

File S2: Assembly breakpoints observed in 20 or more samples from either the Flye or Shasta-Hapdup assemblies.

OMIM Gene	Number of samples with incomplete Flye assemblies	Number of samples with incomplete Shasta-Hapdup assemblies	within/near a segmental duplication
A2ML1	0	0	no
A4GALT	0	1	no
AAAS	0	0	no
AAGAB	0	0	no
AARS1	0	1	yes
AARS2	0	0	no
AASS	0	0	no
ABAT	0	0	no
ABCA1	0	0	no
ABCA12	3	1	no
ABCA2	0	0	no
ABCA3	0	0	yes
ABCA4	0	1	no
ABCA5	0	2	no
ABCA7	0	1	no
ABCB1	1	1	yes
ABCB11	0	0	no
ABCB4	1	0	no
ABCB6	0	0	no
ABCC1	0	0	no
ABCC11	0	0	no
ABCC2	0	1	yes
ABCC6	18	100	yes
ABCC8	0	0	yes
ABCC9	1	0	yes
ABCD3	0	0	no
ABCD4	0	0	no
ABCG2	0	1	no
ABCG5	0	0	no
ABCG8	0	0	no
ABHD12	0	0	no
ABHD16A	0	1	no
ABHD5	0	1	no
ABL1	0	2	no
ABO	0	1	yes

ACACA	0	2	yes
ACAD8	0	4	yes
ACAD9	0	0	no
ACADM	0	0	yes
ACADS	0	0	no
ACADSB	0	0	no
ACADVL	0	0	no
ACAN	0	0	no
ACAT1	0	1	no
ACAT2	0	0	no
ACBD5	1	0	yes
ACD	0	0	no
ACE	0	0	no
ACER3	1	1	no
ACHE	0	1	no
ACKR1	0	0	no
ACKR3	0	0	no
ACO2	0	0	no
ACOX1	0	0	no
ACOX2	0	0	no
ACP2	0	0	no
ACP4	0	1	no
ACP5	0	0	no
ACR	2	1	yes
ACSF3	0	0	no
ACSL5	0	0	no
ACSL6	0	0	no
ACSM3	0	0	yes
ACTA1	0	0	no
ACTA2	0	0	no
ACTB	0	0	yes
ACTC1	0	0	no
ACTG1	0	0	yes
ACTG2	0	0	no
ACTL6B	0	0	no
ACTL9	0	0	no
ACTN1	0	0	yes
ACTN2	0	0	no
ACTN3	0	1	no
ACTN4	0	0	yes
ACVR1	0	1	no

ACVR1B	0	0	no
ACVR2B	0	1	no
ACVRL1	0	0	no
ACY1	0	0	no
ADA	0	0	no
ADA2	0	0	yes
ADAM10	0	0	yes
ADAM17	0	0	no
ADAM22	0	1	no
ADAM9	0	0	no
ADAMTS10	0	0	no
ADAMTS13	0	1	no
ADAMTS17	0	0	no
ADAMTS18	0	1	no
ADAMTS19	2	1	no
ADAMTS2	0	0	no
ADAMTS3	1	0	yes
ADAMTSL2	0	1	no
ADAMTSL4	0	0	no
ADAR	0	0	no
ADARB1	0	1	no
ADAT3	0	0	no
ADCY1	0	1	yes
ADCY10	0	0	no
ADCY3	0	0	no
ADCY5	0	0	no
ADCY6	0	0	no
ADD1	0	0	no
ADD3	0	0	no
ADGRE2	0	0	yes
ADGRG1	0	0	no
ADGRG6	0	1	no
ADGRL1	14	0	yes
ADGRV1	2	2	no
ADH1B	0	0	no
ADH1C	0	0	no
ADH5	0	0	yes
ADIPOQ	0	0	yes
ADK	0	1	no
ADNP	0	0	no
ADPRS	0	0	no

