i>HNRNPM</i>	chr19_8520336-8520336_T_A	54I>K	Substitution	Nonsynonymous
Pa227	<i>HRNR</i>	chr1_152185859-152185859_C_T	2749R>H	Substitution	Nonsynonymous
FPC0745	<i>HS3ST1</i>	chr4_11401236-11401236_G_A	132R>X	Substitution	Nonsense
FPC0751	<i>HS3ST1</i>	chr4_11401473-11401473_G_A	53Q>X	Substitution	Nonsense
FPC0747	<i>HSCB</i>	chr22_29139872-29139872_A_G	80N>S	Substitution	Nonsynonymous
FPC0759	<i>HSD17B2</i>	chr16_82131763-82131763_G_A	296G>S	Substitution	Nonsynonymous
FPC0494	<i>HSD17B3</i>	chr9_98997831-98997831_G_C	282P>A	Substitution	Nonsynonymous
FPC0747	<i>HSF4</i>	chr16_67198727-67198727_C_G	5P>A	Substitution	Nonsynonymous
FPC0616	<i>HSH2D</i>	chr19_16268144-16268144_G_A	200R>H	Substitution	Nonsynonymous
FPC0747	<i>HSPAIL</i>	chr6_31778008-31778008_G_A	581S>L	Substitution	Nonsynonymous
Pa227	<i>HSPA6</i>	chr1_161496156-161496156_C_T	570R>C	Substitution	Nonsynonymous
Pa228	<i>HSPA9</i>	chr5_137902814-137902814_A_G	252I>T	Substitution	Nonsynonymous
Pa229	<i>HSPG2</i>	chr1_22161214-22161214_C_T	3560A>T	Substitution	Nonsynonymous
FPC0756	<i>HTR7</i>	chr10_92509035-92509035_C_T	286V>I	Substitution	Nonsynonymous
FPC0746	<i>HTR7P1</i>	chr12_13153707-13153707_C_T	188S>F	Substitution	Nonsynonymous
FPC0652	<i>HYDIN</i>	chr16_71096139-71096139_G_A	770T>I	Substitution	Nonsynonymous
FPC0344	<i>HYOU1</i>	chr11_118919009-118919009_C_A	776S>I	Substitution	Nonsynonymous
FPC0494	<i>LAH1</i>	chr2_9621469-9621469_G_C	113S>T	Substitution	Nonsynonymous
Pa228	<i>IARS</i>	chr9_95003206-95003206_C_T	1072G>E	Substitution	Nonsynonymous
Pa228	<i>IGDCC3</i>	chr15_65622667-65622667_G_A	608R>C	Substitution	Nonsynonymous
FPC0756	<i>IGHA1</i>	chr14_106173605-106173605_G_A	321R>C	Substitution	Nonsynonymous
FPC0751	<i>IGLV3-27</i>	chr22_23011181-23011181_G_A	82G>S	Substitution	Nonsynonymous
FPC0494	<i>IGSF1</i>	chrX_130419756-130419756_C_A	122E>X	Substitution	Nonsense
FPC0616	<i>IGSF10</i>	chr3_151171534-151171534_C_T	118R>Q	Substitution	Nonsynonymous
Pa227	<i>IGSF9B</i>	chr11_133791134-133791134_C_A	829S>I	Substitution	Nonsynonymous
FPC0625	<i>IL13RA2</i>	chrX_114242638-114242638_G_C	285T>S	Substitution	Nonsynonymous

FPC0652	<i>IL17B</i>	chr5_148756438-148756438_G_A	58R>C	Substitution	Nonsynonymous
FPC0745	<i>ILDR1</i>	chr3_121724153-121724153_C_T	106R>Q	Substitution	Nonsynonymous
Pa228	<i>ILF3</i>	chr19_10787905-10787905_A_G	160T>A	Substitution	Nonsynonymous
FPC0616	<i>INO80</i>	chr15_41388477-41388477_C_T	11G>E	Substitution	Nonsynonymous
FPC0748	<i>INTS12</i>	chr4_106614622-106614622_C_T	111G>R	Substitution	Nonsynonymous
FPC0745	<i>IQCE</i>	chr7_2608628-2608628_C_T	42S>L	Substitution	Nonsynonymous
FPC0759	<i>IQCF6</i>	chr3_51812802-51812802_C_T	54R>Q	Substitution	Nonsynonymous
FPC0525	<i>IQCH</i>	chr15_67652196-67652196_A_T	242R>S	Substitution	Nonsynonymous
FPC0759	<i>IRAK1</i>	chrX_153279633-153279633_C_T	467A>T	Substitution	Nonsynonymous
Pa230	<i>IREB2</i>	chr15_78777218-78777218_T_C	510I>T	Substitution	Nonsynonymous
FPC0759	<i>IRS1</i>	chr2_227661396-227661398_TGC_	NA	Deletion	In-frame
FPC0747	<i>IRX6</i>	chr16_55360423-55360423_C_A	74P>H	Substitution	Nonsynonymous
FPC0649	<i>ISLR</i>	chr15_74468241-74468241_G_A	348G>S	Substitution	Nonsynonymous
Pa228	<i>ISX</i>	chr22_35481613-35481613_C_T	222T>I	Substitution	Nonsynonymous
Pa228	<i>ITGA7</i>	chr12_56092548-56092548_C_T	315R>H	Substitution	Nonsynonymous
FPC0625	<i>ITGAX</i>	chr16_31391868-31391868_G_A	1067V>M	Substitution	Nonsynonymous
FPC0347	<i>ITIH5</i>	chr10_7622013-7622013_C_G	375G>R	Substitution	Nonsynonymous
Pa227	<i>ITPR3</i>	chr6_33656459-33656459_C_T	2199R>C	Substitution	Nonsynonymous
FPC0649	<i>ITSN1</i>	chr21_35254688-35254688_C_A	1495P>T	Substitution	Nonsynonymous
FPC0616	<i>IVL</i>	chr1_152883569-152883569_C_A	432H>Q	Substitution	Nonsynonymous
FPC0627	<i>JAM2</i>	chr21_27084697-27084697_G_T	NA	Substitution	Splicing
FPC0726	<i>JPH4</i>	chr14_24040238-24040238_C_T	568A>T	Substitution	Nonsynonymous
Pa230	<i>JUNB</i>	chr19_12902725-12902725_A_G	47Y>C	Substitution	Nonsynonymous
FPC0744	<i>KCNA5</i>	chr12_5154314-5154314_G_T	334W>L	Substitution	Nonsynonymous
FPC0625	<i>KCNA7</i>	chr19_49575432-49575432_C_G	137E>D	Substitution	Nonsynonymous
FPC0745	<i>KCNE5</i>	chrX_108868081-108868081_C_T	57D>N	Substitution	Nonsynonymous
FPC0759	<i>KCNG1</i>	chr20_49621004-49621004_G_A	372R>C	Substitution	Nonsynonymous
FPC0745	<i>KCNG2</i>	chr18_77623896-77623896_G_A	77A>T	Substitution	Nonsynonymous
FPC0476	<i>KCNG3</i>	chr2_42720145-42720145_G_T	166S>X	Substitution	Nonsense
FPC0070	<i>KCNHI</i>	chr1_210857484-210857485_GA_	NA	Deletion	Splicing
FPC0347	<i>KCNK15</i>	chr20_43379388-43379388_G_A	301R>H	Substitution	Nonsynonymous
Pa222	<i>KCNK16</i>	chr6_39284074-39284074_C_A	NA	Substitution	Splicing
FPC0747	<i>KCNK18</i>	chr10_118969347-118969347_C_A	231S>Y	Substitution	Nonsynonymous
FPC0748	<i>KCNMB3</i>	chr3_178968609-178968609_A_T	61L>Q	Substitution	Nonsynonymous
FPC0344	<i>KCNN2</i>	chr5_113740231-113740231_C_T	227H>Y	Substitution	Nonsynonymous
Pa228	<i>KCNQ2</i>	chr20_62065228-62065228_A_G	351L>P	Substitution	Nonsynonymous
Pa228	<i>KCNT2</i>	chr1_196311360-196311360_T_A	NA	Substitution	Splicing
Pa228	<i>KCNT2</i>	chr1_196311361-196311361_G_C	NA	Substitution	Splicing
Pa229	<i>KCNT2</i>	chr1_196227503-196227503_C_T	1011R>Q	Substitution	Nonsynonymous
FPC0344	<i>KCNV2</i>	chr9_2718160-2718160_G_A	141D>N	Substitution	Nonsynonymous
Pa229	<i>KCTD6</i>	chr3_58486706-58486706_C_G	21H>D	Substitution	Nonsynonymous
FPC0070	<i>KDM3A</i>	chr2_86678329-86678329_C_G	149P>R	Substitution	Nonsynonymous
Pa102	<i>KDM4C</i>	chr9_7174667-7174667_G_A	1037D>N	Substitution	Nonsynonymous
Pa227	<i>KIAA0556</i>	chr16_27752211-27752211_A_T	865S>C	Substitution	Nonsynonymous
FPC0347	<i>ICE1</i>	chr5_5461863-5461863_A_T	806R>X	Substitution	Nonsense
FPC0649	<i>KIAA1109</i>	chr4_123187938-123187938_G_T	2440V>F	Substitution	Nonsynonymous
FPC0728	<i>KIAA1109</i>	chr4_123128268-123128268_T_C	501L>S	Substitution	Nonsynonymous
FPC0737	<i>KIAA1211L</i>	chr2_99413812-99413812_C_A	NA	Substitution	Splicing
FPC0649	<i>ARFGEF3</i>	chr6_138656264-138656264_G_A	2094R>H	Substitution	Nonsynonymous
FPC0744	<i>KIAA1407</i>	chr3_113737613-113737613_C_A	359V>F	Substitution	Nonsynonymous
FPC0652	<i>KIAA1462</i>	chr10_30318342-30318342_T_G	245E>D	Substitution	Nonsynonymous
FPC0625	<i>KIAA1524</i>	chr3_108276265-108276265_A	NA	Insertion	Splicing
FPC0745	<i>KIAA1671</i>	chr22_25434857-25434857_G_A	587G>D	Substitution	Nonsynonymous
FPC0747	<i>KIAA1755</i>	chr20_36874488-36874488_G_A	15A>V	Substitution	Nonsynonymous
FPC0728	<i>CCAR2</i>	chr8_22464772-22464772_A_G	141I>V	Substitution	Nonsynonymous
FPC0616	<i>KIAA2022</i>	chrX_73961508-73961508_C_A	962D>Y	Substitution	Nonsynonymous
FPC0744	<i>KIAA2022</i>	chrX_73965471-73965471_T_G	5Q>H	Substitution	Nonsynonymous
FPC0476	<i>KIF13A</i>	chr6_17772273-17772273_G_C	1448P>A	Substitution	Nonsynonymous
Pa229	<i>KIF1B</i>	chr1_10381896-10381896_G_C	734S>T	Substitution	Nonsynonymous
FPC0745	<i>KIF26A</i>	chr14_104641592-104641592_C_T	823R>C	Substitution	Nonsynonymous
FPC0748	<i>KL</i>	chr13_33635773-33635773_C_T	853R>C	Substitution	Nonsynonymous
FPC0746	<i>KLF17</i>	chr1_44596381-44596381_A_G	375N>D	Substitution	Nonsynonymous
FPC0751	<i>KLHDC7A</i>	chr1_18808142-18808142_T_G	223W>G	Substitution	Nonsynonymous
FPC0746	<i>KLHL2</i>	chr4_166159933-166159933_A_G	88E>G	Substitution	Nonsynonymous
FPC0625	<i>KLRF1</i>	chr12_9994450-9994450_G_A	126C>Y	Substitution	Nonsynonymous
FPC0625	<i>KLRF1</i>	chr12_9994453-9994453_A_G	127Y>C	Substitution	Nonsynonymous
FPC0625	<i>KLRF1</i>	chr12_9994454-9994454_T_G	127Y>X	Substitution	Nonsense
FPC0616	<i>KNDC1</i>	chr10_135015094-135015094_C_T	1027R>W	Substitution	Nonsynonymous

FPC0081	<i>KNTC1</i>	chr12_123082423-123082423_A_T	1501M>L	Substitution	Nonsynonymous
FPC0070	<i>KRAS</i>	chr12_25398284-25398284_C_T	12G>D	Substitution	Nonsynonymous
FPC0081	<i>KRAS</i>	chr12_25380276-25380276_T_A	61Q>L	Substitution	Nonsynonymous
FPC0135	<i>KRAS</i>	chr12_25380276-25380276_T_C	61Q>R	Substitution	Nonsynonymous
FPC0344	<i>KRAS</i>	chr12_25398284-25398284_C_A	12G>V	Substitution	Nonsynonymous
FPC0347	<i>KRAS</i>	chr12_25398284-25398284_C_A	12G>V	Substitution	Nonsynonymous
FPC0438	<i>KRAS</i>	chr12_25380275-25380275_T_G	61Q>H	Substitution	Nonsynonymous
FPC0476	<i>KRAS</i>	chr12_25380276-25380276_T_A	61Q>L	Substitution	Nonsynonymous
FPC0494	<i>KRAS</i>	chr12_25398285-25398285_C_G	12G>R	Substitution	Nonsynonymous
FPC0525	<i>KRAS</i>	chr12_25398284-25398284_C_A	12G>V	Substitution	Nonsynonymous
FPC0616	<i>KRAS</i>	chr12_25398284-25398284_C_T	12G>D	Substitution	Nonsynonymous
FPC0625	<i>KRAS</i>	chr12_25398284-25398284_C_T	12G>D	Substitution	Nonsynonymous
FPC0627	<i>KRAS</i>	chr12_25398284-25398284_C_T	12G>D	Substitution	Nonsynonymous
FPC0645	<i>KRAS</i>	chr12_25398285-25398285_C_G	12G>R	Substitution	Nonsynonymous
FPC0652	<i>KRAS</i>	chr12_25398284-25398284_C_T	12G>D	Substitution	Nonsynonymous
FPC0725	<i>KRAS</i>	chr12_25398284-25398284_C_T	12G>D	Substitution	Nonsynonymous
FPC0726	<i>KRAS</i>	chr12_25398284-25398284_C_T	12G>D	Substitution	Nonsynonymous
FPC0728	<i>KRAS</i>	chr12_25398284-25398284_C_T	12G>D	Substitution	Nonsynonymous
FPC0737	<i>KRAS</i>	chr12_25398284-25398284_C_T	12G>D	Substitution	Nonsynonymous
FPC0744	<i>KRAS</i>	chr12_25398284-25398284_C_A	12G>V	Substitution	Nonsynonymous
FPC0745	<i>KRAS</i>	chr12_25398284-25398284_C_T	12G>D	Substitution	Nonsynonymous
FPC0746	<i>KRAS</i>	chr12_25398285-25398285_C_G	12G>R	Substitution	Nonsynonymous
FPC0747	<i>KRAS</i>	chr12_25380275-25380275_T_G	61Q>H	Substitution	Nonsynonymous
FPC0748	<i>KRAS</i>	chr12_25398284-25398284_C_A	12G>V	Substitution	Nonsynonymous
FPC0751	<i>KRAS</i>	chr12_25398284-25398284_C_T	12G>D	Substitution	Nonsynonymous
FPC0756	<i>KRAS</i>	chr12_25398284-25398284_C_A	12G>V	Substitution	Nonsynonymous
Pa101	<i>KRAS</i>	chr12_25398284-25398284_C_A	12G>V	Substitution	Nonsynonymous
Pa102	<i>KRAS</i>	chr12_25398284-25398284_C_T	12G>D	Substitution	Nonsynonymous
Pa222	<i>KRAS</i>	chr12_25398284-25398284_C_T	12G>D	Substitution	Nonsynonymous
Pa227	<i>KRAS</i>	chr12_25398284-25398284_C_T	12G>D	Substitution	Nonsynonymous
Pa228	<i>KRAS</i>	chr12_25398284-25398284_C_T	12G>D	Substitution	Nonsynonymous
Pa229	<i>KRAS</i>	chr12_25398284-25398284_C_A	12G>V	Substitution	Nonsynonymous
Pa230	<i>KRAS</i>	chr12_25398284-25398284_C_A	12G>V	Substitution	Nonsynonymous
Pa231	<i>KRAS</i>	chr12_25380275-25380275_T_G	61Q>H	Substitution	Nonsynonymous
FPC0652	<i>KRT2</i>	chr12_53039355-53039355_T_G	NA	Substitution	Splicing
FPC0744	<i>KRT24</i>	chr17_38859762-38859762_C_T	62G>S	Substitution	Nonsynonymous
Pa102	<i>KRT84</i>	chr12_52772162-52772162_C_T	487V>I	Substitution	Nonsynonymous
FPC0494	<i>KRTAP24-1</i>	chr21_31655018-31655018_G_T	78P>H	Substitution	Nonsynonymous
FPC0347	<i>KRTAP3-2</i>	chr17_39155882-39155882_G_A	75P>L	Substitution	Nonsynonymous
FPC0347	<i>KY</i>	chr3_134369700-134369700_C_T	35A>T	Substitution	Nonsynonymous
FPC0747	<i>LAMA1</i>	chr18_6986267-6986267_C_A	1750A>S	Substitution	Nonsynonymous
FPC0494	<i>LAMA3</i>	chr18_21529777-21529777_G_C	3134D>H	Substitution	Nonsynonymous
Pa222	<i>LAMA5</i>	chr20_60897815-60897815_C_T	NA	Substitution	Splicing
FPC0652	<i>LAMC1</i>	chr1_183097865-183097865_G_A	1087R>H	Substitution	Nonsynonymous
FPC0625	<i>LARP7</i>	chr4_113578483-113578483_A	NA	Insertion	Frameshift
FPC0745	<i>LASIL</i>	chrX_64749109-64749109_C_G	277E>Q	Substitution	Nonsynonymous
FPC0476	<i>LEMD3</i>	chr12_65564791-65564791_A_G	472Y>C	Substitution	Nonsynonymous
Pa227	<i>P3H3</i>	chr12_6938023-6938023_C_G	140R>G	Substitution	Nonsynonymous
FPC0747	<i>LHX5</i>	chr12_113907121-113907121_G_A	68A>V	Substitution	Nonsynonymous
Pa222	<i>LIMK1</i>	chr7_73507608-73507608_G_A	10R>H	Substitution	Nonsynonymous
FPC0625	<i>LINTA</i>	chr12_81239722-81239722_A	NA	Insertion	Splicing
FPC0135	<i>LINC00521</i>	chr14_94467512-94467512_C_T	NA	Substitution	NA
FPC0727	<i>LIPE</i>	chr19_42914802-42914802_G_A	359A>V	Substitution	Nonsynonymous
FPC0744	<i>LIPF</i>	chr10_90427400-90427400_A_C	60E>D	Substitution	Nonsynonymous
FPC0746	<i>LIPH</i>	chr3_185232267-185232267_AC	NA	Insertion	Frameshift
Pa222	<i>LIX1</i>	chr5_96430624-96430624_C_T	226R>Q	Substitution	Nonsynonymous
Pa227	<i>LMLN</i>	chr3_197707203-197707203_C_T	186R>W	Substitution	Nonsynonymous
FPC0737	<i>LMTK3</i>	chr19_49001957-49001957_G_A	819P>L	Substitution	Nonsynonymous
Pa101	<i>LPA</i>	chr6_161006199-161006199_G_A	1390R>X	Substitution	Nonsense
Pa222	<i>ADGRL1</i>	chr19_14263136-14263136_C_T	1217V>I	Substitution	Nonsynonymous
FPC0745	<i>LPIN3</i>	chr20_39987466-39987466_G_A	839R>Q	Substitution	Nonsynonymous
FPC0476	<i>LRP1B</i>	chr2_141625347-141625347_C_T	1464R>Q	Substitution	Nonsynonymous
FPC0625	<i>LRP1B</i>	chr2_141459795-141459795_C_T	2073G>R	Substitution	Nonsynonymous
FPC0748	<i>LRP1B</i>	chr2_140995761-140995761_C_A	4507G>V	Substitution	Nonsynonymous
FPC0070	<i>LRP2</i>	chr2_170063276-170063276_G_T	2318D>E	Substitution	Nonsynonymous
FPC0476	<i>LRP2</i>	chr2_170009390-170009390_C_T	4127R>H	Substitution	Nonsynonymous
Pa228	<i>LRP6</i>	chr12_12397358-12397358_G_T	96S>Y	Substitution	Nonsynonymous
FPC0645	<i>LRRC24</i>	chr8_145747933-145747933_C_T	490D>N	Substitution	Nonsynonymous