ADRA2C	0	0	no
ADRB1	0	0	no
ADRB2	0	0	no
ADRB3	0	0	no
ADSL	0	1	no
ADSS1	0	2	no
AEBP1	0	0	no
AFF3	0	62	yes
AFF4	0	1	no
AFG2A	0	0	yes
AFG2B	0	0	no
AFG3L2	0	1	yes
AFP	0	0	no
AGA	0	0	no
AGBL1	0	1	yes
AGBL5	0	0	no
AGK	0	0	yes
AGL	0	0	no
AGO1	0	0	no
AGO2	0	1	no
AGPAT2	0	0	no
AGPS	0	0	yes
AGR2	0	0	no
AGRN	14	19	no
AGRP	0	0	no
AGT	0	0	no
AGTPBP1	10	16	yes
AGTR1	0	0	no
AGXT	0	0	no
AGXT2	1	0	no
AHCY	0	0	yes
AHDC1	0	1	no
AHI1	1	1	no
AHR	0	0	no
AHSG	0	0	no
AICDA	0	0	no
AIMP1	1	0	no
AIMP2	0	0	yes
AIP	0	1	no
AIPL1	0	0	no
AIRE	1	0	no

AK1	0	0	no
AK2	0	0	no
AK7	0	0	no
AKAP3	0	0	yes
AKAP9	0	0	yes
AKR1C2	2	0	yes
AKR1C4	0	0	no
AKR1D1	0	0	no
AKT1	0	2	no
AKT2	0	0	no
AKT3	0	1	no
ALAD	0	0	yes
ALB	0	0	no
ALDH18A1	0	0	no
ALDH1A2	0	0	no
ALDH1A3	0	0	no
ALDH2	0	0	no
ALDH3A2	0	5	no
ALDH4A1	0	0	no
ALDH5A1	0	0	no
ALDH6A1	0	0	no
ALDH7A1	0	0	no
ALDOA	0	1	no
ALDOB	0	1	no
ALG1	0	0	yes
ALG10B	1	0	yes
ALG11	0	1	yes
ALG12	0	0	no
ALG14	0	0	no
ALG2	0	0	no
ALG3	0	0	no
ALG5	0	0	no
ALG6	0	0	no
ALG8	0	0	no
ALG9	1	0	no
ALK	0	2	no
ALKBH8	0	0	no
ALMS1	0	0	yes
ALOX12B	0	0	no
ALOX5	0	0	no
ALOX5AP	0	0	no

ALOXE3	0	0	no
ALPK1	0	0	no
ALPK3	0	8	no
ALPL	0	1	no
ALS2	0	0	no
ALX1	0	1	no
ALX3	0	0	no
ALX4	1	0	no
AMACR	1	0	no
AMBN	0	0	no
AMFR	0	3	yes
AMH	0	0	no
AMHR2	0	1	no
AMN	0	0	no
AMPD1	0	0	yes
AMPD2	0	2	no
AMPD3	0	0	yes
AMT	0	0	no
AMTN	0	0	no
ANAPC1	88	100	yes
ANAPC7	0	0	no
ANG	1	1	no
ANGPT1	0	2	no
ANGPT2	0	0	no
ANGPTL3	0	0	no
ANGPTL4	0	0	no
ANK1	0	0	no
ANK2	4	1	yes
ANK3	0	1	yes
ANKH	0	1	yes
ANKLE2	2	6	no
ANKRD11	0	0	yes
ANKRD17	0	0	yes
ANKRD26	0	0	yes
ANKS6	0	0	no
ANLN	0	0	no
ANO1	1	0	no
ANO10	19	6	no
ANO3	0	0	yes
ANO5	0	0	yes
ANO6	1	0	no

ANTXR1	0	0	no
ANTXR2	3	1	yes
ANXA11	0	0	yes
ANXA5	0	0	no
AOPEP	0	2	no
AP1B1	1	1	yes
AP1G1	0	0	yes
AP1S1	0	1	no
AP1S3	0	1	no
AP2M1	0	0	no
AP2S1	0	1	no
AP3B1	0	1	no
AP3B2	0	0	no
AP3D1	0	0	no
AP4B1	0	0	no
AP4E1	0	0	yes
AP4M1	0	0	no
AP4S1	0	1	yes
AP5Z1	0	1	no
APC	2	0	no
APC2	0	0	no
APCDD1	0	0	no
APCS	0	0	no
APOA1	0	1	no
APOA2	0	0	no
APOA5	0	1	no
APOB	0	0	no
APOC2	0	0	no
APOC3	0	1	no
APOE	0	1	no
APOL1	0	0	no
APOL2	0	0	no
APOL4	0	0	no
APP	0	1	no
APPL1	0	0	no
APRT	0	0	no
APTX	0	0	no
AQP1	0	0	no
AQP2	0	1	no
AQP3	0	0	no
AQP4	0	0	no

AQP5	0	1	no
AQP7	0	0	yes
ARCN1	0	1	no
ARF1	0	1	no
ARFGEF1	0	0	yes
ARFGEF2	0	3	no
ARG1	0	0	no
ARHGAP26	0	1	no
ARHGAP31	0	0	no
ARHGDIA	0	0	no
ARHGEF1	0	3	no
ARHGEF10	0	1	no
ARHGEF18	3	2	no
ARHGEF2	0	1	no
ARID1A	0	0	no
ARID1B	1	1	no
ARID2	0	0	no
ARL13B	0	0	yes
ARL2	0	0	no
ARL2BP	0	0	no
ARL3	0	0	no
ARL6	0	0	no
ARL6IP1	1	0	yes
ARMC2	0	1	no
ARMC5	0	0	no
ARMC9	28	29	no
ARMS2	0	0	no
ARNT2	0	2	no
ARPC1B	0	0	no
ARPC4	0	0	no
ARSA	0	0	no
ARSB	0	1	yes
ARSG	1	2	yes
ARSK	0	0	no
ART4	0	0	no
ARV1	0	0	no
ASAH1	0	0	yes
ASB10	0	0	no
ASCC1	0	0	no
ASH1L	0	2	yes
ASIP	0	0	yes

ASL	0	1	yes
ASNS	24	0	yes
ASPA	0	0	no
ASPH	0	0	yes
ASPM	0	1	yes
ASPN	0	0	no
ASPRV1	0	0	yes
ASPSCR1	0	1	no
ASS1	0	0	no
ASTL	0	0	no
ASXL1	0	2	no
ASXL2	0	0	yes
ASXL3	0	1	no
ATAD1	0	0	yes
ATAD3A	0	0	yes
ATCAY	0	0	no
ATF6	0	0	no
ATG16L1	0	0	no
ATG5	0	0	no
ATG7	0	1	yes
ATIC	0	0	no
ATL1	0	1	no
ATL3	0	0	no
ATM	5	1	no
ATN1	0	0	no
ATOH1	0	0	no
ATOH7	0	0	no
ATP11A	8	7	yes
ATP13A2	0	1	no
ATP13A3	0	0	no
ATP1A1	0	0	no
ATP1A2	0	0	no
ATP1A3	0	0	no
ATP1B1	0	0	yes
ATP2A1	0	2	no
ATP2A2	0	1	no
ATP2B1	0	0	no
ATP2B2	1	2	no
ATP2C1	0	0	no
ATP5F1A	0	0	no
ATP5F1B	0	0	no

ATP5F1D	0	0	no
ATP5F1E	0	0	yes
ATP5MC3	0	0	no
ATP5MK	0	0	no
ATP5PO	0	0	no
ATP6V0A1	0	1	yes
ATP6V0A2	0	1	no
ATP6V0A4	0	0	no
ATP6V0C	0	0	no
ATP6V1A	0	0	no
ATP6V1B1	0	0	no
ATP6V1B2	0	0	no
ATP6V1E1	0	0	no
ATP7B	0	1	no
ATP8A2	1	0	no
ATP8B1	0	0	no
ATP9A	0	0	no
ATPAF2	0	0	no
ATR	0	1	no
ATXN1	0	1	no
ATXN10	0	0	no
ATXN2	0	0	no
ATXN3	0	1	no
ATXN7	0	0	no
AUH	0	0	no
AURKA	1	0	yes
AURKC	0	0	no
AUTS2	17	13	no
AVIL	0	0	yes
AVP	0	0	no
AXIN1	0	1	no
AXIN2	0	0	no
B2M	0	0	no
B3GALNT1	0	0	no
B3GALNT2	1	0	no
B3GALT6	0	0	no
B3GAT3	0	0	yes
B3GLCT	0	0	no
B4GALNT1	0	0	no
B4GALNT2	0	0	no
B4GALT1	0	0	no