Pa231	<i>NRROS</i>	chr3_196386812-196386812_G_A	100A>T	Substitution	Nonsynonymous
Pa222	<i>LRRC55</i>	chr11_56950145-56950145_C_T	260R>C	Substitution	Nonsynonymous
FPC0344	<i>LRRC71</i>	chr1_156899472-156899472_T	NA	Insertion	Frameshift
Pa229	<i>LRR1Q1</i>	chr12_85554492-85554492_G_T	1608G>C	Substitution	Nonsynonymous
FPC0746	<i>LRRK2</i>	chr12_40677878-40677878_C_A	815P>T	Substitution	Nonsynonymous
FPC0081	<i>LRRTM1</i>	chr2_80529836-80529836_G_T	370T>N	Substitution	Nonsynonymous
Pa230	<i>LRRTM3</i>	chr10_68687327-68687327_C_A	218S>Y	Substitution	Nonsynonymous
FPC0494	<i>LSM12</i>	chr17_42141262-42141262_G_C	55I>M	Substitution	Nonsynonymous
FPC0652	<i>LTBP1</i>	chr2_33468758-33468758_T_C	636C>R	Substitution	Nonsynonymous
FPC0525	<i>LTBP3</i>	chr11_65319824-65319824_G_A	414Q>X	Substitution	Nonsense
FPC0616	<i>LTF</i>	chr3_46501292-46501292_G_T	21R>S	Substitution	Nonsynonymous
FPC0744	<i>LYNX1</i>	chr8_143857086-143857086_C_A	27A>S	Substitution	Nonsynonymous
FPC0494	<i>LYST</i>	chr1_235894163-235894163_C_A	3010A>S	Substitution	Nonsynonymous
FPC0625	<i>LYST</i>	chr1_235938389-235938389_A	NA	Insertion	Splicing
FPC0756	<i>MAGEB10</i>	chrX_27840153-27840153_C_A	244P>T	Substitution	Nonsynonymous
FPC0737	<i>MAGEB17</i>	chrX_16188795-16188795_G_T	97G>V	Substitution	Nonsynonymous
FPC0728	<i>MAGEB18</i>	chrX_26158032-26158032_G_C	310E>D	Substitution	Nonsynonymous
FPC0747	<i>MAGI2</i>	chr7_77789413-77789413_C_T	925R>H	Substitution	Nonsynonymous
Pa227	<i>MAGI2</i>	chr7_77764361-77764361_G_C	1003T>S	Substitution	Nonsynonymous
FPC0625	<i>MAML2</i>	chr11_95826575-95826575_C_A	207R>L	Substitution	Nonsynonymous
FPC0745	<i>MAN2A1</i>	chr5_109106176-109106176_G_A	377G>E	Substitution	Nonsynonymous
Pa101	<i>MAP1S</i>	chr19_17837917-17837917_C_T	575P>L	Substitution	Nonsynonymous
FPC0751	<i>MAP2K1</i>	chr15_66774194-66774194_G_A	224V>M	Substitution	Nonsynonymous
Pa102	<i>MAP2K1</i>	chr15_66679764-66679764_G_C	27E>Q	Substitution	Nonsynonymous
FPC0744	<i>MAP2K4</i>	chr17_12028625-12028625_C_A	276D>E	Substitution	Nonsynonymous
FPC0494	<i>MAPK15</i>	chr8_144804016-144804016_G_A	475R>Q	Substitution	Nonsynonymous
FPC0751	<i>MAPK8</i>	chr10_49609715-49609715_C_G	4S>R	Substitution	Nonsynonymous
FPC0746	<i>MATN4</i>	chr20_43932934-43932934_C_T	193V>I	Substitution	Nonsynonymous
Pa229	<i>MBD5</i>	chr2_149227865-149227865_A_C	785N>H	Substitution	Nonsynonymous
FPC0652	<i>MBLAC2</i>	chr5_89769854-89769854_A_C	86F>V	Substitution	Nonsynonymous
FPC0756	<i>MCF2L2</i>	chr3_183035949-183035949_A	NA	Deletion	Frameshift
FPC0745	<i>MCTP1</i>	chr5_94230502-94230502_G_A	564T>M	Substitution	Nonsynonymous
FPC0344	<i>MDN1</i>	chr6_90513179-90513179_C_A	66R>L	Substitution	Nonsynonymous
FPC0625	<i>MED27</i>	chr9_134735980-134735980_G_A	294P>L	Substitution	Nonsynonymous
FPC0737	<i>MEGF10</i>	chr5_126732418-126732418_T_C	203C>R	Substitution	Nonsynonymous
FPC0625	<i>MGA</i>	chr15_42021471-42021471_C	NA	Deletion	Frameshift
Pa222	<i>MGAT4A</i>	chr2_99256294-99256294_A	NA	Deletion	Frameshift
Pa231	<i>MGAT5</i>	chr2_135076257-135076257_G_A	174A>T	Substitution	Nonsynonymous
Pa230	<i>MICALL1</i>	chr22_38321979-38321979_G_T	465G>V	Substitution	Nonsynonymous
FPC0649	<i>MIR223</i>	chrX_65238767-65238767_C_T	19P>L	Substitution	Nonsynonymous
Pa222	<i>MIR525</i>	chr19_54200844-54200844_G_A	20A>T	Substitution	Nonsynonymous
Pa222	<i>MIR936</i>	chr10_105807923-105807923_T_C	8R>G	Substitution	Nonsynonymous
FPC0652	<i>MIRLET7E</i>	chr19_52196093-52196093_A_G	19I>V	Substitution	Nonsynonymous
FPC0746	<i>KMT2D</i>	chr12_49444741-49444742_AC	NA	Deletion	Frameshift
FPC0344	<i>KMT2C</i>	chr7_151879331-151879331_G_A	1872Q>X	Substitution	Nonsense
FPC0627	<i>KMT2C</i>	chr7_151945330-151945330_G_T	730S>Y	Substitution	Nonsynonymous
FPC0759	<i>MMEL1</i>	chr1_2541231-2541231_G_A	102P>L	Substitution	Nonsynonymous
Pa228	<i>MMEL1</i>	chr1_2535385-2535385_C_T	318D>N	Substitution	Nonsynonymous
FPC0737	<i>MMP2</i>	chr16_55530924-55530924_T_C	520I>T	Substitution	Nonsynonymous
Pa228	<i>MMP27</i>	chr11_102562592-102562592_G_A	483H>Y	Substitution	Nonsynonymous
FPC0649	<i>MOGAT1</i>	chr2_223574553-223574553_G_A	318E>K	Substitution	Nonsynonymous
FPC0649	<i>MOV10L1</i>	chr22_50596562-50596562_G_T	1048C>F	Substitution	Nonsynonymous
FPC0494	<i>MPC2</i>	chr1_167893779-167893779_A	NA	Deletion	Splicing
FPC0476	<i>MPHOSPH9</i>	chr12_123706093-123706093_G_A	81A>V	Substitution	Nonsynonymous
FPC0625	<i>MRE11A</i>	chr11_94212931-94212931_A	NA	Insertion	Splicing
Pa228	<i>MROH6</i>	chr8_144653916-144653916_G_A	175R>X	Substitution	Nonsense
Pa101	<i>MRPL30</i>	chr2_99812044-99812044_C_T	121P>L	Substitution	Nonsynonymous
FPC0494	<i>MRPS31</i>	chr13_41345268-41345268_A_G	2F>S	Substitution	Nonsynonymous
FPC0344	<i>MRPS5</i>	chr2_95766281-95766281_A_T	290I>K	Substitution	Nonsynonymous
FPC0525	<i>MS4A14</i>	chr11_60183408-60183408_C_A	323Q>K	Substitution	Nonsynonymous
FPC0438	<i>MTMR1</i>	chrX_149931095-149931095_C_T	631R>C	Substitution	Nonsynonymous
FPC0476	<i>MTMR1</i>	chrX_149905203-149905203_C_T	398A>V	Substitution	Nonsynonymous
FPC0726	<i>MTMR12</i>	chr5_32229936-32229936_T_C	731E>G	Substitution	Nonsynonymous
Pa230	<i>MTSS1</i>	chr8_125577963-125577963_G_A	255S>L	Substitution	Nonsynonymous
Pa229	<i>MUC19</i>	chr12_40935424-40935424_T_G	151S>A	Substitution	Nonsynonymous
FPC0746	<i>MUC20</i>	chr3_195452649-195452649_C_T	392P>L	Substitution	Nonsynonymous
FPC0747	<i>MVP</i>	chr16_29859162-29859162_C_T	845A>V	Substitution	Nonsynonymous
FPC0625	<i>MYCBP2</i>	chr13_77750766-77750766_A	NA	Deletion	Splicing

FPC0494	<i>MYH11</i>	chr16_15832467-15832467_T_G	1033T>P	Substitution	Nonsynonymous
FPC0347	<i>MYH13</i>	chr17_10227376-10227376_G_A	966T>M	Substitution	Nonsynonymous
FPC0746	<i>MYH8</i>	chr17_10307718-10307718_G_A	873R>W	Substitution	Nonsynonymous
FPC0070	<i>MYL1</i>	chr2_211179766-211179766_T_	NA	Deletion	Frameshift
Pa227	<i>MYO18A</i>	chr17_27425864-27425864_C_G	1254E>Q	Substitution	Nonsynonymous
Pa228	<i>MYO1F</i>	chr19_8620554-8620554_C_T	44D>N	Substitution	Nonsynonymous
FPC0744	<i>MYO3A</i>	chr10_26241122-26241122_G_A	28G>D	Substitution	Nonsynonymous
Pa231	<i>MYO5C</i>	chr15_52521349-52521349_C_A	1063R>L	Substitution	Nonsynonymous
FPC0747	<i>MYO7B</i>	chr2_128367539-128367539_C_T	1047T>M	Substitution	Nonsynonymous
Pa222	<i>MYO7B</i>	chr2_128327368-128327368_G_A	159E>K	Substitution	Nonsynonymous
Pa228	<i>MYO7B</i>	chr2_128394117-128394117_C_T	NA	Substitution	Splicing
Pa101	<i>MYO9B</i>	chr19_17212643-17212643_C_T	39T>I	Substitution	Nonsynonymous
Pa101	<i>MYRIP</i>	chr3_40231481-40231481_G_A	398E>K	Substitution	Nonsynonymous
Pa230	<i>NAA15</i>	chr4_140283064-140283064_G_T	576E>X	Substitution	Nonsense
FPC0744	<i>NADK</i>	chr1_1688032-1688032_A_	NA	Deletion	Frameshift
FPC0747	<i>NAGA</i>	chr22_42456411-42456411_C_A	370D>Y	Substitution	Nonsynonymous
FPC0746	<i>NALCN</i>	chr13_101910868-101910868_C_T	398V>M	Substitution	Nonsynonymous
FPC0751	<i>NAPSA</i>	chr19_50864268-50864268_G_A	200R>W	Substitution	Nonsynonymous
Pa229	<i>ICE2</i>	chr15_60745863-60745863_G_A	355T>I	Substitution	Nonsynonymous
FPC0525	<i>NAV2</i>	chr11_20077350-20077350_A_G	1560N>D	Substitution	Nonsynonymous
FPC0344	<i>NBEAL2</i>	chr3_47047258-47047258_A_G	2241N>S	Substitution	Nonsynonymous
FPC0747	<i>NCAM1</i>	chr11_113142516-113142516_C_T	247R>X	Substitution	Nonsense
Pa228	<i>NCAM2</i>	chr21_22906907-22906907_A_T	778R>X	Substitution	Nonsense
FPC0728	<i>NCK1</i>	chr3_136646868-136646868_G_A	9A>T	Substitution	Nonsynonymous
Pa222	<i>NCMAP</i>	chr1_24921954-24921956_CTT_	NA	Deletion	In-frame
FPC0344	<i>NDN</i>	chr15_23932118-23932118_G_A	83P>S	Substitution	Nonsynonymous
FPC0476	<i>NDNF</i>	chr4_121957450-121957451_CT_	NA	Deletion	Frameshift
Pa101	<i>NDST1</i>	chr5_149924915-149924915_A_G	671D>G	Substitution	Nonsynonymous
FPC0627	<i>NDUFAF3</i>	chr3_49059867-49059867_C_G	56Q>E	Substitution	Nonsynonymous
FPC0748	<i>NDUFB4</i>	chr3_120315283-120315283_C_T	26S>F	Substitution	Nonsynonymous
FPC0625	<i>NEB</i>	chr2_152402516-152402516_A_	NA	Insertion	Splicing
FPC0744	<i>NEB</i>	chr2_152402878-152402878_C_A	5115R>L	Substitution	Nonsynonymous
FPC0746	<i>NEB</i>	chr2_152467061-152467061_C_A	3753S>I	Substitution	Nonsynonymous
FPC0756	<i>NEB</i>	chr2_152502670-152502670_T_C	2504K>E	Substitution	Nonsynonymous
FPC0135	<i>NEMF</i>	chr14_50262552-50262552_C_T	859S>N	Substitution	Nonsynonymous
FPC0652	<i>NFKBIZ</i>	chr3_101574703-101574703_C_	NA	Insertion	Frameshift
FPC0759	<i>NFXL1</i>	chr4_47916120-47916120_C_T	34G>E	Substitution	Nonsynonymous
Pa229	<i>NKX6-3</i>	chr8_41507968-41507968_G_A	15P>L	Substitution	Nonsynonymous
Pa228	<i>NLRP12</i>	chr19_54313706-54313706_C_T	403V>I	Substitution	Nonsynonymous
Pa229	<i>NLRP4</i>	chr19_56369657-56369657_C_T	300R>W	Substitution	Nonsynonymous
FPC0649	<i>NLRP5</i>	chr19_56569755-56569755_C_T	1150T>M	Substitution	Nonsynonymous
Pa227	<i>NLRP5</i>	chr19_56539520-56539520_G_A	641V>M	Substitution	Nonsynonymous
Pa101	<i>NNT</i>	chr5_43656074-43656074_C_T	731T>M	Substitution	Nonsynonymous
FPC0744	<i>NOA1</i>	chr4_57829624-57829624_T_C	697N>D	Substitution	Nonsynonymous
Pa101	<i>NOL11</i>	chr17_65734394-65734394_A_C	562Q>H	Substitution	Nonsynonymous
FPC0625	<i>NOLA</i>	chr18_31523145-31523145_A_	NA	Deletion	Splicing
FPC0347	<i>NOX1</i>	chrX_100117243-100117243_G_A	241R>C	Substitution	Nonsynonymous
FPC0626	<i>NPAP1</i>	chr15_24921079-24921079_G_A	22R>H	Substitution	Nonsynonymous
Pa222	<i>NPFFR2</i>	chr4_73013324-73013324_G_A	455C>Y	Substitution	Nonsynonymous
FPC0745	<i>NPHS1</i>	chr19_36335290-36335290_C_T	668V>M	Substitution	Nonsynonymous
Pa230	<i>NPHS1</i>	chr19_36322017-36322017_C_T	1140R>H	Substitution	Nonsynonymous
FPC0627	<i>NPL</i>	chr1_182787714-182787714_A_T	166I>F	Substitution	Nonsynonymous
FPC0476	<i>NPLOC4</i>	chr17_79571645-79571645_G_A	255R>W	Substitution	Nonsynonymous
FPC0627	<i>NR12</i>	chr3_119533869-119533869_G_A	319A>T	Substitution	Nonsynonymous
FPC0751	<i>NR5A2</i>	chr1_200143282-200143282_G_A	524G>R	Substitution	Nonsynonymous
FPC0625	<i>NRAP</i>	chr10_115405704-115405704_AA	NA	Insertion	Splicing
Pa227	<i>NRAP</i>	chr10_115372131-115372131_C_A	1120M>I	Substitution	Nonsynonymous
FPC0625	<i>NRXN1</i>	chr2_50850700-50850700_A_T	329L>M	Substitution	Nonsynonymous
FPC0756	<i>NRXN3</i>	chr14_79111646-79111646_C_T	75A>V	Substitution	Nonsynonymous
Pa101	<i>NRXN3</i>	chr14_79175585-79175585_G_A	43R>H	Substitution	Nonsynonymous
Pa222	<i>NT5C1B</i>	chr2_18765976-18765976_G_C	236S>W	Substitution	Nonsynonymous
FPC0494	<i>NT5E</i>	chr6_86197211-86197211_A_C	NA	Substitution	Splicing
FPC0476	<i>NTNG1</i>	chr1_107937828-107937828_A_G	314T>A	Substitution	Nonsynonymous
Pa222	<i>NUDT17</i>	chr1_145586623-145586623_T_C	318D>G	Substitution	Nonsynonymous
FPC0438	<i>NXNL1</i>	chr19_17571644-17571644_C_T	12R>H	Substitution	Nonsynonymous
FPC0476	<i>OBSCN</i>	chr1_228469871-228469871_G_A	2812R>Q	Substitution	Nonsynonymous
FPC0652	<i>OBSCN</i>	chr1_228540673-228540673_G_A	6191A>T	Substitution	Nonsynonymous
FPC0344	<i>OBSL1</i>	chr2_220432586-220432586_C_T	463R>H	Substitution	Nonsynonymous

Pa227	<i>OGDHL</i>	chr10_50953992-50953992_C_T	443R>H	Substitution	Nonsynonymous
FPC0616	<i>OPRK1</i>	chr8_54141985-54141985_G_A	339R>W	Substitution	Nonsynonymous
FPC0494	<i>OR10A2</i>	chr11_6890999-6890999_C_A	5S>Y	Substitution	Nonsynonymous
FPC0476	<i>OR10AD1</i>	chr12_48596268-48596268_C_T	270D>N	Substitution	Nonsynonymous
Pa222	<i>OR10C1</i>	chr6_29408456-29408456_G_A	222V>I	Substitution	Nonsynonymous
FPC0494	<i>OR10S1</i>	chr11_123848191-123848191_A_T	70L>I	Substitution	Nonsynonymous
FPC0494	<i>OR10S1</i>	chr11_123848197-123848197_G_T	68L>I	Substitution	Nonsynonymous
Pa229	<i>OR14K1</i>	chr1_247902083-247902083_C_A	56A>E	Substitution	Nonsynonymous
Pa222	<i>OR2C1</i>	chr16_3406088-3406088_C_T	50R>C	Substitution	Nonsynonymous
FPC0347	<i>OR2T2</i>	chr1_248616641-248616641_G_C	181E>D	Substitution	Nonsynonymous
Pa228	<i>OR2T8</i>	chr1_248059713-248059713_G_A	275M>I	Substitution	Nonsynonymous
FPC0135	<i>OR2W1</i>	chr6_29012115-29012115_C_T	280V>I	Substitution	Nonsynonymous
Pa229	<i>OR4M2</i>	chr15_22369038-22369038_C_A	155H>N	Substitution	Nonsynonymous
FPC0135	<i>OR4N2</i>	chr14_20296473-20296473_T_C	289L>P	Substitution	Nonsynonymous
FPC0728	<i>OR51Q1</i>	chr11_5443608-5443608_C_T	60R>C	Substitution	Nonsynonymous
FPC0627	<i>OR52A5</i>	chr11_5153409-5153409_G_A	155A>V	Substitution	Nonsynonymous
FPC0745	<i>OR5A1</i>	chr11_59211266-59211266_G_A	209V>I	Substitution	Nonsynonymous
Pa229	<i>OR5D17P</i>	chr11_55522951-55522951_T_A	158C>S	Substitution	Nonsynonymous
Pa102	<i>OR8B2</i>	chr11_12425251-12425251_G_T	230S>Y	Substitution	Nonsynonymous
FPC0745	<i>OSBP</i>	chr11_59378034-59378034_G_A	131R>C	Substitution	Nonsynonymous
Pa222	<i>OSBPL6</i>	chr2_179201053-179201053_A_G	207Q>R	Substitution	Nonsynonymous
Pa230	<i>OXCT2</i>	chr1_40235796-40235796_C_T	378A>T	Substitution	Nonsynonymous
FPC0344	<i>P2RX2</i>	chr12_133198064-133198064_G_A	334G>R	Substitution	Nonsynonymous
FPC0652	<i>P2RY4</i>	chrX_69478619-69478619_C_T	286V>M	Substitution	Nonsynonymous
FPC0652	<i>P2RY6</i>	chr11_73008273-73008273_C_T	237A>V	Substitution	Nonsynonymous
Pa222	<i>PABPC1</i>	chr8_101719138-101719138_C_T	475R>Q	Substitution	Nonsynonymous
FPC0745	<i>PAIP1</i>	chr5_43535071-43535071_C_T	361D>N	Substitution	Nonsynonymous
FPC0746	<i>PAK4</i>	chr19_39667336-39667336_G_A	489R>H	Substitution	Nonsynonymous
FPC0347	<i>PAMR1</i>	chr11_35492155-35492155_T_A	236I>F	Substitution	Nonsynonymous
FPC0726	<i>PANX3</i>	chr11_124489550-124489550_C_T	300R>X	Substitution	Nonsense
FPC0747	<i>PAPD4</i>	chr5_78964853-78964853_T_C	NA	Substitution	Splicing
FPC0751	<i>PAPPA</i>	chr9_119129926-119129926_T_A	1500S>T	Substitution	Nonsynonymous
FPC0344	<i>PAPPA2</i>	chr1_176564589-176564589_C_T	617R>C	Substitution	Nonsynonymous
FPC0494	<i>PAPPA2</i>	chr1_176668724-176668724_G_A	1079V>M	Substitution	Nonsynonymous
Pa102	<i>PAQR8</i>	chr6_52268711-52268711_C_G	234L>V	Substitution	Nonsynonymous
FPC0649	<i>PARP2</i>	chr14_20815052-20815052_T_C	NA	Insertion	Frameshift
FPC0476	<i>PAX1</i>	chr20_21690047-21690047_C_T	416A>V	Substitution	Nonsynonymous
Pa230	<i>PAXBP1</i>	chr21_34143670-34143670_C_G	104A>P	Substitution	Nonsynonymous
FPC0756	<i>PBDC1</i>	chrX_75393434-75393434_G	NA	Insertion	Frameshift
FPC0745	<i>PC</i>	chr11_66616807-66616807_T_C	1061K>R	Substitution	Nonsynonymous
FPC0494	<i>PCCA</i>	chr13_100958089-100958089_G_A	NA	Substitution	Splicing
Pa102	<i>PCDH11X</i>	chrX_91066267-91066267_C_G	6Q>E	Substitution	Nonsynonymous
FPC0649	<i>PCDH15</i>	chr10_55912990-55912990_C_G	552A>P	Substitution	Nonsynonymous
FPC0747	<i>PCDH15</i>	chr10_56077174-56077174_G_A	245R>X	Substitution	Nonsense
Pa229	<i>PCDH15</i>	chr10_55721607-55721607_A_C	972F>V	Substitution	Nonsynonymous
Pa230	<i>PCDH17</i>	chr13_58209198-58209198_G_A	840G>R	Substitution	Nonsynonymous
FPC0652	<i>PCDHA6</i>	chr5_140307690-140307690_C_T	405R>W	Substitution	Nonsynonymous
FPC0652	<i>PCDHB2</i>	chr5_140474496-140474496_C_T	41T>M	Substitution	Nonsynonymous
Pa227	<i>PCDHGA2</i>	chr5_140811129-140811129_A_G	268D>G	Substitution	Nonsynonymous
Pa228	<i>PCDHGA5</i>	chr5_140744415-140744415_G_T	173S>I	Substitution	Nonsynonymous
FPC0652	<i>PCDHGA6</i>	chr5_140754776-140754776_T_C	376S>P	Substitution	Nonsynonymous
Pa222	<i>PCDHGA8</i>	chr5_140772985-140772985_G_C	202R>T	Substitution	Nonsynonymous
FPC0744	<i>PCDHGB1</i>	chr5_140732003-140732003_G_A	726G>S	Substitution	Nonsynonymous
FPC0135	<i>PCLO</i>	chr7_82451835-82451835_C_T	4923V>M	Substitution	Nonsynonymous
Pa222	<i>PCLO</i>	chr7_82476510-82476510_C_T	4570E>K	Substitution	Nonsynonymous
Pa222	<i>PCNT</i>	chr21_47754488-47754488_A_G	149S>G	Substitution	Nonsynonymous
FPC0737	<i>PCSK4</i>	chr19_1488246-1488246_G_A	110R>W	Substitution	Nonsynonymous
Pa102	<i>PDE10A</i>	chr6_165749697-165749697_C_A	728G>W	Substitution	Nonsynonymous
FPC0070	<i>PDE1B</i>	chr12_54968938-54968938_C_T	374P>L	Substitution	Nonsynonymous
FPC0744	<i>PDE3A</i>	chr12_20766419-20766419_G_A	352E>K	Substitution	Nonsynonymous
FPC0751	<i>PDE6B</i>	chr4_651158-651158_G_T	426G>C	Substitution	Nonsynonymous
FPC0649	<i>PDK3</i>	chrX_24549805-24549805_G_A	332R>H	Substitution	Nonsynonymous
FPC0751	<i>PDPN</i>	chr1_13933769-13933769_G_A	133E>K	Substitution	Nonsynonymous
FPC0737	<i>PDZRN4</i>	chr12_41967273-41967273_A_G	NA	Insertion	Frameshift
FPC0438	<i>PEAR1</i>	chr1_156875217-156875217_G_A	NA	Substitution	Splicing
FPC0759	<i>PEAR1</i>	chr1_156875126-156875126_C_T	73R>W	Substitution	Nonsynonymous
FPC0652	<i>PENK</i>	chr8_57354232-57354232_G_A	135R>W	Substitution	Nonsynonymous
FPC0649	<i>PEX5L</i>	chr3_179526095-179526095_C_T	495D>N	Substitution	Nonsynonymous

FPC0746	<i>PGR</i>	chr11_100962544-100962544_T	NA	Insertion	Frameshift
FPC0751	<i>PGR</i>	chr11_100998972-100998972_G_A	277A>V	Substitution	Nonsynonymous
FPC0747	<i>PHACTR4</i>	chr1_28785730-28785730_A_	NA	Deletion	Frameshift
Pa222	<i>PHC1</i>	chr12_9089869-9089869_C_T	859R>C	Substitution	Nonsynonymous
FPC0652	<i>PHLPP2</i>	chr16_71736600-71736600_C_T	107V>I	Substitution	Nonsynonymous
FPC0748	<i>PHOSPHO2</i>	chr2_170557881-170557881_C_T	134L>F	Substitution	Nonsynonymous
FPC0751	<i>PHYH</i>	chr10_13336552-13336552_C_G	97G>A	Substitution	Nonsynonymous
FPC0751	<i>PHYH</i>	chr10_13336592-13336592_C_T	84E>K	Substitution	Nonsynonymous
FPC0751	<i>PHYH</i>	chr10_13337575-13337575_C_A	56E>X	Substitution	Nonsense
FPC0625	<i>PIBF1</i>	chr13_73409509-73409509_A_	NA	Insertion	Splicing
FPC0625	<i>PIBF1</i>	chr13_73409509-73409509_A_	NA	Deletion	Splicing
FPC0751	<i>PIDD1</i>	chr11_800377-800377_C_T	706V>M	Substitution	Nonsynonymous
FPC0751	<i>PIGA</i>	chrX_15342915-15342915_A_G	354S>P	Substitution	Nonsynonymous
FPC0747	<i>PIGQ</i>	chr16_633021-633021_G_T	557G>V	Substitution	Nonsynonymous
FPC0616	<i>PIH1D1</i>	chr19_49950652-49950652_G_A	185P>L	Substitution	Nonsynonymous
FPC0649	<i>PIK3C2G</i>	chr12_18534755-18534755_G_A	605V>I	Substitution	Nonsynonymous
FPC0747	<i>PIK3CA</i>	chr3_178927974-178927974_G_A	418E>K	Substitution	Nonsynonymous
FPC0751	<i>PIK3R6</i>	chr17_8731965-8731965_G_T	411S>Y	Substitution	Nonsynonymous
FPC0759	<i>PISD</i>	chr22_32017832-32017832_G_A	87R>W	Substitution	Nonsynonymous
FPC0748	<i>PIWIL4</i>	chr11_94353173-94353173_T_A	769Y>N	Substitution	Nonsynonymous
FPC0616	<i>PJA2</i>	chr5_108717408-108717408_A_	NA	Insertion	Splicing
Pa102	<i>PKHD1</i>	chr6_51732905-51732905_C_T	2497G>R	Substitution	Nonsynonymous
FPC0745	<i>PKM</i>	chr15_72499508-72499508_C_T	316R>Q	Substitution	Nonsynonymous
FPC0347	<i>PKNI</i>	chr19_14561228-14561228_C_T	243R>C	Substitution	Nonsynonymous
Pa102	<i>PLCD4</i>	chr2_219494297-219494297_G_A	344G>R	Substitution	Nonsynonymous
Pa101	<i>PLCL1</i>	chr2_198950910-198950910_C_T	792A>V	Substitution	Nonsynonymous
FPC0759	<i>PLEC</i>	chr8_144998131-144998131_C_T	2126R>H	Substitution	Nonsynonymous
Pa229	<i>PLEC</i>	chr8_144995279-144995279_CGTC	NA	Insertion	Frameshift
FPC0625	<i>PLEKHA5</i>	chr12_19410475-19410475_T_	NA	Deletion	Splicing
FPC0746	<i>PLEKHA6</i>	chr1_204198232-204198232_C_A	862V>L	Substitution	Nonsynonymous
Pa222	<i>PLEKHG3</i>	chr14_65198494-65198494_C_A	309Y>X	Substitution	Nonsense
FPC0745	<i>PLEKHG4B</i>	chr5_143249-143249_G_A	166R>Q	Substitution	Nonsynonymous
Pa222	<i>PLEKHG6</i>	chr12_6436775-6436775_G_A	676E>K	Substitution	Nonsynonymous
Pa228	<i>PLOD2</i>	chr3_145806380-145806380_T_A	333H>L	Substitution	Nonsynonymous
FPC0751	<i>PLTP</i>	chr20_44536398-44536398_C_T	NA	Substitution	Splicing
FPC0494	<i>PLXNA2</i>	chr1_208315691-208315691_C_T	497V>I	Substitution	Nonsynonymous
Pa231	<i>PLXNA2</i>	chr1_208227789-208227789_A_G	945S>P	Substitution	Nonsynonymous
Pa222	<i>PLXNA4</i>	chr7_132192549-132192549_G_A	302R>C	Substitution	Nonsynonymous
FPC0347	<i>PLXNC1</i>	chr12_94688261-94688261_G_C	NA	Substitution	Splicing
FPC0737	<i>PNLIP</i>	chr10_118320000-118320000_G_A	378G>E	Substitution	Nonsynonymous
FPC0627	<i>PNPLA6</i>	chr19_7626171-7626171_G_A	1293E>K	Substitution	Nonsynonymous
FPC0081	<i>PNPLA8</i>	chr7_108155797-108155797_G_T	47Q>K	Substitution	Nonsynonymous
FPC0081	<i>PNPLA8</i>	chr7_108155799-108155799_A_T	46L>Q	Substitution	Nonsynonymous
FPC0070	<i>PNPT1</i>	chr2_55883510-55883510_A_	NA	Deletion	Splicing
FPC0625	<i>PNPT1</i>	chr2_55883510-55883510_A_	NA	Deletion	Splicing
FPC0744	<i>POGZ</i>	chr1_151378138-151378138_T_C	1125I>V	Substitution	Nonsynonymous
Pa228	<i>POLR1A</i>	chr2_86255142-86255142_A_G	1643L>P	Substitution	Nonsynonymous
Pa230	<i>POLR2L</i>	chr11_8429493-8429493_G_A	6R>C	Substitution	Nonsynonymous
Pa231	<i>POP4</i>	chr19_30104799-30104799_C_A	149S>Y	Substitution	Nonsynonymous
FPC0759	<i>PPP1R14C</i>	chr6_150569880-150569880_A_T	NA	Substitution	Splicing
FPC0476	<i>PPP1R32</i>	chr11_61254014-61254014_G_T	256V>L	Substitution	Nonsynonymous
FPC0476	<i>PPP2R2C</i>	chr4_6380272-6380272_C_T	66E>K	Substitution	Nonsynonymous
Pa228	<i>PRAMI</i>	chr19_8555768-8555768_C_T	NA	Substitution	Splicing
FPC0747	<i>PRDM14</i>	chr8_70978583-70978583_T_A	357H>L	Substitution	Nonsynonymous
FPC0649	<i>PRDM7</i>	chr16_90126993-90126993_A_G	330L>P	Substitution	Nonsynonymous
FPC0070	<i>PRF1</i>	chr10_72360523-72360523_C_G	46E>Q	Substitution	Nonsynonymous
FPC0625	<i>PRKAA1</i>	chr5_40775530-40775530_A_T	115Y>X	Substitution	Nonsense
FPC0747	<i>PRKCG</i>	chr19_54403579-54403579_G_A	NA	Substitution	Splicing
FPC0616	<i>PRKD2</i>	chr19_47177940-47177940_C_T	826R>Q	Substitution	Nonsynonymous
FPC0747	<i>PRNP</i>	chr20_4680464-4680464_G_A	200E>K	Substitution	Nonsynonymous
Pa102	<i>PROX2</i>	chr14_75329616-75329616_G_A	308R>C	Substitution	Nonsynonymous
FPC0135	<i>PRPF6</i>	chr20_62642794-62642794_G_A	488D>N	Substitution	Nonsynonymous
FPC0728	<i>PRPH</i>	chr12_49689233-49689233_G_A	84E>K	Substitution	Nonsynonymous
FPC0728	<i>PRR12</i>	chr19_50100977-50100977_C_T	1129R>C	Substitution	Nonsynonymous
Pa229	<i>PRRG4</i>	chr11_32860438-32860438_G_T	93W>L	Substitution	Nonsynonymous
FPC0625	<i>PRRT2</i>	chr16_29825016-29825016_C_	NA	Deletion	Frameshift
FPC0649	<i>PRSS35</i>	chr6_84233953-84233953_C_T	265R>X	Substitution	Nonsense
Pa222	<i>PRSS38</i>	chr1_228003861-228003861_G_C	73W>C	Substitution	Nonsynonymous



Pa222	<i>PRSS38</i>	chr1_228003862-228003862_C_T	74Q>X	Substitution	Nonsense
FPC0625	<i>PRUNE2</i>	chr9_79244209-79244209_A_	NA	Deletion	Splicing
Pa102	<i>PSD3</i>	chr8_18666261-18666261_T_A	NA	Substitution	Splicing
FPC0737	<i>PSIP1</i>	chr9_15490051-15490051_C_A	74R>I	Substitution	Nonsynonymous
Pa101	<i>PSTK</i>	chr10_124740107-124740107_C_T	38L>F	Substitution	Nonsynonymous
FPC0745	<i>PTCH1</i>	chr9_98270561-98270561_G_C	28A>G	Substitution	Nonsynonymous
FPC0070	<i>PTCHD2</i>	chr1_11562134-11562134_C_T	362A>V	Substitution	Nonsynonymous
FPC0616	<i>PTEN</i>	chr10_89692949-89692949_T_	NA	Deletion	Frameshift
FPC0728	<i>PTGDR</i>	chr14_52734822-52734822_C_T	97A>V	Substitution	Nonsynonymous
Pa231	<i>PTGFRN</i>	chr1_117487409-117487409_C_G	176P>R	Substitution	Nonsynonymous
FPC0745	<i>PTH1R</i>	chr3_46944896-46944896_G_A	511R>H	Substitution	Nonsynonymous
FPC0438	<i>PTK7</i>	chr6_43111275-43111279_TGTTCC_	NA	Deletion	Frameshift
FPC0494	<i>PTPN12</i>	chr7_77261689-77261689_C_G	674P>R	Substitution	Nonsynonymous
Pa101	<i>PTPN14</i>	chr1_214575053-214575053_A_T	215F>Y	Substitution	Nonsynonymous
FPC0347	<i>PTPRF</i>	chr1_44079328-44079328_C_T	1338A>V	Substitution	Nonsynonymous
FPC0625	<i>PTPRS</i>	chr19_5223023-5223023_G_A	927T>M	Substitution	Nonsynonymous
FPC0744	<i>PUS7L</i>	chr12_44148883-44148883_T_A	56K>X	Substitution	Nonsense
FPC0476	<i>PXDN</i>	chr2_1670162-1670162_C_T	372R>Q	Substitution	Nonsynonymous
FPC0652	<i>PXDNL</i>	chr8_52321851-52321851_G_A	778P>L	Substitution	Nonsynonymous
FPC0737	<i>PXDNL</i>	chr8_52321594-52321594_G_A	864R>C	Substitution	Nonsynonymous
FPC0625	<i>PYGO1</i>	chr15_55841196-55841196_A_	NA	Insertion	Splicing
FPC0476	<i>RAB37</i>	chr17_72738423-72738423_G_A	79V>M	Substitution	Nonsynonymous
FPC0476	<i>RAB5B</i>	chr12_56383731-56383731_C_T	55A>V	Substitution	Nonsynonymous
FPC0627	<i>RACGAP1</i>	chr12_50386126-50386126_C_T	494A>T	Substitution	Nonsynonymous
FPC0625	<i>RAD23B</i>	chr9_110093971-110093972_AA_	NA	Deletion	Frameshift
FPC0347	<i>RAD54L</i>	chr1_46743877-46743877_G_A	723A>T	Substitution	Nonsynonymous
FPC0737	<i>RADIL</i>	chr7_4876137-4876137_C_T	212R>H	Substitution	Nonsynonymous
FPC0494	<i>RAG1</i>	chr11_36597064-36597064_G_A	737R>H	Substitution	Nonsynonymous
FPC0745	<i>RASAL3</i>	chr19_15574865-15574865_G_A	102P>L	Substitution	Nonsynonymous
FPC0135	<i>RB1</i>	chr13_49037879-49037879_T_C	707S>P	Substitution	Nonsynonymous
FPC0625	<i>RB1CC1</i>	chr8_53543091-53543091_A_	NA	Insertion	Splicing
FPC0751	<i>RBFOX1</i>	chr16_7703894-7703894_G_A	299V>M	Substitution	Nonsynonymous
FPC0625	<i>RBL1</i>	chr20_35696592-35696592_A_	NA	Deletion	Splicing
FPC0728	<i>RBM10</i>	chrX_47045120-47045120_C_	NA	Deletion	Frameshift
FPC0476	<i>RBM3</i>	chrX_48434905-48434905_A_T	109D>V	Substitution	Nonsynonymous
Pa101	<i>RBM39</i>	chr20_34328759-34328759_G_A	13A>V	Substitution	Nonsynonymous
Pa101	<i>RBM39</i>	chr20_34328760-34328760_C_A	13A>S	Substitution	Nonsynonymous
FPC0347	<i>RBMXL3</i>	chrX_114425923-114425923_C_A	640A>D	Substitution	Nonsynonymous
FPC0625	<i>RC3H2</i>	chr9_125655309-125655309_A_	NA	Insertion	Splicing
FPC0625	<i>RC3H2</i>	chr9_125655309-125655309_A_	NA	Deletion	Splicing
FPC0494	<i>RCVRN</i>	chr17_9808167-9808167_C_T	111V>M	Substitution	Nonsynonymous
FPC0525	<i>RECQL</i>	chr12_21623147-21623147_A_	NA	Deletion	Frameshift
FPC0652	<i>RELN</i>	chr7_103368613-103368613_G_A	233A>V	Substitution	Nonsynonymous
FPC0525	<i>REERG</i>	chr12_15262093-15262093_G_A	184T>M	Substitution	Nonsynonymous
FPC0525	<i>RFC1</i>	chr4_39314458-39314458_A_G	433Y>H	Substitution	Nonsynonymous
FPC0616	<i>RFPL3</i>	chr22_32756703-32756703_C_T	280R>C	Substitution	Nonsynonymous
FPC0652	<i>RGCC</i>	chr13_42032417-42032417_G_T	NA	Substitution	Splicing
FPC0645	<i>RGS20</i>	chr8_54791947-54791947_C_T	99R>W	Substitution	Nonsynonymous
FPC0494	<i>RGS3</i>	chr9_116356285-116356285_C_A	29P>H	Substitution	Nonsynonymous
FPC0748	<i>RGS6</i>	chr14_72932474-72932474_C_T	135L>F	Substitution	Nonsynonymous
Pa228	<i>RHO</i>	chr3_129249760-129249760_C_T	135R>W	Substitution	Nonsynonymous
FPC0728	<i>RIF1</i>	chr2_152320029-152320029_T_G	1332L>R	Substitution	Nonsynonymous
FPC0751	<i>RIMS1</i>	chr6_72806713-72806713_C_T	103R>W	Substitution	Nonsynonymous
Pa102	<i>RIMS1</i>	chr6_72943509-72943509_C_T	571T>M	Substitution	Nonsynonymous
FPC0494	<i>RMDN3</i>	chr15_41029894-41029894_T_	NA	Insertion	Frameshift
FPC0494	<i>RNASE7</i>	chr14_21511377-21511377_T_C	76F>L	Substitution	Nonsynonymous
FPC0347	<i>RNF111</i>	chr15_59376329-59376329_C_T	767R>W	Substitution	Nonsynonymous
FPC0737	<i>RNF168</i>	chr3_196198706-196198706_T_C	567Q>R	Substitution	Nonsynonymous
Pa228	<i>RNF17</i>	chr13_25399896-25399896_G_A	744R>Q	Substitution	Nonsynonymous
Pa229	<i>RNF220</i>	chr1_44878130-44878130_C_T	121R>W	Substitution	Nonsynonymous
FPC0746	<i>RNF43</i>	chr17_56440757-56440757_G_A	154P>L	Substitution	Nonsynonymous
FPC0347	<i>ROBO2</i>	chr3_75986741-75986741_G_T	33G>X	Substitution	Nonsense
FPC0626	<i>ROBO2</i>	chr3_75986717-75986717_G_A	25V>M	Substitution	Nonsynonymous
FPC0627	<i>ROR2</i>	chr9_94488893-94488893_G_A	439P>L	Substitution	Nonsynonymous
Pa102	<i>RP1</i>	chr8_55576264-55576264_A_G	203I>V	Substitution	Nonsynonymous
FPC0728	<i>RP11-46C24.3</i>	chr16_89235260-89235260_C_T	192P>L	Substitution	Nonsynonymous
FPC0625	<i>RP11-863K10.7</i>	chr8_37593487-37593487_A_	NA	Deletion	Frameshift
FPC0347	<i>RPGR</i>	chrX_38156660-38156660_T_C	431I>V	Substitution	Nonsynonymous