B4GALT7	0	0	no
B4GAT1	0	1	no
B9D1	0	5	no
B9D2	0	0	no
BAAT	0	0	no
BACH2	0	0	no
BAG3	0	0	no
BAG5	0	0	no
BANF1	0	1	no
BAP1	0	0	no
BARD1	0	0	no
BAX	0	0	no
BBIP1	0	1	no
BBS1	0	1	no
BBS10	0	0	yes
BBS12	0	0	yes
BBS2	0	2	no
BBS4	0	0	yes
BBS5	0	0	no
BBS7	0	0	no
BBS9	8	58	no
BCAM	0	0	no
BCAS3	0	1	yes
BCAT2	0	0	no
BCHE	0	0	no
BCKDHA	0	0	no
BCKDHB	0	1	no
BCKDK	0	0	no
BCL10	0	0	no
BCL11A	0	0	no
BCL11B	0	1	no
BCL2	0	0	no
BCL3	0	0	no
BCO1	0	0	no
BCR	8	1	yes
BCS1L	0	0	no
BDP1	4	0	yes
BEAN1	0	0	no
BEST1	0	0	no
BFSP1	1	0	no
BFSP2	0	0	no

BHLHA9	0	3	no
BHLHE41	0	0	no
BICC1	0	0	yes
BICD2	0	0	no
BICRA	0	0	no
BIN1	0	1	no
BLK	0	0	no
BLM	0	0	no
BLNK	0	0	yes
BLOC1S3	0	1	no
BLOC1S5	0	0	no
BLOC1S6	0	0	no
BLTP1	0	0	no
BLVRA	1	1	no
BMP1	0	1	no
BMP2	0	0	no
BMP4	0	0	no
BMP6	0	0	no
BMPER	0	2	no
BMPR1A	0	1	yes
BMPR1B	2	0	no
BMPR2	1	1	no
BMS1	6	1	yes
BNC1	0	0	no
BNC2	0	0	no
BOLA3	0	0	no
BPGM	0	0	no
BPNT2	0	0	no
BPTF	4	16	yes
BRAF	1	0	yes
BRAT1	0	0	yes
BRCA1	0	2	yes
BRCA2	0	0	no
BRDT	0	0	no
BRF1	6	8	yes
BRIP1	0	0	no
BRPF1	0	0	no
BRWD1	0	1	yes
BSCL2	0	0	no
BSG	0	0	no
BSND	0	0	no

BTD	0	0	no
BTG4	0	0	no
BTNL2	0	0	no
BUB1	0	0	yes
BUB1B	0	0	yes
BVES	1	1	no
C12orf4	0	0	no
C12orf57	0	0	no
C14orf39	0	0	no
C18orf32	1	0	no
C19orf12	0	0	no
C1QA	0	0	no
C1QB	0	0	no
C1QBP	0	0	no
C1QC	0	0	no
C1QTNF5	0	0	no
C1R	83	83	no
C1S	0	0	no
C2	0	1	yes
C2CD3	0	0	no
C2CD6	0	0	no
C2orf69	0	1	no
C3	0	0	no
C3orf52	0	0	no
C4A	39	1	yes
C4B	45	1	yes
C5	0	0	no
C6	0	0	no
C7	0	0	no
C8A	0	0	no
C8B	0	0	no
C9	0	0	no
C9orf72	0	0	no
CA12	0	0	no
CA2	0	6	no
CA5A	0	0	yes
CA8	0	0	no
CABP2	0	1	no
CABP4	0	1	no
CACNA1A	0	0	no
CACNA1B	1	0	yes

CACNA1C	5	3	yes
CACNA1D	1	0	yes
CACNA1E	0	0	no
CACNA1G	0	1	no
CACNA1H	0	0	yes
CACNA1I	0	1	no
CACNA1S	0	0	no
CACNA2D1	1	1	no
CACNA2D2	0	1	yes
CACNA2D4	0	1	no
CACNB2	0	0	no
CACNB4	2	1	no
CACNG2	1	0	no
CAD	0	0	no
CADM3	0	0	no
CALCR	0	0	no
CALCRL	0	0	no
CALM1	0	0	yes
CALM2	0	1	no
CALM3	0	0	no
CALR	0	0	no
CAMK2A	0	0	no
CAMK2B	0	1	no
CAMK2G	0	0	no
CAMLG	0	0	no
CAMSAP1	0	0	no
CAMTA1	10	5	no
CANT1	0	1	no
CAP2	1	1	no
CAPN1	0	0	yes
CAPN10	1	0	no
CAPN15	0	2	yes
CAPN3	0	0	no
CAPN5	1	0	no
CARD10	0	0	no
CARD11	0	2	no
CARD14	0	0	no
CARD8	0	0	no
CARD9	0	0	no
CARMIL2	1	0	no
CARS1	0	0	no