FPC0347	<i>RPGR</i>	chrX_38156677-38156677_C_T	425R>K	Substitution	Nonsynonymous
FPC0745	<i>RPGR</i>	chrX_38163930-38163930_T_G	298S>R	Substitution	Nonsynonymous
FPC0759	<i>RPGRIP1</i>	chr14_21794101-21794101_C_T	827R>C	Substitution	Nonsynonymous
FPC0744	<i>RPS6KA2</i>	chr6_166843970-166843970_T_C	526K>E	Substitution	Nonsynonymous
FPC0135	<i>RPTOR</i>	chr17_78897378-78897378_C_T	905R>W	Substitution	Nonsynonymous
FPC0627	<i>RRBP1</i>	chr20_17639880-17639880_C_T	425A>T	Substitution	Nonsynonymous
FPC0745	<i>RTL1</i>	chr14_101348803-101348803_C_T	775V>M	Substitution	Nonsynonymous
FPC0438	<i>RTN4IP1</i>	chr6_107070755-107070755_C_T	122D>N	Substitution	Nonsynonymous
Pa230	<i>RTN4R</i>	chr22_20231161-20231161_G_A	16S>F	Substitution	Nonsynonymous
Pa230	<i>RUNDC1</i>	chr17_41132930-41132930_C_G	113R>G	Substitution	Nonsynonymous
FPC0347	<i>RUNX1T1</i>	chr8_92998508-92998508_G_C	375L>V	Substitution	Nonsynonymous
FPC0525	<i>RYR1</i>	chr19_38993593-38993593_G_A	2637A>T	Substitution	Nonsynonymous
FPC0627	<i>RYR1</i>	chr19_39013699-39013699_G_A	3431A>T	Substitution	Nonsynonymous
FPC0751	<i>RYR1</i>	chr19_38976583-38976583_C_T	1763P>L	Substitution	Nonsynonymous
Pa102	<i>RYR1</i>	chr19_39055860-39055860_C_T	4296R>W	Substitution	Nonsynonymous
Pa227	<i>SI00A7L2</i>	chr1_153410753-153410753_C_T	29R>H	Substitution	Nonsynonymous
Pa222	<i>SACS</i>	chr13_23912230-23912230_G_A	1929R>W	Substitution	Nonsynonymous
Pa228	<i>SACS</i>	chr13_23904882-23904882_C_T	4378R>Q	Substitution	Nonsynonymous
Pa231	<i>SAFB2</i>	chr19_5594184-5594184_C_T	642R>H	Substitution	Nonsynonymous
FPC0494	<i>SALL1</i>	chr16_51174296-51174296_C_T	613E>K	Substitution	Nonsynonymous
FPC0756	<i>SALL1</i>	chr16_51175381-51175381_C_T	251R>H	Substitution	Nonsynonymous
FPC0751	<i>SALL3</i>	chr18_76754563-76754563_C_T	858Q>X	Substitution	Nonsense
FPC0347	<i>SAMD15</i>	chr14_77843824-77843824_G_C	21E>D	Substitution	Nonsynonymous
FPC0625	<i>SAP130</i>	chr2_128770732-128770732_A	NA	Deletion	Splicing
Pa222	<i>SATB1</i>	chr3_18436040-18436040_C_T	374E>K	Substitution	Nonsynonymous
FPC0652	<i>SBF2</i>	chr11_9838424-9838424_G_T	1314A>E	Substitution	Nonsynonymous
Pa228	<i>SCAF4</i>	chr21_33076217-33076217_G_A	61P>L	Substitution	Nonsynonymous
FPC0625	<i>SCAMP1</i>	chr5_77745857-77745857_G_T	245G>C	Substitution	Nonsynonymous
FPC0652	<i>SCARA5</i>	chr8_27779321-27779321_C_T	228R>H	Substitution	Nonsynonymous
FPC0525	<i>SCFD1</i>	chr14_31175055-31175055_C_T	506P>L	Substitution	Nonsynonymous
Pa230	<i>SCN11A</i>	chr3_38938452-38938452_G_A	763R>C	Substitution	Nonsynonymous
FPC0347	<i>SCN3A</i>	chr2_166011143-166011143_T_C	400Y>C	Substitution	Nonsynonymous
FPC0745	<i>SCN3A</i>	chr2_165996047-165996047_C_A	697E>D	Substitution	Nonsynonymous
FPC0728	<i>SCN4A</i>	chr17_62025396-62025396_G_A	1058R>W	Substitution	Nonsynonymous
FPC0746	<i>SCUBE3</i>	chr6_35200741-35200741_G	NA	Deletion	Frameshift
FPC0745	<i>SCYL3</i>	chr1_169836049-169836049_G_A	268T>M	Substitution	Nonsynonymous
FPC0135	<i>SDF4</i>	chr1_1152915-1152915_G_A	356R>C	Substitution	Nonsynonymous
FPC0737	<i>SEC16A</i>	chr9_139354515-139354515_T	NA	Deletion	Frameshift
FPC0476	<i>SEC24A</i>	chr5_134002645-134002645_A_T	233D>V	Substitution	Nonsynonymous
FPC0625	<i>SEC24D</i>	chr4_119666218-119666218_A	NA	Deletion	Splicing
FPC0745	<i>SECISBP2</i>	chr9_91949629-91949629_T_C	358I>T	Substitution	Nonsynonymous
Pa230	<i>SEMA3A</i>	chr7_83591143-83591143_C_A	NA	Substitution	Splicing
FPC0751	<i>SEMA3D</i>	chr7_84642109-84642109_T_G	586D>A	Substitution	Nonsynonymous
FPC0649	<i>SEMA6D</i>	chr15_48056480-48056480_G_A	359E>K	Substitution	Nonsynonymous
Pa229	<i>SEMA6D</i>	chr15_48062708-48062708_G_T	650V>F	Substitution	Nonsynonymous
FPC0625	<i>SENP3</i>	chr17_7470288-7470288_A_G	436K>R	Substitution	Nonsynonymous
Pa229	<i>SEPT5</i>	chr22_19707634-19707634_G_A	NA	Substitution	Splicing
FPC0347	<i>SERPINA7</i>	chrX_105278361-105278361_C_A	303L>F	Substitution	Nonsynonymous
FPC0747	<i>SETDB1</i>	chr1_150917624-150917624_G	NA	Insertion	Frameshift
FPC0756	<i>SF3B1</i>	chr2_198266834-198266834_T_C	700K>E	Substitution	Nonsynonymous
FPC0751	<i>SGCD</i>	chr5_156186295-156186295_C_T	256T>M	Substitution	Nonsynonymous
FPC0347	<i>SGOL2</i>	chr2_201436704-201436704_A_C	545K>N	Substitution	Nonsynonymous
FPC0627	<i>SGOL2</i>	chr2_201436921-201436921_C_T	618R>W	Substitution	Nonsynonymous
FPC0649	<i>SH3TC2</i>	chr5_148406893-148406893_C_T	801C>Y	Substitution	Nonsynonymous
Pa102	<i>SHMT2</i>	chr12_57627424-57627424_C_T	368R>X	Substitution	Nonsense
FPC0649	<i>SLAH3</i>	chr13_46357961-46357961_C_G	123V>L	Substitution	Nonsynonymous
FPC0746	<i>SIDT2</i>	chr11_117052591-117052591_C_T	125S>L	Substitution	Nonsynonymous
Pa227	<i>SIGLEC5</i>	chr19_52132823-52132823_C_T	163S>N	Substitution	Nonsynonymous
Pa228	<i>SIGLEC6</i>	chr19_52034564-52034564_G_A	93F>L	Substitution	Nonsynonymous
FPC0625	<i>SKA3</i>	chr13_21729953-21729953_A	NA	Insertion	Splicing
FPC0625	<i>SKP2</i>	chr5_36183987-36183987_C	NA	Insertion	Frameshift
FPC0625	<i>SKP2</i>	chr5_36183991-36183991_T_A	371C>S	Substitution	Nonsynonymous
FPC0727	<i>SKP2</i>	chr5_36166719-36166719_G_A	164R>H	Substitution	Nonsynonymous
FPC0347	<i>SLC14A2</i>	chr18_43253660-43253660_C_T	797A>V	Substitution	Nonsynonymous
Pa102	<i>SLC15A3</i>	chr11_60718618-60718618_C_T	136A>T	Substitution	Nonsynonymous
FPC0344	<i>SLC17A1</i>	chr6_25813424-25813424_C_T	212V>I	Substitution	Nonsynonymous
FPC0476	<i>SLC17A2</i>	chr6_25918786-25918786_G_A	193S>F	Substitution	Nonsynonymous
Pa101	<i>SLC17A7</i>	chr19_49938117-49938117_C_T	153A>T	Substitution	Nonsynonymous

FPC0625	<i>SLC18A1</i>	chr8_20036003-20036003_T_C	164I>V	Substitution	Nonsynonymous
FPC0652	<i>SLC1A6</i>	chr19_15079239-15079239_C_T	142A>T	Substitution	Nonsynonymous
Pa222	<i>SLC22A1</i>	chr6_160579546-160579546_A_G	NA	Substitution	Splicing
FPC0494	<i>SLC22A9</i>	chr11_63138694-63138694_G_T	164G>C	Substitution	Nonsynonymous
FPC0494	<i>SLC22A9</i>	chr11_63138695-63138695_G_C	164G>A	Substitution	Nonsynonymous
FPC0070	<i>SLC23A3</i>	chr2_220033370-220033370_G_A	NA	Substitution	Splicing
FPC0625	<i>SLC25A36</i>	chr3_140678385-140678385_A	NA	Insertion	Splicing
FPC0625	<i>SLC25A36</i>	chr3_140678385-140678385_A	NA	Deletion	Splicing
FPC0747	<i>SLC25A42</i>	chr19_19221543-19221543_G_A	272R>H	Substitution	Nonsynonymous
Pa222	<i>SLC27A3</i>	chr1_153750707-153750707_G_A	458R>H	Substitution	Nonsynonymous
FPC0616	<i>SLC27A6</i>	chr5_128301873-128301873_G_A	15V>I	Substitution	Nonsynonymous
FPC0652	<i>SLC2A12</i>	chr6_134349987-134349987_C_T	326V>I	Substitution	Nonsynonymous
Pa229	<i>SLC30A10</i>	chr1_220100437-220100437_G_T	217F>L	Substitution	Nonsynonymous
FPC0745	<i>SLC30A8</i>	chr8_118183351-118183351_T_A	303L>Q	Substitution	Nonsynonymous
FPC0746	<i>SLC34A1</i>	chr5_176813507-176813507_G_A	158V>M	Substitution	Nonsynonymous
FPC0627	<i>SLC36A3</i>	chr5_150666970-150666970_G_A	223T>M	Substitution	Nonsynonymous
Pa101	<i>SLC44A1</i>	chr9_108126862-108126862_T_G	372F>V	Substitution	Nonsynonymous
Pa230	<i>SLC44A5</i>	chr1_75683560-75683560_G_A	539R>C	Substitution	Nonsynonymous
FPC0625	<i>SLC46A1</i>	chr17_26727721-26727721_G_A	NA	Substitution	Splicing
Pa229	<i>SLC5A10</i>	chr17_18922878-18922878_G_A	478V>I	Substitution	Nonsynonymous
Pa102	<i>SLC5A7</i>	chr2_108627139-108627139_G_T	522S>I	Substitution	Nonsynonymous
FPC0438	<i>SLC6A15</i>	chr12_85277657-85277657_C_T	246G>D	Substitution	Nonsynonymous
FPC0525	<i>SLC6A15</i>	chr12_85277705-85277705_A_T	230I>N	Substitution	Nonsynonymous
FPC0627	<i>SLC6A17</i>	chr1_110740189-110740189_C_A	595P>T	Substitution	Nonsynonymous
Pa101	<i>SLC6A3</i>	chr5_1420769-1420769_A_G	281L>P	Substitution	Nonsynonymous
FPC0745	<i>SLC7A9</i>	chr19_33353388-33353388_C_T	195G>R	Substitution	Nonsynonymous
Pa231	<i>SLC9A3</i>	chr5_483524-483524_G_T	336R>S	Substitution	Nonsynonymous
FPC0751	<i>SLC9A7</i>	chrX_46495076-46495076_C_T	541V>I	Substitution	Nonsynonymous
FPC0747	<i>SLCO1C1</i>	chr12_20905319-20905319_A	NA	Insertion	Frameshift
FPC0745	<i>SLIT2</i>	chr4_20599961-20599961_G	NA	Insertion	Frameshift
Pa102	<i>SLIT2</i>	chr4_20533674-20533674_C_T	561R>C	Substitution	Nonsynonymous
FPC0135	<i>SLIT3</i>	chr5_168096941-168096941_C_T	1395E>K	Substitution	Nonsynonymous
Pa222	<i>SLITRK3</i>	chr3_164906423-164906423_C_A	732K>N	Substitution	Nonsynonymous
FPC0347	<i>SMAD4</i>	chr18_48581171-48581171_A_T	159K>X	Substitution	Nonsense
FPC0476	<i>SMAD4</i>	chr18_48593406-48593406_G_C	386G>A	Substitution	Nonsynonymous
FPC0494	<i>SMAD4</i>	chr18_48591977-48591977_G_A	NA	Substitution	Splicing
FPC0612	<i>SMAD4</i>	chr18_48581243-48581243_C_T	183Q>X	Substitution	Nonsense
FPC0616	<i>SMAD4</i>	chr18_48591919-48591919_G_A	361R>H	Substitution	Nonsynonymous
FPC0625	<i>SMAD4</i>	chr18_48575054-48575054_A_G	NA	Substitution	Splicing
FPC0725	<i>SMAD4</i>	chr18_48603023-48603023_C_T	442Q>X	Substitution	Nonsense
FPC0744	<i>SMAD4</i>	chr18_48575055-48575055_G	NA	Deletion	Splicing
FPC0745	<i>SMAD4</i>	chr18_48591918-48591918_C_T	361R>C	Substitution	Nonsynonymous
FPC0751	<i>SMAD4</i>	chr18_48593417-48593417_G_T	390E>X	Substitution	Nonsense
Pa101	<i>SMAD4</i>	chr18_48584607-48584607_T	NA	Insertion	Frameshift
Pa228	<i>SMAD4</i>	chr18_48591977-48591977_G_T	NA	Substitution	Splicing
Pa230	<i>SMAD4</i>	chr18_48591903-48591903_C_A	356P>T	Substitution	Nonsynonymous
FPC0625	<i>SMAD5</i>	chr5_135513087-135513087_T_A	NA	Substitution	Splicing
FPC0745	<i>SMARCA1</i>	chrX_128599676-128599676_G_A	951R>C	Substitution	Nonsynonymous
FPC0649	<i>SMARCC1</i>	chr3_47752232-47752232_C_T	287V>M	Substitution	Nonsynonymous
FPC0649	<i>SMARCC1</i>	chr3_47752298-47752298_C_T	265V>I	Substitution	Nonsynonymous
FPC0649	<i>SMARCD3</i>	chr7_150938994-150938994_C_T	249R>H	Substitution	Nonsynonymous
FPC0756	<i>SMC3</i>	chr10_112342336-112342336_A_G	247E>G	Substitution	Nonsynonymous
FPC0347	<i>SMG1</i>	chr16_18852993-18852993_G_C	2197P>R	Substitution	Nonsynonymous
FPC0438	<i>SMG1</i>	chr16_18840678-18840678_C_A	3178R>M	Substitution	Nonsynonymous
FPC0616	<i>SMG1</i>	chr16_18841007-18841009_AAA_	NA	Deletion	In-frame
FPC0649	<i>SMG6</i>	chr17_2203926-2203926_G_A	41R>C	Substitution	Nonsynonymous
FPC0748	<i>SMPD3</i>	chr16_68405439-68405439_C_A	216G>C	Substitution	Nonsynonymous
Pa230	<i>SNAP91</i>	chr6_84304147-84304147_C_T	460A>T	Substitution	Nonsynonymous
Pa230	<i>SNCAIP</i>	chr5_121776330-121776330_A_T	435I>F	Substitution	Nonsynonymous
FPC0652	<i>SNRPF</i>	chr12_96259162-96259162_A_T	64I>L	Substitution	Nonsynonymous
FPC0625	<i>SNRPG</i>	chr2_70514418-70514418_C_A	89S>I	Substitution	Nonsynonymous
FPC0744	<i>SNTA1</i>	chr20_32000520-32000520_G_A	257A>V	Substitution	Nonsynonymous
FPC0347	<i>SOGA3</i>	chr6_127797568-127797568_C_A	535E>X	Substitution	Nonsense
FPC0759	<i>SORBS1</i>	chr10_97197258-97197258_C_T	22G>E	Substitution	Nonsynonymous
FPC0494	<i>SOWAHB</i>	chr4_77817612-77817612_C_G	464G>A	Substitution	Nonsynonymous
Pa229	<i>SOX5</i>	chr12_23818482-23818482_G_C	276P>R	Substitution	Nonsynonymous
FPC0649	<i>SP9</i>	chr2_175201342-175201342_G_T	177A>S	Substitution	Nonsynonymous
FPC0627	<i>SPAG17</i>	chr1_118644361-118644361_A_	NA	Deletion	Splicing

FPC0652	<i>SPATA18</i>	chr4_52945961-52945961_G_A	411V>I	Substitution	Nonsynonymous
FPC0344	<i>SPATC1</i>	chr8_145096225-145096225_C_T	467R>W	Substitution	Nonsynonymous
FPC0649	<i>SPATS2L</i>	chr2_201342480-201342480_G_A	468R>H	Substitution	Nonsynonymous
FPC0652	<i>SPATS2L</i>	chr2_201342515-201342515_C_T	480R>W	Substitution	Nonsynonymous
Pa228	<i>SPDYE4</i>	chr17_8660702-8660702_C_T	73R>H	Substitution	Nonsynonymous
Pa102	<i>SPEG</i>	chr2_220313453-220313453_CCAT	NA	Insertion	Frameshift
FPC0737	<i>SPG11</i>	chr15_44944092-44944092_G_C	351N>K	Substitution	Nonsynonymous
Pa230	<i>SPHKAP</i>	chr2_228883900-228883900_G_T	557A>D	Substitution	Nonsynonymous
FPC0649	<i>SPII</i>	chr11_47397252-47397252_G_A	26T>M	Substitution	Nonsynonymous
Pa228	<i>SPONI</i>	chr11_13984492-13984492_C_T	14P>L	Substitution	Nonsynonymous
Pa222	<i>SPPL2C</i>	chr17_43922928-43922928_G_A	219R>Q	Substitution	Nonsynonymous
FPC0649	<i>SPRED1</i>	chr15_38643689-38643689_T_A	387F>I	Substitution	Nonsynonymous
FPC0737	<i>SPRY1</i>	chr4_124323063-124323063_C_T	106A>V	Substitution	Nonsynonymous
FPC0652	<i>SPTAN1</i>	chr9_131388967-131388967_G_A	NA	Substitution	Splicing
FPC0745	<i>SPTAN1</i>	chr9_131346247-131346247_A_G	731Q>R	Substitution	Nonsynonymous
Pa228	<i>SPTB</i>	chr14_65264500-65264500_T_C	377N>D	Substitution	Nonsynonymous
FPC0649	<i>SPTBN5</i>	chr15_42167715-42167716_CA_	NA	Deletion	Frameshift
FPC0070	<i>SRFBP1</i>	chr5_121356311-121356311_G_A	294R>Q	Substitution	Nonsynonymous
FPC0347	<i>SRRM2</i>	chr16_2809011-2809011_C_T	207R>W	Substitution	Nonsynonymous
FPC0652	<i>SRRM4</i>	chr12_119583235-119583235_C_T	274P>L	Substitution	Nonsynonymous
FPC0745	<i>SSH1</i>	chr12_109196141-109196141_A_C	320S>A	Substitution	Nonsynonymous
FPC0476	<i>SSPO</i>	chr7_149510793-149510793_G_A	3360V>M	Substitution	Nonsynonymous
Pa102	<i>ST14</i>	chr11_130068884-130068884_A_G	576N>S	Substitution	Nonsynonymous
FPC0494	<i>ST5</i>	chr11_8734210-8734210_T_C	687E>G	Substitution	Nonsynonymous
Pa229	<i>STAB2</i>	chr12_104136295-104136295_G_T	1998E>D	Substitution	Nonsynonymous
FPC0625	<i>STAM2</i>	chr2_153004817-153004817_A_	NA	Deletion	Splicing
Pa102	<i>STAT5B</i>	chr17_40359678-40359678_G_A	659R>C	Substitution	Nonsynonymous
FPC0746	<i>STBD1</i>	chr4_77227941-77227941_G_A	7A>T	Substitution	Nonsynonymous
FPC0135	<i>STC1</i>	chr8_23709859-23709859_C_T	53G>S	Substitution	Nonsynonymous
Pa228	<i>STK24</i>	chr13_99105453-99105453_T_G	436S>R	Substitution	Nonsynonymous
FPC0746	<i>STK38L</i>	chr12_27461319-27461319_A_	NA	Insertion	Frameshift
Pa222	<i>STXBP1</i>	chr9_130444732-130444732_G_A	532R>H	Substitution	Nonsynonymous
FPC0627	<i>SUDS3</i>	chr12_118828946-118828946_C_T	126R>X	Substitution	Nonsense
FPC0625	<i>SVEP1</i>	chr9_113137746-113137746_A_	NA	Deletion	Splicing
FPC0625	<i>SVEP1</i>	chr9_113137746-113137748_AAA_	NA	Deletion	Splicing
Pa101	<i>SYCP2</i>	chr20_58467047-58467047_T	NA	Insertion	Frameshift
FPC0649	<i>SYNDIG1</i>	chr20_24523888-24523888_G_A	52R>Q	Substitution	Nonsynonymous
FPC0652	<i>SYNE1</i>	chr6_152776647-152776647_G_A	936R>X	Substitution	Nonsense
FPC0759	<i>SYNE1</i>	chr6_152737804-152737804_G_A	1923A>V	Substitution	Nonsynonymous
FPC0347	<i>SYNJ1</i>	chr21_34038745-34038745_G_C	650I>M	Substitution	Nonsynonymous
Pa231	<i>SYNM</i>	chr15_99672770-99672770_G_A	1401R>K	Substitution	Nonsynonymous
FPC0745	<i>SYT1</i>	chr12_79693277-79693277_T	NA	Insertion	Frameshift
FPC0745	<i>SYT10</i>	chr12_33532801-33532801_C_T	489R>Q	Substitution	Nonsynonymous
FPC0737	<i>SYT14</i>	chr4_68928723-68928723_C_A	35C>F	Substitution	Nonsynonymous
FPC0746	<i>SYT14</i>	chr1_210267681-210267681_A_T	153R>X	Substitution	Nonsense
Pa101	<i>TANC2</i>	chr17_61483557-61483557_G_A	1096A>T	Substitution	Nonsynonymous
FPC0625	<i>TANK</i>	chr2_162036188-162036188_T_G	5I>M	Substitution	Nonsynonymous
FPC0649	<i>TAOK2</i>	chr16_29998315-29998315_G_A	908G>R	Substitution	Nonsynonymous
FPC0494	<i>TAS1R1</i>	chr1_6630992-6630992_G_T	72G>V	Substitution	Nonsynonymous
FPC0476	<i>TAS2R7</i>	chr12_10954544-10954544_C_T	209R>Q	Substitution	Nonsynonymous
FPC0627	<i>TBC1D14</i>	chr4_6925336-6925336_G_A	74G>R	Substitution	Nonsynonymous
FPC0476	<i>TBC1D23</i>	chr3_100014147-100014147_G_T	243E>X	Substitution	Nonsense
Pa101	<i>TBC1D5</i>	chr3_17349597-17349597_T_G	342E>A	Substitution	Nonsynonymous
FPC0737	<i>TBLXR1</i>	chr3_176769378-176769378_G_A	114A>V	Substitution	Nonsynonymous
Pa222	<i>TCERG1L</i>	chr10_133107472-133107472_C_A	145A>S	Substitution	Nonsynonymous
Pa228	<i>TCF12</i>	chr15_57574705-57574705_G_A	681V>I	Substitution	Nonsynonymous
Pa102	<i>TCF21</i>	chr6_134212933-134212933_C_G	178A>G	Substitution	Nonsynonymous
Pa230	<i>TCF7</i>	chr5_133477982-133477982_T_G	248F>V	Substitution	Nonsynonymous
FPC0344	<i>TCOF1</i>	chr5_149776183-149776183_G_A	1337E>K	Substitution	Nonsynonymous
Pa101	<i>TCP10</i>	chr6_167790110-167790110_C_T	167R>H	Substitution	Nonsynonymous
FPC0070	<i>TDRD15</i>	chr2_21363738-21363738_G_T	1133E>D	Substitution	Nonsynonymous
Pa227	<i>TDRD15</i>	chr2_21362784-21362784_G_T	815W>C	Substitution	Nonsynonymous
Pa222	<i>TDRD9</i>	chr14_104501344-104501344_G_A	1223G>S	Substitution	Nonsynonymous
FPC0135	<i>TEKT3</i>	chr17_15217494-15217494_G_A	263T>M	Substitution	Nonsynonymous
FPC0627	<i>TEKT3</i>	chr17_15207273-15207273_G_A	485R>W	Substitution	Nonsynonymous
Pa230	<i>TENM3</i>	chr4_183652080-183652080_C_T	919R>X	Substitution	Nonsense
FPC0649	<i>TENM4</i>	chr11_78380510-78380510_C_T	2294D>N	Substitution	Nonsynonymous
FPC0747	<i>TFIP11</i>	chr22_26895297-26895297_G_A	368R>W	Substitution	Nonsynonymous

FPC0737	<i>TGFBR2</i>	chr3_30729962-30729962_C_T	520R>X	Substitution	Nonsense
FPC0476	<i>TH</i>	chr11_2190908-2190908_G_A	126A>V	Substitution	Nonsynonymous
FPC0625	<i>THAP2</i>	chr12_72070509-72070509_G_C	103C>S	Substitution	Nonsynonymous
FPC0747	<i>THEMIS2</i>	chr1_28206445-28206445_C_T	176R>X	Substitution	Nonsense
Pa228	<i>THSD7B</i>	chr2_137917932-137917932_A_	NA	Deletion	Frameshift
FPC0728	<i>TIAM2</i>	chr6_155504488-155504488_G_A	973R>Q	Substitution	Nonsynonymous
Pa229	<i>TIMM23</i>	chr10_51620361-51620361_G_C	43S>C	Substitution	Nonsynonymous
Pa228	<i>TJP3</i>	chr19_3728660-3728660_C_A	55S>Y	Substitution	Nonsynonymous
Pa231	<i>TLE3</i>	chr15_70343800-70343800_C_T	714W>X	Substitution	Nonsense
FPC0344	<i>TLX3</i>	chr5_170737196-170737196_G_A	155G>D	Substitution	Nonsynonymous
FPC0081	<i>TM2D3</i>	chr15_102191909-102191909_G_	NA	Deletion	Frameshift
Pa102	<i>TMEM132B</i>	chr12_126138972-126138972_C_A	985L>M	Substitution	Nonsynonymous
FPC0737	<i>TMEM132D</i>	chr12_129559212-129559212_A_T	836S>R	Substitution	Nonsynonymous
FPC0745	<i>TMEM132E</i>	chr17_32959783-32959783_G_A	425A>T	Substitution	Nonsynonymous
FPC0438	<i>TMEM168</i>	chr7_112424331-112424331_C_A	184V>F	Substitution	Nonsynonymous
FPC0747	<i>TMEM168</i>	chr7_112424721-112424721_C_T	54V>I	Substitution	Nonsynonymous
FPC0438	<i>TMEM173</i>	chr5_138857888-138857888_G_T	242N>K	Substitution	Nonsynonymous
FPC0135	<i>TMEM184C</i>	chr4_148550778-148550778_G_A	201E>K	Substitution	Nonsynonymous
FPC0744	<i>TMEM2</i>	chr9_74345134-74345134_A_T	603H>Q	Substitution	Nonsynonymous
FPC0494	<i>TMEM213</i>	chr7_138482751-138482751_C_A	19Q>K	Substitution	Nonsynonymous
FPC0652	<i>TMEM237</i>	chr2_202494461-202494461_C_T	223R>Q	Substitution	Nonsynonymous
FPC0747	<i>TMEM44</i>	chr3_194344021-194344021_C_T	182G>S	Substitution	Nonsynonymous
FPC0751	<i>TMEM45A</i>	chr3_100287685-100287685_C_T	203P>L	Substitution	Nonsynonymous
Pa230	<i>TMEM5</i>	chr12_64196186-64196186_G_T	NA	Substitution	Splicing
FPC0652	<i>TMEM63C</i>	chr14_77706951-77706951_G_A	355R>H	Substitution	Nonsynonymous
FPC0494	<i>TMIGD2</i>	chr19_4292807-4292807_C_T	213G>E	Substitution	Nonsynonymous
Pa101	<i>TMTC3</i>	chr12_88586434-88586434_T_C	587L>P	Substitution	Nonsynonymous
FPC0737	<i>TNC</i>	chr9_117836073-117836073_G_A	1008P>L	Substitution	Nonsynonymous
FPC0625	<i>TNFAIP6</i>	chr2_152236046-152236047_AA_	NA	Deletion	Frameshift
FPC0747	<i>TNFSF9</i>	chr19_6534939-6534939_C_	NA	Deletion	Frameshift
FPC0746	<i>TNNI3</i>	chr19_55668461-55668461_C_T	22R>H	Substitution	Nonsynonymous
FPC0347	<i>TNS3</i>	chr7_47408573-47408573_C_T	557S>N	Substitution	Nonsynonymous
FPC0625	<i>TNS3</i>	chr7_47342790-47342790_G_A	1072T>M	Substitution	Nonsynonymous
FPC0728	<i>TNXB</i>	chr6_32037602-32037602_C_T	1772R>H	Substitution	Nonsynonymous
FPC0438	<i>TOE1</i>	chr1_45808874-45808874_C_T	345R>W	Substitution	Nonsynonymous
FPC0070	<i>TP53</i>	chr17_7577022-7577022_G_A	306R>X	Substitution	Nonsense
FPC0135	<i>TP53</i>	chr17_7577539-7577539_G_A	248R>W	Substitution	Nonsynonymous
FPC0344	<i>TP53</i>	chr17_7576928-7576928_T_C	NA	Substitution	Splicing
FPC0438	<i>TP53</i>	chr17_7578192-7578192_G_	NA	Insertion	Frameshift
FPC0476	<i>TP53</i>	chr17_7577570-7577570_C_T	237M>I	Substitution	Nonsynonymous
FPC0525	<i>TP53</i>	chr17_7578478-7578478_G_C	151P>R	Substitution	Nonsynonymous
FPC0612	<i>TP53</i>	chr17_7577094-7577094_G_A	282R>W	Substitution	Nonsynonymous
FPC0616	<i>TP53</i>	chr17_7579355-7579355_A_G	111L>P	Substitution	Nonsynonymous
FPC0625	<i>TP53</i>	chr17_7579495-7579495_G_	NA	Deletion	Frameshift
FPC0627	<i>TP53</i>	chr17_7577121-7577121_G_A	273R>C	Substitution	Nonsynonymous
FPC0649	<i>TP53</i>	chr17_7578212-7578212_G_A	213R>X	Substitution	Nonsense
FPC0652	<i>TP53</i>	chr17_7578203-7578203_C_T	216V>M	Substitution	Nonsynonymous
FPC0726	<i>TP53</i>	chr17_7577568-7577570_CAC_	NA	Deletion	In-frame
FPC0744	<i>TP53</i>	chr17_7577535-7577535_C_A	249R>M	Substitution	Nonsynonymous
FPC0745	<i>TP53</i>	chr17_7578406-7578406_C_T	175R>H	Substitution	Nonsynonymous
FPC0746	<i>TP53</i>	chr17_7577120-7577120_C_T	273R>H	Substitution	Nonsynonymous
FPC0747	<i>TP53</i>	chr17_7577568-7577568_C_T	238C>Y	Substitution	Nonsynonymous
FPC0748	<i>TP53</i>	chr17_7577112-7577112_C_G	276A>P	Substitution	Nonsynonymous
FPC0751	<i>TP53</i>	chr17_7578442-7578442_T_C	163Y>C	Substitution	Nonsynonymous
FPC0759	<i>TP53</i>	chr17_7577115-7577115_A_G	275C>R	Substitution	Nonsynonymous
Pa101	<i>TP53</i>	chr17_7577036-7577036_G_	NA	Insertion	Frameshift
Pa102	<i>TP53</i>	chr17_7577117-7577117_A_G	274V>A	Substitution	Nonsynonymous
Pa222	<i>TP53</i>	chr17_7574009-7574012_TCTC_	NA	Deletion	Frameshift
Pa222	<i>TP53</i>	chr17_7574013-7574013_G_C	338F>L	Substitution	Nonsynonymous
Pa227	<i>TP53</i>	chr17_7578263-7578263_G_A	196R>X	Substitution	Nonsense
Pa227	<i>TP53</i>	chr17_7578266-7578266_T_A	195I>F	Substitution	Nonsynonymous
Pa228	<i>TP53</i>	chr17_7578554-7578554_A_C	126Y>D	Substitution	Nonsynonymous
Pa229	<i>TP53</i>	chr17_7577120-7577120_C_	NA	Deletion	Frameshift
Pa230	<i>TP53</i>	chr17_7576928-7576928_T_C	NA	Substitution	Splicing
Pa231	<i>TP53</i>	chr17_7577538-7577538_C_T	248R>Q	Substitution	Nonsynonymous
Pa101	<i>TPSAB1</i>	chr16_1291226-1291226_A_G	45Q>R	Substitution	Nonsynonymous
FPC0652	<i>TRAF1</i>	chr9_123675635-123675635_G_A	226R>C	Substitution	Nonsynonymous
FPC0745	<i>TRAPPC12</i>	chr2_3392385-3392385_G_A	331V>M	Substitution	Nonsynonymous