CARS2	0	1	no
CARTPT	0	0	no
CASP10	0	0	yes
CASP14	1	0	no
CASP8	1	0	no
CASQ1	0	0	no
CASQ2	0	0	no
CASR	0	1	no
CAST	0	0	no
CAT	0	0	no
CATIP	0	0	no
CATSPER1	0	1	no
CAV1	0	0	no
CAV3	0	0	no
CAVIN1	0	1	no
CBFB	0	0	no
CBL	0	0	no
CBLB	0	2	no
CBLIF	0	0	no
CBS	0	0	yes
CBX2	0	0	no
CC2D1A	0	0	no
CC2D2A	0	2	no
CCBE1	0	0	no
CCDC103	0	0	no
CCDC115	0	30	no
CCDC134	0	0	no
CCDC174	0	2	no
CCDC26	0	1	no
CCDC28B	0	0	no
CCDC32	0	0	no
CCDC34	0	0	no
CCDC39	0	0	yes
CCDC40	0	0	no
CCDC47	0	0	no
CCDC50	1	0	no
CCDC62	0	0	yes
CCDC65	0	0	no
CCDC78	0	1	no
CCDC8	0	0	no
CCDC88A	0	0	no

CCDC88C	0	0	no
CCL11	0	0	no
CCL2	0	0	no
CCL3	15	0	yes
CCL5	0	0	no
CCM2	0	0	yes
CCN6	0	0	no
CCND1	0	0	no
CCND2	0	0	no
CCNF	0	0	no
CCNK	0	0	yes
CCNO	0	0	no
CCR2	0	0	no
CCR5	0	0	no
CCT5	0	0	no
CD151	0	0	no
CD164	0	0	no
CD19	0	1	no
CD207	0	0	no
CD209	0	0	yes
CD244	1	0	no
CD247	0	2	no
CD27	0	0	no
CD2AP	0	3	no
CD320	0	0	yes
CD36	0	1	no
CD3D	0	0	no
CD3E	0	0	no
CD3G	0	0	no
CD4	0	0	no
CD40	0	0	no
CD44	0	0	no
CD46	0	1	yes
CD55	0	0	no
CD59	0	0	no
CD70	0	0	no
CD79A	0	0	no
CD79B	0	0	yes
CD81	0	0	no
CD8A	0	0	no
CD96	3	1	yes

CDAN1	0	0	no
CDC14A	0	0	no
CDC20	0	0	no
CDC40	0	0	yes
CDC42	0	1	yes
CDC42BPB	0	1	no
CDC45	0	2	no
CDC6	0	0	no
CDC73	0	0	no
CDCA7	0	0	no
CDH1	1	2	no
CDH11	0	0	no
CDH15	0	0	no
CDH2	0	1	yes
CDH23	0	0	no
CDH3	0	1	no
CDHR1	0	0	no
CDIN1	0	0	yes
CDK10	0	0	no
CDK13	1	0	no
CDK19	0	0	yes
CDK4	0	0	no
CDK5	0	0	no
CDK5RAP2	1	0	yes
CDK6	0	0	no
CDK8	0	1	yes
CDKN1B	0	0	no
CDKN1C	0	0	no
CDKN2A	0	0	no
CDON	0	0	yes
CDSN	1	0	no
CDT1	0	0	no
CEACAM16	0	0	no
CEBPA	0	0	no
CEBPE	0	0	no
CEL	5	0	yes
CELA2A	0	0	yes
CELF2	0	1	no
CELSR1	0	1	yes
CENATAC	0	1	no
CENPE	0	0	no

CENPF	5	2	yes
CENPJ	0	1	yes
CENPT	0	1	no
CEP104	0	0	no
CEP112	0	1	no
CEP120	0	0	yes
CEP135	0	0	no
CEP152	0	0	no
CEP164	0	0	yes
CEP19	0	0	no
CEP250	1	0	no
CEP290	0	0	yes
CEP41	0	1	no
CEP43	0	1	no
CEP55	1	0	no
CEP57	0	0	no
CEP63	0	1	no
CEP78	0	0	no
CEP83	0	0	no
CEP85L	0	2	yes
CERKL	0	1	no
CERS1	0	1	no
CERS3	0	0	yes
CERT1	0	0	no
CES1	6	2	yes
CETP	0	2	no
CFAP251	0	0	no
CFAP298	0	0	yes
CFAP300	0	0	no
CFAP410	0	0	no
CFAP418	1	0	no
CFAP43	0	0	yes
CFAP44	0	0	no
CFAP45	0	0	no
CFAP52	1	0	no
CFAP53	1	0	no
CFAP58	0	0	no
CFAP61	0	1	no
CFAP65	0	0	no
CFAP69	1	1	no
CFAP70	1	0	yes