Pa229	<i>TRGC1</i>	chr7_38299727-38299727_T_C	100R>G	Substitution	Nonsynonymous
Pa230	<i>TRIM23</i>	chr5_64892267-64892267_A_C	467H>Q	Substitution	Nonsynonymous
FPC0616	<i>TRIML1</i>	chr4_189061730-189061730_G_T	153A>S	Substitution	Nonsynonymous
FPC0751	<i>TRIO</i>	chr5_14359638-14359638_G_A	797D>N	Substitution	Nonsynonymous
FPC0748	<i>TRMT10C</i>	chr3_101283824-101283824_A_T	67K>X	Substitution	Nonsense
FPC0627	<i>TRO</i>	chrX_54956485-54956485_G_A	1110G>S	Substitution	Nonsynonymous
FPC0645	<i>TRO</i>	chrX_54956515-54956515_G_A	1120G>S	Substitution	Nonsynonymous
FPC0135	<i>TRPC3</i>	chr4_122853484-122853484_G_A	310T>M	Substitution	Nonsynonymous
FPC0625	<i>TRPC4</i>	chr13_38320595-38320596_AA_	NA	Deletion	Splicing
FPC0751	<i>TRPM5</i>	chr11_2427966-2427966_T_A	1059K>M	Substitution	Nonsynonymous
FPC0728	<i>TRPV4</i>	chr12_110246208-110246208_C_T	151R>Q	Substitution	Nonsynonymous
FPC0347	<i>TSC2</i>	chr16_2125846-2125846_G_C	864Q>H	Substitution	Nonsynonymous
FPC0347	<i>TSC2</i>	chr16_2125848-2125848_A_T	865Y>F	Substitution	Nonsynonymous
FPC0476	<i>TSPAN10</i>	chr17_79615121-79615121_G_A	289A>T	Substitution	Nonsynonymous
Pa101	<i>TSPAN19</i>	chr12_85423572-85423572_A_	NA	Deletion	Splicing
Pa229	<i>TSPEAR</i>	chr21_45987892-45987892_G_A	NA	Substitution	Splicing
Pa102	<i>TST</i>	chr22_37414349-37414349_G_A	142T>I	Substitution	Nonsynonymous
FPC0737	<i>TTC1</i>	chr5_159437618-159437618_G_A	28C>Y	Substitution	Nonsynonymous
FPC0745	<i>TTC14</i>	chr3_180327954-180327954_G_T	646R>I	Substitution	Nonsynonymous
FPC0135	<i>TTN</i>	chr2_179486707-179486707_A_T	12413I>N	Substitution	Nonsynonymous
FPC0344	<i>TTN</i>	chr2_179501172-179501172_C_T	11193R>H	Substitution	Nonsynonymous
FPC0347	<i>TTN</i>	chr2_179603006-179603006_C_A	3481S>I	Substitution	Nonsynonymous
Pa228	<i>TTN</i>	chr2_179587536-179587536_G_A	6120R>W	Substitution	Nonsynonymous
Pa227	<i>TUBB6</i>	chr18_12325092-12325092_G_A	102A>T	Substitution	Nonsynonymous
FPC0737	<i>TULP4</i>	chr6_158922708-158922708_G_G	NA	Substitution	Splicing
FPC0347	<i>TVP23C</i>	chr17_15443734-15443734_A_G	202W>R	Substitution	Nonsynonymous
FPC0347	<i>TVP23C</i>	chr17_15443742-15443742_C_G	199S>T	Substitution	Nonsynonymous
FPC0625	<i>TVP23C</i>	chr17_15343522-15343522_T_C	NA	Substitution	Splicing
FPC0759	<i>TXNDC2</i>	chr18_9887329-9887329_T_C	285S>P	Substitution	Nonsynonymous
Pa231	<i>TXNDC9</i>	chr2_99936266-99936266_A_	NA	Deletion	Splicing
Pa102	<i>TYRP1</i>	chr9_12702411-12702411_ACAA_	NA	Deletion	Frameshift
FPC0081	<i>U2AF2</i>	chr19_56172500-56172500_T_A	144M>K	Substitution	Nonsynonymous
FPC0744	<i>UBE2J1</i>	chr6_90042839-90042839_G_C	215P>R	Substitution	Nonsynonymous
Pa222	<i>UBE2J1</i>	chr6_90047964-90047964_G_C	130L>V	Substitution	Nonsynonymous
FPC0625	<i>UBE3B</i>	chr12_109924383-109924386_AACA_	NA	Deletion	Splicing
FPC0625	<i>UBE3B</i>	chr12_109924384-109924385_AC_	NA	Deletion	Splicing
FPC0652	<i>UBR3</i>	chr2_170871808-170871808_G_A	NA	Insertion	Frameshift
FPC0347	<i>UBR4</i>	chr1_19510544-19510544_A_T	688S>R	Substitution	Nonsynonymous
Pa101	<i>UBR4</i>	chr1_19446082-19446082_A_T	3475F>Y	Substitution	Nonsynonymous
Pa101	<i>UCP1</i>	chr4_141489105-141489105_A_T	51S>R	Substitution	Nonsynonymous
FPC0625	<i>UGDH</i>	chr4_39511531-39511531_A_	NA	Deletion	Splicing
FPC0347	<i>UGGT1</i>	chr2_128903391-128903391_C_G	622Y>X	Substitution	Nonsense
Pa231	<i>UNC5A</i>	chr5_176304576-176304576_G_A	503V>I	Substitution	Nonsynonymous
FPC0652	<i>UPK3A</i>	chr22_45685025-45685025_G_A	NA	Substitution	Splicing
FPC0347	<i>URGCP</i>	chr7_43918481-43918481_G_A	194S>L	Substitution	Nonsynonymous
FPC0616	<i>USF2</i>	chr19_35761632-35761632_G_A	198V>I	Substitution	Nonsynonymous
FPC0727	<i>USH2A</i>	chr1_216363567-216363567_G_A	1465A>V	Substitution	Nonsynonymous
FPC0751	<i>USP35</i>	chr11_77921330-77921330_G_A	810R>H	Substitution	Nonsynonymous
FPC0616	<i>VASN</i>	chr16_4430957-4430957_G_A	27G>S	Substitution	Nonsynonymous
Pa227	<i>VHLL</i>	chr1_156268713-156268713_G_A	90R>C	Substitution	Nonsynonymous
FPC0745	<i>VIPAS39</i>	chr14_77896056-77896056_C_T	412E>K	Substitution	Nonsynonymous
FPC0744	<i>VPS13D</i>	chr1_12438525-12438525_G_T	3654G>V	Substitution	Nonsynonymous
FPC0625	<i>VPS35</i>	chr16_46708575-46708575_A_	NA	Deletion	Splicing
Pa227	<i>VPS4B</i>	chr18_61089473-61089473_T_C	7N>S	Substitution	Nonsynonymous
FPC0728	<i>VPS52</i>	chr6_33231813-33231813_C_T	531R>Q	Substitution	Nonsynonymous
FPC0745	<i>VPS8</i>	chr3_184588550-184588550_G_T	564C>F	Substitution	Nonsynonymous
FPC0751	<i>VRK2</i>	chr2_58386554-58386554_A_	NA	Insertion	Frameshift
FPC0476	<i>VRK3</i>	chr19_50512610-50512610_T_G	58T>P	Substitution	Nonsynonymous
FPC0525	<i>VRTN</i>	chr14_74824463-74824463_G_A	326R>Q	Substitution	Nonsynonymous
FPC0625	<i>VWA3B</i>	chr2_98907090-98907090_T_	NA	Insertion	Frameshift
FPC0476	<i>VWCE</i>	chr11_61026391-61026391_G_A	875S>L	Substitution	Nonsynonymous
FPC0476	<i>VWF</i>	chr12_6138531-6138531_C_T	982V>M	Substitution	Nonsynonymous
FPC0737	<i>WAC</i>	chr10_28878720-28878720_A_G	146Y>C	Substitution	Nonsynonymous
Pa228	<i>WAS</i>	chrX_48542706-48542706_C_T	56A>V	Substitution	Nonsynonymous
Pa102	<i>WASF2</i>	chr1_27741432-27741432_C_T	188R>Q	Substitution	Nonsynonymous
Pa229	<i>WDFY3</i>	chr4_85708835-85708835_G_A	1234S>L	Substitution	Nonsynonymous
Pa229	<i>WDFY4</i>	chr10_50081701-50081701_C_T	2303R>C	Substitution	Nonsynonymous
FPC0728	<i>WDR1</i>	chr4_10079453-10079453_G_T	498S>Y	Substitution	Nonsynonymous

FPC0494	<i>WDR17</i>	chr4_177073053-177073053_G_A	823A>T	Substitution	Nonsynonymous
FPC0344	<i>WDR3</i>	chr1_118475967-118475967_C_T	9R>C	Substitution	Nonsynonymous
Pa231	<i>WDR66</i>	chr5_117773701-117773701_G_T	208L>I	Substitution	Nonsynonymous
FPC0525	<i>WDR78</i>	chr1_67306159-67306159_G_T	496T>K	Substitution	Nonsynonymous
FPC0347	<i>WDR81</i>	chr17_1631350-1631352_GAG_	NA	Deletion	In-frame
FPC0476	<i>WFS1</i>	chr4_6303708-6303708_A_G	729D>G	Substitution	Nonsynonymous
FPC0744	<i>WNK4</i>	chr17_40935976-40935976_G_T	271E>D	Substitution	Nonsynonymous
FPC0744	<i>WNK4</i>	chr17_40935977-40935977_A_T	272M>L	Substitution	Nonsynonymous
FPC0494	<i>WWC1</i>	chr5_167826492-167826492_G_A	NA	Substitution	Splicing
FPC0745	<i>XIRP2</i>	chr2_168108339-168108339_T_A	3479N>K	Substitution	Nonsynonymous
Pa229	<i>XKR5</i>	chr8_6673373-6673373_T_G	292D>A	Substitution	Nonsynonymous
FPC0347	<i>XPNPEP2</i>	chrX_128884450-128884450_C_T	215T>I	Substitution	Nonsynonymous
FPC0625	<i>XPO4</i>	chr13_21370399-21370399_A_	NA	Deletion	Splicing
FPC0070	<i>YTHDC1</i>	chr4_69188627-69188627_C_A	481E>X	Substitution	Nonsense
FPC0746	<i>ZBBX</i>	chr3_167039950-167039952_TCT_	NA	Deletion	In-frame
FPC0744	<i>ZBTB10</i>	chr8_81399227-81399227_G_	NA	Deletion	Frameshift
FPC0759	<i>ZBTB17</i>	chr1_16270769-16270769_G_A	403A>V	Substitution	Nonsynonymous
Pa101	<i>ZBTB21</i>	chr21_43412930-43412932_AGT_	NA	Deletion	In-frame
FPC0652	<i>ZBTB46</i>	chr20_62378341-62378341_G_A	571S>L	Substitution	Nonsynonymous
FPC0745	<i>ZC3H12B</i>	chrX_64722293-64722293_G_	NA	Insertion	Frameshift
FPC0494	<i>ZC3H18</i>	chr16_88695191-88695193_GCT_	NA	Deletion	In-frame
FPC0746	<i>ZFP42</i>	chr4_188924752-188924752_C_T	264T>M	Substitution	Nonsynonymous
FPC0652	<i>ZIC1</i>	chr3_147128434-147128434_G_A	179G>S	Substitution	Nonsynonymous
FPC0525	<i>ZMAT1</i>	chrX_101138613-101138613_G_A	596R>X	Substitution	Nonsense
FPC0737	<i>ZMYM3</i>	chrX_70467303-70467303_G_A	736R>C	Substitution	Nonsynonymous
FPC0745	<i>ZMYM3</i>	chrX_70470042-70470042_T_A	362N>I	Substitution	Nonsynonymous
Pa229	<i>ZNF134</i>	chr19_58132520-58132520_G_T	345E>X	Substitution	Nonsense
FPC0746	<i>ZNF148</i>	chr3_124951967-124951967_C_T	535V>I	Substitution	Nonsynonymous
Pa231	<i>ZNF19</i>	chr16_71510176-71510176_C_A	NA	Substitution	Splicing
FPC0625	<i>ZNF234</i>	chr19_44662272-44662272_A_T	701*>C	Substitution	Nonsynonymous
Pa222	<i>ZNF330</i>	chr4_142153743-142153743_C_G	212P>R	Substitution	Nonsynonymous
FPC0745	<i>ZNF337</i>	chr20_25656692-25656692_C_T	411R>Q	Substitution	Nonsynonymous
FPC0745	<i>ZNF43</i>	chr19_21992086-21992086_A_T	251N>K	Substitution	Nonsynonymous
FPC0625	<i>ZNF451</i>	chr6_56963875-56963875_C_A	41P>H	Substitution	Nonsynonymous
Pa222	<i>ZNF462</i>	chr9_109690782-109690782_T_C	1530V>A	Substitution	Nonsynonymous
Pa230	<i>ZNF48</i>	chr16_30409205-30409205_C_T	212R>W	Substitution	Nonsynonymous
FPC0070	<i>ZNF556</i>	chr19_2877513-2877513_G_A	186R>H	Substitution	Nonsynonymous
FPC0751	<i>ZNF571</i>	chr19_38056754-38056754_C_A	192E>D	Substitution	Nonsynonymous
FPC0745	<i>ZNF592</i>	chr15_85343170-85343170_A_G	1079T>A	Substitution	Nonsynonymous
FPC0070	<i>ZNF606</i>	chr19_58490501-58490501_T_G	516E>A	Substitution	Nonsynonymous
Pa228	<i>ZNF623</i>	chr8_144733502-144733502_A_G	487Y>C	Substitution	Nonsynonymous
FPC0747	<i>ZNF644</i>	chr1_91403886-91403886_T_A	1009K>X	Substitution	Nonsense
Pa222	<i>ZNF652</i>	chr17_47394922-47394922_C_A	56G>X	Substitution	Nonsense
FPC0759	<i>ZNF682</i>	chr19_20117230-20117230_C_T	361V>I	Substitution	Nonsynonymous
FPC0625	<i>ZNF714</i>	chr19_21299774-21299774_T_A	102Y>N	Substitution	Nonsynonymous
FPC0745	<i>ZNF746</i>	chr7_149171580-149171580_G_	NA	Deletion	Frameshift
FPC0746	<i>ZNF785</i>	chr16_30594329-30594329_G_A	257A>V	Substitution	Nonsynonymous
Pa227	<i>ZNF804B</i>	chr7_88956781-88956781_T_G	125S>A	Substitution	Nonsynonymous
FPC0737	<i>ZNF841</i>	chr19_52568760-52568760_G_A	792P>L	Substitution	Nonsynonymous
FPC0744	<i>ZNFX1</i>	chr20_47864839-47864839_G_T	1574F>L	Substitution	Nonsynonymous
Pa102	<i>ZSCAN1</i>	chr19_58564841-58564841_C_G	217P>A	Substitution	Nonsynonymous
FPC0745	<i>ZZZ3</i>	chr1_78045264-78045264_G_A	677S>F	Substitution	Nonsynonymous

<sup>a</sup>Genomic coordinates are in hg19 human genome format and are on the + strand. <sup>b</sup>NA - not applicable as variant is INDEL and/or splice site.

FPC - familial pancreatic cancer

**Supplementary Table S12.** Summary of somatic mutation data for FPC patient tumors by gene

<b>Gene</b>	<b>Number of somatic mutations</b>	<b>Number of FPC patients with somatic mutation in tumor</b>	<b>Percentage of FPC patients with a somatic mutation in tumor (%)</b>
<i>KRAS</i>	33	33	84.6
<i>TP53</i>	30	28	71.8
<i>SMAD4</i>	13	13	33.3
<i>CDKN2A</i>	5	5	12.8
<i>NEB</i>	4	4	10.3
<i>RYR1</i>	4	4	10.3
<i>TTN</i>	4	4	10.3
<i>ARHGEF4</i>	3	3	7.7
<i>ARID1A</i>	3	3	7.7
<i>DCHS1</i>	3	3	7.7
<i>DNAH7</i>	4	3	7.7
<i>FBN2</i>	3	3	7.7
<i>LRP1B</i>	3	3	7.7
<i>MYO7B</i>	3	3	7.7
<i>PCDH15</i>	3	3	7.7
<i>SMG1</i>	3	3	7.7
<i>ACVR2A</i>	2	2	5.1
<i>AMER3</i>	2	2	5.1
<i>AMOT</i>	2	2	5.1
<i>ANO2</i>	2	2	5.1
<i>BOC</i>	2	2	5.1
<i>CACNA1H</i>	2	2	5.1
<i>CARD10</i>	2	2	5.1
<i>CDH19</i>	2	2	5.1
<i>COL11A1</i>	2	2	5.1
<i>CREB3L1</i>	2	2	5.1
<i>CUL9</i>	2	2	5.1
<i>CFAP47</i>	2	2	5.1
<i>DHX34</i>	2	2	5.1
<i>DYNC2H1</i>	2	2	5.1
<i>ECD</i>	2	2	5.1
<i>EVPL</i>	2	2	5.1
<i>FANCM</i>	2	2	5.1
<i>FAT2</i>	2	2	5.1
<i>GLI3</i>	2	2	5.1
<i>HCN4</i>	2	2	5.1
<i>HS3ST1</i>	2	2	5.1
<i>KCNT2</i>	3	2	5.1
<i>KIAA1109</i>	2	2	5.1
<i>KIAA2022</i>	2	2	5.1
<i>LRP2</i>	2	2	5.1
<i>LYST</i>	2	2	5.1
<i>MAGI2</i>	2	2	5.1
<i>MAP2K1</i>	2	2	5.1
<i>KMT2C</i>	2	2	5.1
<i>MMEL1</i>	2	2	5.1
<i>MTMR1</i>	2	2	5.1
<i>NLRP5</i>	2	2	5.1
<i>NPHS1</i>	2	2	5.1
<i>NRAP</i>	2	2	5.1



<i>NRXN3</i>	2	2	5.1
<i>OBSCN</i>	2	2	5.1
<i>PAPPA2</i>	2	2	5.1
<i>PCLO</i>	2	2	5.1
<i>PEAR1</i>	2	2	5.1
<i>PGR</i>	2	2	5.1
<i>PLEC</i>	2	2	5.1
<i>PLXNA2</i>	2	2	5.1
<i>PNPT1</i>	2	2	5.1
<i>PXDNL</i>	2	2	5.1
<i>RIMS1</i>	2	2	5.1
<i>ROBO2</i>	2	2	5.1
<i>RPGR</i>	3	2	5.1
<i>SACS</i>	2	2	5.1
<i>SALL1</i>	2	2	5.1
<i>SCN3A</i>	2	2	5.1
<i>SEMA6D</i>	2	2	5.1
<i>SGOL2</i>	2	2	5.1
<i>SKP2</i>	3	2	5.1
<i>SLC6A15</i>	2	2	5.1
<i>SLIT2</i>	2	2	5.1
<i>SPATS2L</i>	2	2	5.1
<i>SPTAN1</i>	2	2	5.1
<i>SYNE1</i>	2	2	5.1
<i>SYT14</i>	2	2	5.1
<i>TDRD15</i>	2	2	5.1
<i>TEKT3</i>	2	2	5.1
<i>TMEM168</i>	2	2	5.1
<i>TNS3</i>	2	2	5.1
<i>TRO</i>	2	2	5.1
<i>TVP23C</i>	3	2	5.1
<i>UBE2J1</i>	2	2	5.1
<i>UBR4</i>	2	2	5.1
<i>ZMYM3</i>	2	2	5.1
<i>SEPT5</i>	1	1	2.6
<i>AADAC</i>	1	1	2.6
<i>ABCA1</i>	1	1	2.6
<i>ABCA10</i>	1	1	2.6
<i>ABCA13</i>	2	1	2.6
<i>ABCA6</i>	1	1	2.6
<i>ABCA8</i>	1	1	2.6
<i>ABCC11</i>	1	1	2.6
<i>ABCC4</i>	1	1	2.6
<i>ABCC5</i>	1	1	2.6
<i>ABCC6</i>	1	1	2.6
<i>ABCG4</i>	1	1	2.6
<i>ABI3BP</i>	2	1	2.6
<i>AC009336.1</i>	1	1	2.6
<i>AC034236.1</i>	1	1	2.6
<i>AC134980.3</i>	1	1	2.6
<i>ACACA</i>	1	1	2.6
<i>ACACB</i>	1	1	2.6
<i>ACADS</i>	1	1	2.6
<i>ACHE</i>	1	1	2.6

<i>ACLY</i>	1	1	2.6
<i>ACTR10</i>	1	1	2.6
<i>ACVR1B</i>	1	1	2.6
<i>ADAM11</i>	1	1	2.6
<i>ADAM23</i>	1	1	2.6
<i>ADAM29</i>	1	1	2.6
<i>ADAMTS3</i>	1	1	2.6
<i>ADAMTSL2</i>	1	1	2.6
<i>ADAT3</i>	1	1	2.6
<i>ADCY1</i>	1	1	2.6
<i>ADCY7</i>	1	1	2.6
<i>ADCY8</i>	1	1	2.6
<i>ADD2</i>	2	1	2.6
<i>ADIPOQ</i>	1	1	2.6
<i>ADPRHL1</i>	1	1	2.6
<i>ADRA2B</i>	1	1	2.6
<i>ADRA2C</i>	1	1	2.6
<i>AFF1</i>	1	1	2.6
<i>AGBL5</i>	1	1	2.6
<i>AGPAT3</i>	1	1	2.6
<i>AGPS</i>	1	1	2.6
<i>AHSP</i>	1	1	2.6
<i>AK9</i>	1	1	2.6
<i>AKNA</i>	1	1	2.6
<i>AKR1C3</i>	1	1	2.6
<i>AL117190.6</i>	1	1	2.6
<i>AL365190.16</i>	1	1	2.6
<i>ALCAM</i>	1	1	2.6
<i>ALDH3B1</i>	1	1	2.6
<i>ALDH9A1</i>	1	1	2.6
<i>ALDOA</i>	1	1	2.6
<i>ALG9</i>	1	1	2.6
<i>ALOX12B</i>	1	1	2.6
<i>ALPK3</i>	1	1	2.6
<i>AMY2A</i>	1	1	2.6
<i>ANAPC1</i>	1	1	2.6
<i>ANKDD1B</i>	1	1	2.6
<i>ANKHD1</i>	1	1	2.6
<i>ANKRD17</i>	1	1	2.6
<i>ANKRD40</i>	1	1	2.6
<i>ANKS1B</i>	1	1	2.6
<i>ANO7</i>	1	1	2.6
<i>AP2A1</i>	1	1	2.6
<i>AP4B1</i>	1	1	2.6
<i>APCDD1L</i>	1	1	2.6
<i>APIP</i>	1	1	2.6
<i>APLP1</i>	1	1	2.6
<i>AQP12A</i>	1	1	2.6
<i>AQR</i>	1	1	2.6
<i>ARFGEF1</i>	1	1	2.6
<i>ARHGAP17</i>	1	1	2.6
<i>ARHGAP18</i>	1	1	2.6
<i>ARHGAP20</i>	1	1	2.6
<i>ARHGAP22</i>	1	1	2.6

<i>ARHGAP23</i>	1	1	2.6
<i>ARHGAP26</i>	1	1	2.6
<i>ARHGAP27</i>	1	1	2.6
<i>ARHGAP44</i>	1	1	2.6
<i>ARHGEF1</i>	1	1	2.6
<i>ARID2</i>	1	1	2.6
<i>ARID3C</i>	1	1	2.6
<i>ARMC4</i>	1	1	2.6
<i>ARMCX5</i>	1	1	2.6
<i>ARR3</i>	1	1	2.6
<i>ARSK</i>	1	1	2.6
<i>ART3</i>	1	1	2.6
<i>ASB2</i>	1	1	2.6
<i>ASH1L</i>	1	1	2.6
<i>ASIC2</i>	1	1	2.6
<i>ASPH</i>	1	1	2.6
<i>ASTL</i>	1	1	2.6
<i>ATAD2B</i>	1	1	2.6
<i>ATAD3B</i>	1	1	2.6
<i>ATF6B</i>	1	1	2.6
<i>ATP10D</i>	1	1	2.6
<i>ATP8A2</i>	1	1	2.6
<i>ATRX</i>	1	1	2.6
<i>AUP1</i>	1	1	2.6
<i>B3GALT1</i>	1	1	2.6
<i>ADGRB2</i>	1	1	2.6
<i>ADGRB3</i>	1	1	2.6
<i>BBS12</i>	1	1	2.6
<i>BCAS1</i>	1	1	2.6
<i>BCL2A1</i>	1	1	2.6
<i>BCL6</i>	1	1	2.6
<i>BCLAF1</i>	1	1	2.6
<i>BEND4</i>	1	1	2.6
<i>BICD2</i>	1	1	2.6
<i>BIN1</i>	1	1	2.6
<i>BIRC6</i>	1	1	2.6
<i>BOLL</i>	1	1	2.6
<i>BPTF</i>	1	1	2.6
<i>BRCA2</i>	1	1	2.6
<i>BRD9</i>	1	1	2.6
<i>BTBD10</i>	1	1	2.6
<i>BTG2</i>	1	1	2.6
<i>BUB1B</i>	1	1	2.6
<i>BZW2</i>	1	1	2.6
<i>EDRF1</i>	1	1	2.6
<i>C10orf76</i>	1	1	2.6
<i>C10orf90</i>	1	1	2.6
<i>C11orf87</i>	1	1	2.6
<i>C14orf169</i>	1	1	2.6
<i>C15orf40</i>	1	1	2.6
<i>PRR35</i>	1	1	2.6
<i>C16orf71</i>	1	1	2.6
<i>C16orf93</i>	1	1	2.6
<i>C16orf96</i>	1	1	2.6

<i>C17orf104</i>	1	1	2.6
<i>C17orf97</i>	1	1	2.6
<i>C19orf26</i>	1	1	2.6
<i>C1orf100</i>	1	1	2.6
<i>C1orf147</i>	1	1	2.6
<i>CIART</i>	1	1	2.6
<i>CFAP61</i>	2	1	2.6
<i>C2orf40</i>	1	1	2.6
<i>C5orf47</i>	1	1	2.6
<i>C6orf10</i>	1	1	2.6
<i>ZBED6CL</i>	1	1	2.6
<i>CABP2</i>	1	1	2.6
<i>CACNA1E</i>	1	1	2.6
<i>CACNA1G</i>	1	1	2.6
<i>CACNA1I</i>	2	1	2.6
<i>CAD</i>	1	1	2.6
<i>CALCR</i>	1	1	2.6
<i>CALD1</i>	1	1	2.6
<i>CAMTA1</i>	1	1	2.6
<i>CAND1</i>	1	1	2.6
<i>CANT1</i>	1	1	2.6
<i>CASQ2</i>	1	1	2.6
<i>CATSPER1</i>	1	1	2.6
<i>CBFA2T3</i>	1	1	2.6
<i>CBX8</i>	1	1	2.6
<i>CCBL1</i>	1	1	2.6
<i>CCDC109B</i>	1	1	2.6
<i>CCDC114</i>	1	1	2.6
<i>CCDC125</i>	1	1	2.6
<i>CCDC13</i>	1	1	2.6
<i>CCDC146</i>	1	1	2.6
<i>CCDC169</i>	1	1	2.6
<i>CCDC175</i>	2	1	2.6
<i>CCDC39</i>	1	1	2.6
<i>CCDC40</i>	1	1	2.6
<i>CCDC53</i>	1	1	2.6
<i>CCDC67</i>	1	1	2.6
<i>CCDC71</i>	1	1	2.6
<i>CCDC8</i>	1	1	2.6
<i>CCDS757.1</i>	1	1	2.6
<i>CCNC</i>	1	1	2.6
<i>CCNJ</i>	1	1	2.6
<i>CCPG1</i>	1	1	2.6
<i>CCSER2</i>	1	1	2.6
<i>CCT7</i>	1	1	2.6
<i>CD163</i>	1	1	2.6
<i>CD163L1</i>	1	1	2.6
<i>CD177</i>	1	1	2.6
<i>CD1A</i>	1	1	2.6
<i>CD44</i>	1	1	2.6
<i>CD70</i>	1	1	2.6
<i>CD81</i>	1	1	2.6
<i>CD93</i>	1	1	2.6
<i>CDC26</i>	1	1	2.6

<i>CDC42BPB</i>	1	1	2.6
<i>CDC7</i>	1	1	2.6
<i>CDH2</i>	1	1	2.6
<i>CDH22</i>	1	1	2.6
<i>CDH23</i>	1	1	2.6
<i>CDH3</i>	1	1	2.6
<i>CDH4</i>	1	1	2.6
<i>CDH8</i>	1	1	2.6
<i>CDHR1</i>	1	1	2.6
<i>CDK13</i>	1	1	2.6
<i>CDK9</i>	1	1	2.6
<i>CEACAM20</i>	2	1	2.6
<i>CECR2</i>	1	1	2.6
<i>CELF1</i>	1	1	2.6
<i>CELF5</i>	1	1	2.6
<i>CELF6</i>	1	1	2.6
<i>CEP104</i>	1	1	2.6
<i>CERS4</i>	1	1	2.6
<i>CES1</i>	1	1	2.6
<i>CFP</i>	1	1	2.6
<i>CHD5</i>	1	1	2.6
<i>CHN2</i>	1	1	2.6
<i>CHRD</i>	1	1	2.6
<i>CHRNA1</i>	1	1	2.6
<i>CHRN2</i>	1	1	2.6
<i>CHRNA1</i>	1	1	2.6
<i>CHRNA2</i>	1	1	2.6
<i>CHRNA3</i>	1	1	2.6
<i>CHRNA4</i>	1	1	2.6
<i>CHRNA5</i>	1	1	2.6
<i>CHRNA6</i>	1	1	2.6
<i>CHRNA7</i>	1	1	2.6
<i>CHRNA8</i>	1	1	2.6
<i>CHRNA9</i>	1	1	2.6
<i>CHRNA10</i>	1	1	2.6
<i>CHRNA11</i>	1	1	2.6
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<i>CHRNA14</i>	1	1	2.6
<i>CHRNA15</i>	1	1	2.6
<i>CHRNA16</i>	1	1	2.6
<i>CHRNA17</i>	1	1	2.6
<i>CHRNA18</i>	1	1	2.6
<i>CHRNA19</i>	1	1	2.6
<i>CHRNA20</i>	1	1	2.6
<i>CHRNA21</i>	1	1	2.6
<i>CHRNA22</i>	1	1	2.6
<i>CHRNA23</i>	1	1	2.6
<i>CHRNA24</i>	1	1	2.6
<i>CHRNA25</i>	1	1	2.6
<i>CHRNA26</i>	1	1	2.6
<i>CHRNA27</i>	1	1	2.6
<i>CHRNA28</i>	1	1	2.6
<i>CHRNA29</i>	1	1	2.6
<i>CHRNA30</i>	1	1	2.6
<i>CHRNA31</i>	1	1	2.6
<i>CHRNA32</i>	1	1	2.6
<i>CHRNA33</i>	1	1	2.6
<i>CHRNA34</i>	1	1	2.6
<i>CHRNA35</i>	1	1	2.6
<i>CHRNA36</i>	1	1	2.6
<i>CHRNA37</i>	1	1	2.6
<i>CHRNA38</i>	1	1	2.6
<i>CHRNA39</i>	1	1	2.6
<i>CHRNA40</i>	1	1	2.6
<i>CHRNA41</i>	1	1	2.6
<i>CHRNA42</i>	1	1	2.6
<i>CHRNA43</i>	1	1	2.6
<i>CHRNA44</i>	1	1	2.6
<i>CHRNA45</i>	1	1	2.6
<i>CHRNA46</i>	1	1	2.6
<i>CHRNA47</i>	1	1	2.6
<i>CHRNA48</i>	1	1	2.6
<i>CHRNA49</i>	1	1	2.6
<i>CHRNA50</i>	1	1	2.6
<i>CHRNA51</i>	1	1	2.6
<i>CHRNA52</i>	1	1	2.6
<i>CHRNA53</i>	1	1	2.6
<i>CHRNA54</i>	1	1	2.6
<i>CHRNA55</i>	1	1	2.6
<i>CHRNA56</i>	1	1	2.6
<i>CHRNA57</i>	1	1	2.6
<i>CHRNA58</i>	1	1	2.6
<i>CHRNA59</i>	1	1	2.6
<i>CHRNA60</i>	1	1	2.6
<i>CHRNA61</i>	1	1	2.6
<i>CHRNA62</i>	1	1	2.6
<i>CHRNA63</i>	1	1	2.6
<i>CHRNA64</i>	1	1	2.6
<i>CHRNA65</i>	1	1	2.6
<i>CHRNA66</i>	1	1	2.6
<i>CHRNA67</i>	1	1	2.6
<i>CHRNA68</i>	1	1	2.6
<i>CHRNA69</i>	1	1	2.6
<i>CHRNA70</i>	1	1	2.6
<i>CHRNA71</i>	1	1	2.6
<i>CHRNA72</i>	1	1	2.6
<i>CHRNA73</i>	1	1	2.6
<i>CHRNA74</i>	1	1	2.6
<i>CHRNA75</i>	1	1	2.6
<i>CHRNA76</i>	1	1	2.6
<i>CHRNA77</i>	1	1	2.6
<i>CHRNA78</i>	1	1	2.6
<i>CHRNA79</i>	1	1	2.6
<i>CHRNA80</i>	1	1	2.6
<i>CHRNA81</i>	1	1	2.6
<i>CHRNA82</i>	1	1	2.6
<i>CHRNA83</i>	1	1	2.6
<i>CHRNA84</i>	1	1	2.6
<i>CHRNA85</i>	1	1	2.6
<i>CHRNA86</i>	1	1	2.6
<i>CHRNA87</i>	1	1	2.6
<i>CHRNA88</i>	1	1	2.6
<i>CHRNA89</i>	1	1	2.6
<i>CHRNA90</i>	1	1	2.6
<i>CHRNA91</i>	1	1	2.6
<i>CHRNA92</i>	1	1	2.6
<i>CHRNA93</i>	1	1	2.6
<i>CHRNA94</i>	1	1	2.6
<i>CHRNA95</i>	1	1	2.6
<i>CHRNA96</i>	1	1	2.6
<i>CHRNA97</i>	1	1	2.6
<i>CHRNA98</i>	1	1	2.6
<i>CHRNA99</i>	1	1	2.6
<i>CHRNA100</i>	1	1	2.6

<i>CSMD3</i>	1	1	2.6
<i>CSNK1A1L</i>	1	1	2.6
<i>CSNK1G2-AS1</i>	1	1	2.6
<i>CTD-2611O12.2</i>	1	1	2.6
<i>CTNND1</i>	1	1	2.6
<i>CTSD</i>	1	1	2.6
<i>CTSK</i>	1	1	2.6
<i>CUL1</i>	1	1	2.6
<i>CWF19L2</i>	1	1	2.6
<i>CYP1A1</i>	1	1	2.6
<i>CYP21A2</i>	1	1	2.6
<i>CYP26B1</i>	1	1	2.6
<i>CYP46A1</i>	1	1	2.6
<i>DAB1</i>	1	1	2.6
<i>DCAF12L2</i>	1	1	2.6
<i>DCAF13</i>	1	1	2.6
<i>DCC</i>	1	1	2.6
<i>DCLK2</i>	1	1	2.6
<i>DCSTAMP</i>	1	1	2.6
<i>DDX17</i>	1	1	2.6
<i>DDX41</i>	1	1	2.6
<i>DDX42</i>	1	1	2.6
<i>DDX52</i>	1	1	2.6
<i>DDX60L</i>	1	1	2.6
<i>DENND3</i>	1	1	2.6
<i>DGKD</i>	1	1	2.6
<i>DGKK</i>	1	1	2.6
<i>DHX57</i>	1	1	2.6
<i>DIDO1</i>	1	1	2.6
<i>DKFZP686J19100</i>	1	1	2.6
<i>DKFZP779J2370</i>	1	1	2.6
<i>DLC1</i>	1	1	2.6
<i>DLGAP3</i>	1	1	2.6
<i>DMBT1</i>	1	1	2.6
<i>DNAH10</i>	1	1	2.6
<i>DNAH11</i>	1	1	2.6
<i>DNAH5</i>	1	1	2.6
<i>DNAH6</i>	1	1	2.6
<i>DNAH9</i>	1	1	2.6
<i>DNAJC10</i>	1	1	2.6
<i>DNAJC17</i>	1	1	2.6
<i>DNHD1</i>	1	1	2.6
<i>DNMT3L</i>	1	1	2.6
<i>DOK3</i>	1	1	2.6
<i>DOT1L</i>	1	1	2.6
<i>DPP3</i>	1	1	2.6
<i>DPP7</i>	1	1	2.6
<i>DRD1</i>	1	1	2.6
<i>DUSP16</i>	1	1	2.6
<i>DVL1</i>	1	1	2.6
<i>DVL3</i>	1	1	2.6
<i>DYNC1L1I</i>	1	1	2.6
<i>DYTN</i>	1	1	2.6
<i>EBF1</i>	1	1	2.6

<i>EBNA1BP2</i>	1	1	2.6
<i>EFCAB13</i>	1	1	2.6
<i>EFCAB7</i>	1	1	2.6
<i>MICU3</i>	1	1	2.6
<i>EHBP1</i>	1	1	2.6
<i>EI24</i>	2	1	2.6
<i>EIF2AK3</i>	1	1	2.6
<i>EIF2B2</i>	1	1	2.6
<i>AGO2</i>	1	1	2.6
<i>EIF2S3L</i>	1	1	2.6
<i>EIF3A</i>	1	1	2.6
<i>ELF4</i>	1	1	2.6
<i>ELMO2</i>	1	1	2.6
<i>EP400</i>	1	1	2.6
<i>EPB41L4B</i>	1	1	2.6
<i>EPHA6</i>	1	1	2.6
<i>EPHA8</i>	1	1	2.6
<i>EPHB1</i>	1	1	2.6
<i>EPHB4</i>	1	1	2.6
<i>EPS8</i>	1	1	2.6
<i>EPT1</i>	1	1	2.6
<i>ERAP1</i>	2	1	2.6
<i>ERF</i>	1	1	2.6
<i>ERLIN1</i>	1	1	2.6
<i>ESPNL</i>	1	1	2.6
<i>EVC</i>	1	1	2.6
<i>EXOC3L1</i>	1	1	2.6
<i>EXOC6</i>	1	1	2.6
<i>EXOC8</i>	1	1	2.6
<i>EXOSC9</i>	1	1	2.6
<i>EYS</i>	1	1	2.6
<i>F2</i>	1	1	2.6
<i>F7</i>	1	1	2.6
<i>FAM109A</i>	1	1	2.6
<i>FAM111B</i>	1	1	2.6
<i>FAM117B</i>	1	1	2.6
<i>FAM122A</i>	1	1	2.6
<i>FAM135A</i>	1	1	2.6
<i>FAM171B</i>	1	1	2.6
<i>FAM19A4</i>	1	1	2.6
<i>FAM205BP</i>	1	1	2.6
<i>FAM209B</i>	1	1	2.6
<i>FAM46A</i>	1	1	2.6
<i>BRINP3</i>	1	1	2.6
<i>FAM63B</i>	1	1	2.6
<i>FAT1</i>	1	1	2.6
<i>FAT4</i>	1	1	2.6
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<i>FBLN1</i>	1	1	2.6
<i>FBN1</i>	1	1	2.6
<i>FBXL13</i>	1	1	2.6
<i>FBXO21</i>	1	1	2.6
<i>FBXO46</i>	1	1	2.6
<i>FCRL4</i>	1	1	2.6

<i>FCRL5</i>	2	1	2.6
<i>FEM1C</i>	1	1	2.6
<i>FFAR1</i>	1	1	2.6
<i>FGD1</i>	1	1	2.6
<i>FGF5</i>	1	1	2.6
<i>FGFR2</i>	1	1	2.6
<i>FGL1</i>	1	1	2.6
<i>FKRP</i>	1	1	2.6
<i>FLCN</i>	1	1	2.6
<i>FLNC</i>	1	1	2.6
<i>FLT1</i>	1	1	2.6
<i>FLT4</i>	3	1	2.6
<i>FLVCR1</i>	1	1	2.6
<i>FMO3</i>	1	1	2.6
<i>FOXB2</i>	1	1	2.6
<i>FREM3</i>	1	1	2.6
<i>FSCN1</i>	1	1	2.6
<i>FSHR</i>	1	1	2.6
<i>FUBP1</i>	1	1	2.6
<i>FUT7</i>	1	1	2.6
<i>GABBR1</i>	1	1	2.6
<i>GABRA6</i>	1	1	2.6
<i>GABRB3</i>	1	1	2.6
<i>GAD2</i>	1	1	2.6
<i>GAL3ST3</i>	1	1	2.6
<i>GALNT10</i>	1	1	2.6
<i>GALNT14</i>	1	1	2.6
<i>GALNT16</i>	1	1	2.6
<i>GAMT</i>	1	1	2.6
<i>GANC</i>	1	1	2.6
<i>GAS2</i>	1	1	2.6
<i>GBAP1</i>	1	1	2.6
<i>GEMIN5</i>	1	1	2.6
<i>GFMI</i>	1	1	2.6
<i>GGN</i>	1	1	2.6
<i>GIPC1</i>	1	1	2.6
<i>GIPR</i>	1	1	2.6
<i>GJA3</i>	1	1	2.6
<i>GJA9</i>	1	1	2.6
<i>GKNI</i>	1	1	2.6
<i>GLS</i>	1	1	2.6
<i>GMIP</i>	1	1	2.6
<i>GNB2</i>	1	1	2.6
<i>GOLGA4</i>	1	1	2.6
<i>GOLGA6L2</i>	1	1	2.6
<i>GPAT2</i>	1	1	2.6
<i>GPC4</i>	1	1	2.6
<i>GPC5</i>	1	1	2.6
<i>GPCPD1</i>	1	1	2.6
<i>GPM6B</i>	1	1	2.6
<i>ADGRG4</i>	1	1	2.6
<i>ADGRA3</i>	1	1	2.6
<i>ADGRD1</i>	1	1	2.6
<i>GPR142</i>	1	1	2.6



<i>GPR156</i>	1	1	2.6
<i>GPR32</i>	1	1	2.6
<i>GPR39</i>	1	1	2.6
<i>GPR50</i>	1	1	2.6
<i>ADGRV1</i>	1	1	2.6
<i>GPRASP2</i>	1	1	2.6
<i>GRAMD1B</i>	1	1	2.6
<i>GRB10</i>	1	1	2.6
<i>GRB14</i>	1	1	2.6
<i>GRIA2</i>	1	1	2.6
<i>GRIA3</i>	1	1	2.6
<i>GRID1</i>	1	1	2.6
<i>GRID2IP</i>	1	1	2.6
<i>GRIK4</i>	1	1	2.6
<i>GRIPAP1</i>	1	1	2.6
<i>GRK1</i>	1	1	2.6
<i>GRK7</i>	1	1	2.6
<i>GRM5</i>	1	1	2.6
<i>GSDMB</i>	1	1	2.6
<i>GTF3C1</i>	1	1	2.6
<i>GYS1</i>	1	1	2.6
<i>GYS2</i>	1	1	2.6
<i>H2AFY2</i>	1	1	2.6
<i>HACL1</i>	1	1	2.6
<i>HAPLN1</i>	1	1	2.6
<i>HAT1</i>	1	1	2.6
<i>HBB</i>	1	1	2.6
<i>HBP1</i>	1	1	2.6
<i>HDAC7</i>	1	1	2.6
<i>HECTD1</i>	1	1	2.6
<i>HEPACAM</i>	1	1	2.6
<i>HEPN1</i>	1	1	2.6
<i>HERC1</i>	1	1	2.6
<i>HERC2</i>	1	1	2.6
<i>HFM1</i>	1	1	2.6
<i>HGS</i>	1	1	2.6
<i>HIAT1</i>	1	1	2.6
<i>HIGD2B</i>	1	1	2.6
<i>HIP1R</i>	1	1	2.6
<i>HIRA</i>	1	1	2.6
<i>HIST1H4B</i>	1	1	2.6
<i>HIVEP3</i>	1	1	2.6
<i>HK2</i>	1	1	2.6
<i>HMCN1</i>	1	1	2.6
<i>HMCN2</i>	1	1	2.6
<i>HNRNPM</i>	1	1	2.6
<i>HRNR</i>	1	1	2.6
<i>HSCB</i>	1	1	2.6
<i>HSD17B2</i>	1	1	2.6
<i>HSD17B3</i>	1	1	2.6
<i>HSF4</i>	1	1	2.6
<i>HSH2D</i>	1	1	2.6
<i>HSPA1L</i>	1	1	2.6
<i>HSPA6</i>	1	1	2.6

<i>HSPA9</i>	1	1	2.6
<i>HSPG2</i>	1	1	2.6
<i>HTR7</i>	1	1	2.6
<i>HTR7P1</i>	1	1	2.6
<i>HYDIN</i>	1	1	2.6
<i>HYOU1</i>	1	1	2.6
<i>IAH1</i>	1	1	2.6
<i>IARS</i>	1	1	2.6
<i>IGDCC3</i>	1	1	2.6
<i>IGHA1</i>	1	1	2.6
<i>IGLV3-27</i>	1	1	2.6
<i>IGSF1</i>	1	1	2.6
<i>IGSF10</i>	1	1	2.6
<i>IGSF9B</i>	1	1	2.6
<i>IL13RA2</i>	1	1	2.6
<i>IL17B</i>	1	1	2.6
<i>ILDR1</i>	1	1	2.6
<i>ILF3</i>	1	1	2.6
<i>INO80</i>	1	1	2.6
<i>INTS12</i>	1	1	2.6
<i>IQCE</i>	1	1	2.6
<i>IQCF6</i>	1	1	2.6
<i>IQCH</i>	1	1	2.6
<i>IRAK1</i>	1	1	2.6
<i>IREB2</i>	1	1	2.6
<i>IRS1</i>	1	1	2.6
<i>IRX6</i>	1	1	2.6
<i>ISLR</i>	1	1	2.6
<i>ISX</i>	1	1	2.6
<i>ITGA7</i>	1	1	2.6
<i>ITGAX</i>	1	1	2.6
<i>ITIH5</i>	1	1	2.6
<i>ITPR3</i>	1	1	2.6
<i>ITSN1</i>	1	1	2.6
<i>IVL</i>	1	1	2.6
<i>JAM2</i>	1	1	2.6
<i>JPH4</i>	1	1	2.6
<i>JUNB</i>	1	1	2.6
<i>KCNA5</i>	1	1	2.6
<i>KCNA7</i>	1	1	2.6
<i>KCNE5</i>	1	1	2.6
<i>KCNG1</i>	1	1	2.6
<i>KCNG2</i>	1	1	2.6
<i>KCNG3</i>	1	1	2.6
<i>KCNH1</i>	1	1	2.6
<i>KCNK15</i>	1	1	2.6
<i>KCNK16</i>	1	1	2.6
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<i>KCNMB3</i>	1	1	2.6
<i>KCNN2</i>	1	1	2.6
<i>KCNQ2</i>	1	1	2.6
<i>KCNV2</i>	1	1	2.6
<i>KCTD6</i>	1	1	2.6
<i>KDM3A</i>	1	1	2.6

<i>KDM4C</i>	1	1	2.6
<i>KIAA0556</i>	1	1	2.6
<i>ICE1</i>	1	1	2.6
<i>KIAA1211L</i>	1	1	2.6
<i>ARFGEF3</i>	1	1	2.6
<i>KIAA1407</i>	1	1	2.6
<i>KIAA1462</i>	1	1	2.6
<i>KIAA1524</i>	1	1	2.6
<i>KIAA1671</i>	1	1	2.6
<i>KIAA1755</i>	1	1	2.6
<i>CCAR2</i>	1	1	2.6
<i>KIF13A</i>	1	1	2.6
<i>KIF1B</i>	1	1	2.6
<i>KIF26A</i>	1	1	2.6
<i>KL</i>	1	1	2.6
<i>KLF17</i>	1	1	2.6
<i>KLHDC7A</i>	1	1	2.6
<i>KLHL2</i>	1	1	2.6
<i>KLRF1</i>	3	1	2.6
<i>KNDC1</i>	1	1	2.6
<i>KNTC1</i>	1	1	2.6
<i>KRT2</i>	1	1	2.6
<i>KRT24</i>	1	1	2.6
<i>KRT84</i>	1	1	2.6
<i>KRTAP24-1</i>	1	1	2.6
<i>KRTAP3-2</i>	1	1	2.6
<i>KY</i>	1	1	2.6
<i>LAMA1</i>	1	1	2.6
<i>LAMA3</i>	1	1	2.6
<i>LAMA5</i>	1	1	2.6
<i>LAMC1</i>	1	1	2.6
<i>LARP7</i>	1	1	2.6
<i>LASIL</i>	1	1	2.6
<i>LEMD3</i>	1	1	2.6
<i>P3H3</i>	1	1	2.6
<i>LHX5</i>	1	1	2.6
<i>LIMK1</i>	1	1	2.6
<i>LIN7A</i>	1	1	2.6
<i>LINC00521</i>	1	1	2.6
<i>LIPE</i>	1	1	2.6
<i>LIPF</i>	1	1	2.6
<i>LIPH</i>	1	1	2.6
<i>LIX1</i>	1	1	2.6
<i>LMLN</i>	1	1	2.6
<i>LMTK3</i>	1	1	2.6
<i>LPA</i>	1	1	2.6
<i>ADGRL1</i>	1	1	2.6
<i>LPIN3</i>	1	1	2.6
<i>LRP6</i>	1	1	2.6
<i>LRRC24</i>	1	1	2.6
<i>NRROS</i>	1	1	2.6
<i>LRRC55</i>	1	1	2.6
<i>LRRC71</i>	1	1	2.6
<i>LRRIQ1</i>	1	1	2.6

<i>LRRK2</i>	1	1	2.6
<i>LRRTM1</i>	1	1	2.6
<i>LRRTM3</i>	1	1	2.6
<i>LSM12</i>	1	1	2.6
<i>LTBP1</i>	1	1	2.6
<i>LTBP3</i>	1	1	2.6
<i>LTF</i>	1	1	2.6
<i>LYNX1</i>	1	1	2.6
<i>MAGEB10</i>	1	1	2.6
<i>MAGEB17</i>	1	1	2.6
<i>MAGEB18</i>	1	1	2.6
<i>MAML2</i>	1	1	2.6
<i>MAN2A1</i>	1	1	2.6
<i>MAP1S</i>	1	1	2.6
<i>MAP2K4</i>	1	1	2.6
<i>MAPK15</i>	1	1	2.6
<i>MAPK8</i>	1	1	2.6
<i>MATN4</i>	1	1	2.6
<i>MBD5</i>	1	1	2.6
<i>MBLAC2</i>	1	1	2.6
<i>MCF2L2</i>	1	1	2.6
<i>MCTP1</i>	1	1	2.6
<i>MDN1</i>	1	1	2.6
<i>MED27</i>	1	1	2.6
<i>MEGF10</i>	1	1	2.6
<i>MGA</i>	1	1	2.6
<i>MGAT4A</i>	1	1	2.6
<i>MGAT5</i>	1	1	2.6
<i>MICALL1</i>	1	1	2.6
<i>MIR223</i>	1	1	2.6
<i>MIR525</i>	1	1	2.6
<i>MIR936</i>	1	1	2.6
<i>MIRLET7E</i>	1	1	2.6
<i>KMT2D</i>	1	1	2.6
<i>MMP2</i>	1	1	2.6
<i>MMP27</i>	1	1	2.6
<i>MOGAT1</i>	1	1	2.6
<i>MOV10L1</i>	1	1	2.6
<i>MPC2</i>	1	1	2.6
<i>MPHOSPH9</i>	1	1	2.6
<i>MRE11A</i>	1	1	2.6
<i>MROH6</i>	1	1	2.6
<i>MRPL30</i>	1	1	2.6
<i>MRPS31</i>	1	1	2.6
<i>MRPS5</i>	1	1	2.6
<i>MS4A14</i>	1	1	2.6
<i>MTMR12</i>	1	1	2.6
<i>MTSS1</i>	1	1	2.6
<i>MUC19</i>	1	1	2.6
<i>MUC20</i>	1	1	2.6
<i>MVP</i>	1	1	2.6
<i>MYCBP2</i>	1	1	2.6
<i>MYH11</i>	1	1	2.6
<i>MYH13</i>	1	1	2.6

<i>MYH8</i>	1	1	2.6
<i>MYL1</i>	1	1	2.6
<i>MYO18A</i>	1	1	2.6
<i>MYO1F</i>	1	1	2.6
<i>MYO3A</i>	1	1	2.6
<i>MYO5C</i>	1	1	2.6
<i>MYO9B</i>	1	1	2.6
<i>MYRIP</i>	1	1	2.6
<i>NAA15</i>	1	1	2.6
<i>NADK</i>	1	1	2.6
<i>NAGA</i>	1	1	2.6
<i>NALCN</i>	1	1	2.6
<i>NAPSA</i>	1	1	2.6
<i>ICE2</i>	1	1	2.6
<i>NAV2</i>	1	1	2.6
<i>NBEAL2</i>	1	1	2.6
<i>NCAMI</i>	1	1	2.6
<i>NCAM2</i>	1	1	2.6
<i>NCK1</i>	1	1	2.6
<i>NCMAP</i>	1	1	2.6
<i>NDN</i>	1	1	2.6
<i>NDNF</i>	1	1	2.6
<i>NDST1</i>	1	1	2.6
<i>NDUFAF3</i>	1	1	2.6
<i>NDUFB4</i>	1	1	2.6
<i>NEMF</i>	1	1	2.6
<i>NFKBIZ</i>	1	1	2.6
<i>NFXL1</i>	1	1	2.6
<i>NKX6-3</i>	1	1	2.6
<i>NLRP12</i>	1	1	2.6
<i>NLRP4</i>	1	1	2.6
<i>NNT</i>	1	1	2.6
<i>NOA1</i>	1	1	2.6
<i>NOL11</i>	1	1	2.6
<i>NOL4</i>	1	1	2.6
<i>NOX1</i>	1	1	2.6
<i>NPAP1</i>	1	1	2.6
<i>NPFFR2</i>	1	1	2.6
<i>NPL</i>	1	1	2.6
<i>NPLOC4</i>	1	1	2.6
<i>NR1H2</i>	1	1	2.6
<i>NR5A2</i>	1	1	2.6
<i>NRXN1</i>	1	1	2.6
<i>NT5C1B</i>	1	1	2.6
<i>NT5E</i>	1	1	2.6
<i>NTNG1</i>	1	1	2.6
<i>NUDT17</i>	1	1	2.6
<i>NXNL1</i>	1	1	2.6
<i>OBSL1</i>	1	1	2.6
<i>OGDHL</i>	1	1	2.6
<i>OPRK1</i>	1	1	2.6
<i>OR10A2</i>	1	1	2.6
<i>OR10AD1</i>	1	1	2.6
<i>OR10C1</i>	1	1	2.6

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<i>OR14K1</i>	1	1	2.6
<i>OR2C1</i>	1	1	2.6
<i>OR2T2</i>	1	1	2.6
<i>OR2T8</i>	1	1	2.6
<i>OR2W1</i>	1	1	2.6
<i>OR4M2</i>	1	1	2.6
<i>OR4N2</i>	1	1	2.6
<i>OR51Q1</i>	1	1	2.6
<i>OR52A5</i>	1	1	2.6
<i>OR5A1</i>	1	1	2.6
<i>OR5D17P</i>	1	1	2.6
<i>OR8B2</i>	1	1	2.6
<i>OSBP</i>	1	1	2.6
<i>OSBPL6</i>	1	1	2.6
<i>OXCT2</i>	1	1	2.6
<i>P2RX2</i>	1	1	2.6
<i>P2RY4</i>	1	1	2.6
<i>P2RY6</i>	1	1	2.6
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<i>PAIP1</i>	1	1	2.6
<i>PAK4</i>	1	1	2.6
<i>PAMR1</i>	1	1	2.6
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<i>PAPD4</i>	1	1	2.6
<i>PAPPA</i>	1	1	2.6
<i>PAQR8</i>	1	1	2.6
<i>PARP2</i>	1	1	2.6
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<i>PAXBPI</i>	1	1	2.6
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<i>PC</i>	1	1	2.6
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<i>PCDHA6</i>	1	1	2.6
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<i>PDE1B</i>	1	1	2.6
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<i>PDE6B</i>	1	1	2.6
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<i>PDPN</i>	1	1	2.6
<i>PDZRN4</i>	1	1	2.6
<i>PENK</i>	1	1	2.6
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<i>PIK3C2G</i>	1	1	2.6
<i>PIK3CA</i>	1	1	2.6
<i>PIK3R6</i>	1	1	2.6
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<i>PIWIL4</i>	1	1	2.6
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<i>PLEKHG3</i>	1	1	2.6
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<i>POLR2L</i>	1	1	2.6
<i>POP4</i>	1	1	2.6
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<i>PPP1R32</i>	1	1	2.6
<i>PPP2R2C</i>	1	1	2.6
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<i>PRDM14</i>	1	1	2.6
<i>PRDM7</i>	1	1	2.6
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<i>PRKAA1</i>	1	1	2.6
<i>PRKCG</i>	1	1	2.6
<i>PRKD2</i>	1	1	2.6
<i>PRNP</i>	1	1	2.6
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<i>PRPF6</i>	1	1	2.6
<i>PRPH</i>	1	1	2.6
<i>PRR12</i>	1	1	2.6
<i>PRRG4</i>	1	1	2.6
<i>PRRT2</i>	1	1	2.6
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<i>PRSS38</i>	2	1	2.6
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<i>PTPRS</i>	1	1	2.6
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<i>RAD23B</i>	1	1	2.6
<i>RAD54L</i>	1	1	2.6
<i>RADIL</i>	1	1	2.6
<i>RAG1</i>	1	1	2.6
<i>RASAL3</i>	1	1	2.6
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<i>RBFOX1</i>	1	1	2.6
<i>RBL1</i>	1	1	2.6
<i>RBM10</i>	1	1	2.6
<i>RBM3</i>	1	1	2.6
<i>RBM39</i>	2	1	2.6
<i>RBMXL3</i>	1	1	2.6
<i>RC3H2</i>	2	1	2.6
<i>RCVRN</i>	1	1	2.6
<i>RECQL</i>	1	1	2.6
<i>RELN</i>	1	1	2.6
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<i>RGCC</i>	1	1	2.6
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<i>RGS6</i>	1	1	2.6
<i>RHO</i>	1	1	2.6
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<i>RNF168</i>	1	1	2.6
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<i>RP11-863K10.7</i>	1	1	2.6
<i>RPGRIP1</i>	1	1	2.6
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<i>RTL1</i>	1	1	2.6
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<i>RTN4R</i>	1	1	2.6
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<i>SAP130</i>	1	1	2.6
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<i>SEC16A</i>	1	1	2.6
<i>SEC24A</i>	1	1	2.6
<i>SEC24D</i>	1	1	2.6
<i>SECISBP2</i>	1	1	2.6
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<i>SEMA3D</i>	1	1	2.6
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<i>SLC14A2</i>	1	1	2.6
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<i>SLC17A1</i>	1	1	2.6
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<i>SLC17A7</i>	1	1	2.6
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<i>SLC22A9</i>	2	1	2.6
<i>SLC23A3</i>	1	1	2.6
<i>SLC25A36</i>	2	1	2.6
<i>SLC25A42</i>	1	1	2.6
<i>SLC27A3</i>	1	1	2.6
<i>SLC27A6</i>	1	1	2.6
<i>SLC2A12</i>	1	1	2.6
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<i>SLC30A8</i>	1	1	2.6
<i>SLC34A1</i>	1	1	2.6
<i>SLC36A3</i>	1	1	2.6
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<i>SMG6</i>	1	1	2.6
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<i>SPHKAP</i>	1	1	2.6
<i>SPII</i>	1	1	2.6
<i>SPON1</i>	1	1	2.6
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<i>SRFBP1</i>	1	1	2.6
<i>SRRM2</i>	1	1	2.6
<i>SRRM4</i>	1	1	2.6
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<i>ST14</i>	1	1	2.6
<i>ST5</i>	1	1	2.6
<i>STAB2</i>	1	1	2.6
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<i>TCF21</i>	1	1	2.6
<i>TCF7</i>	1	1	2.6
<i>TCOF1</i>	1	1	2.6
<i>TCP10</i>	1	1	2.6
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<i>TFIP11</i>	1	1	2.6
<i>TGFBR2</i>	1	1	2.6
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<i>TIMM23</i>	1	1	2.6
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<i>TMEM44</i>	1	1	2.6
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<i>TST</i>	1	1	2.6
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<i>U2AF2</i>	1	1	2.6
<i>UBE3B</i>	2	1	2.6
<i>UBR3</i>	1	1	2.6
<i>UCP1</i>	1	1	2.6
<i>UGDH</i>	1	1	2.6
<i>UGGT1</i>	1	1	2.6
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<i>USH2A</i>	1	1	2.6
<i>USP35</i>	1	1	2.6
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<i>VHLL</i>	1	1	2.6
<i>VIPAS39</i>	1	1	2.6
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<i>VPS35</i>	1	1	2.6
<i>VPS4B</i>	1	1	2.6
<i>VPS52</i>	1	1	2.6
<i>VPS8</i>	1	1	2.6
<i>VRK2</i>	1	1	2.6
<i>VRK3</i>	1	1	2.6
<i>VRTN</i>	1	1	2.6
<i>VWA3B</i>	1	1	2.6
<i>VWCE</i>	1	1	2.6
<i>VWF</i>	1	1	2.6
<i>WAC</i>	1	1	2.6
<i>WAS</i>	1	1	2.6
<i>WASF2</i>	1	1	2.6
<i>WDFY3</i>	1	1	2.6
<i>WDFY4</i>	1	1	2.6
<i>WDR1</i>	1	1	2.6
<i>WDR17</i>	1	1	2.6
<i>WDR3</i>	1	1	2.6
<i>WDR66</i>	1	1	2.6
<i>WDR78</i>	1	1	2.6
<i>WDR81</i>	1	1	2.6
<i>WFS1</i>	1	1	2.6
<i>WNK4</i>	2	1	2.6
<i>WWC1</i>	1	1	2.6
<i>XIRP2</i>	1	1	2.6
<i>XKR5</i>	1	1	2.6
<i>XPNPEP2</i>	1	1	2.6
<i>XPO4</i>	1	1	2.6
<i>YTHDC1</i>	1	1	2.6
<i>ZBBX</i>	1	1	2.6
<i>ZBTB10</i>	1	1	2.6
<i>ZBTB17</i>	1	1	2.6
<i>ZBTB21</i>	1	1	2.6
<i>ZBTB46</i>	1	1	2.6
<i>ZC3H12B</i>	1	1	2.6
<i>ZC3H18</i>	1	1	2.6
<i>ZFP42</i>	1	1	2.6
<i>ZIC1</i>	1	1	2.6
<i>ZMAT1</i>	1	1	2.6
<i>ZNF134</i>	1	1	2.6
<i>ZNF148</i>	1	1	2.6
<i>ZNF19</i>	1	1	2.6
<i>ZNF234</i>	1	1	2.6
<i>ZNF330</i>	1	1	2.6
<i>ZNF337</i>	1	1	2.6
<i>ZNF43</i>	1	1	2.6

<i>ZNF451</i>	1	1	2.6
<i>ZNF462</i>	1	1	2.6
<i>ZNF48</i>	1	1	2.6
<i>ZNF556</i>	1	1	2.6
<i>ZNF571</i>	1	1	2.6
<i>ZNF592</i>	1	1	2.6
<i>ZNF606</i>	1	1	2.6
<i>ZNF623</i>	1	1	2.6
<i>ZNF644</i>	1	1	2.6
<i>ZNF652</i>	1	1	2.6
<i>ZNF682</i>	1	1	2.6
<i>ZNF714</i>	1	1	2.6
<i>ZNF746</i>	1	1	2.6
<i>ZNF785</i>	1	1	2.6
<i>ZNF804B</i>	1	1	2.6
<i>ZNF841</i>	1	1	2.6
<i>ZNFX1</i>	1	1	2.6
<i>ZSCAN1</i>	1	1	2.6
<i>ZZZ3</i>	1	1	2.6
<b>Total</b>	<b>1409</b>	<b>1373</b>	

FPC - familial pancreatic cancer.