CFAP74	2	1	no
CFAP91	0	2	no
CFB	0	1	no
CFC1	4	89	yes
CFD	0	1	no
CFH	7	0	yes
CFHR1	11	5	yes
CFHR3	2	5	yes
CFHR5	0	0	no
CFI	0	2	no
CFL2	0	0	no
CFTR	83	9	no
CHAMP1	0	17	yes
CHAT	0	0	no
CHCHD10	0	1	no
CHCHD2	0	12	no
CHD1	0	0	no
CHD2	0	0	no
CHD3	0	0	no
CHD4	0	0	no
CHD5	1	0	yes
CHD7	0	0	no
CHD8	2	0	no
CHEK2	0	0	yes
CHI3L1	0	0	no
CHIC2	0	1	yes
CHIT1	0	0	no
CHKA	0	0	no
CHKB	0	0	no
CHMP1A	1	0	no
CHMP2B	0	1	no
CHMP4B	0	0	no
CHN1	0	0	no
CHP1	0	0	yes
CHRM3	2	2	no
CHRNA1	0	0	no
CHRNA2	0	1	no
CHRNA3	0	0	no
CHRNA4	5	0	no
CHRNA5	0	0	no
CHRN1	0	0	no

CHRN2	0	0	no
CHRND	0	0	no
CHRNE	0	1	no
CHRNG	0	0	no
CHST11	0	0	no
CHST14	1	0	no
CHST3	0	0	no
CHST6	1	1	no
CHST8	0	0	no
CHSY1	0	0	no
CHUK	0	0	no
CIB1	0	0	yes
CIB2	0	0	no
CIBAR1	0	0	yes
CIC	0	0	no
CIDEC	0	0	yes
CIITA	0	0	no
CILK1	0	0	no
CILP	0	0	no
CIROP	0	0	no
CISD2	6	0	yes
CISH	0	0	no
CIT	0	0	no
CITED2	0	0	no
CKAP2L	0	0	no
CLCC1	0	4	no
CLCF1	0	0	no
CLCN1	0	6	no
CLCN2	0	0	no
CLCN3	0	0	yes
CLCN6	0	4	no
CLCN7	0	0	no
CLCNKA	4	1	yes
CLCNKB	2	1	yes
CLDN1	0	0	no
CLDN10	0	0	no
CLDN11	0	1	no
CLDN14	2	0	yes
CLDN16	0	0	no
CLDN19	0	0	no
CLDN9	0	0	yes

CLEC1A	0	1	no
CLEC3B	0	1	no
CLEC7A	0	1	no
CLIC5	1	0	no
CLMP	0	0	yes
CLN3	54	86	yes
CLN5	0	0	no
CLN6	0	0	yes
CLN8	0	1	no
CLP1	0	0	no
CLPB	0	0	no
CLPP	0	0	no
CLPX	0	0	no
CLRN1	0	0	no
CLRN2	0	0	no
CLTC	0	1	no
CNBP	0	0	no
CNGA1	0	1	no
CNGA3	0	0	no
CNGB1	0	0	no
CNGB3	3	5	no
CNNM2	0	0	no
CNNM4	0	0	no
CNOT1	0	0	no
CNOT2	6	4	no
CNOT3	0	0	no
CNP	0	0	no
CNPY3	0	0	no
CNTN1	3	4	yes
CNTN2	0	0	no
CNTNAP1	0	1	no
CNTNAP2	1	5	yes
COA3	0	1	no
COA5	0	0	no
COA6	0	0	no
COA7	0	1	no
COA8	0	1	no
COASY	0	1	yes
COCH	0	1	no
COG1	0	0	no
COG2	0	0	no

COG4	0	0	no
COG5	0	1	no
COG6	0	0	no
COG7	0	1	no
COG8	0	0	no
COL10A1	0	0	no
COL11A1	3	1	no
COL11A2	0	0	no
COL12A1	0	0	no
COL13A1	0	1	no
COL17A1	0	0	no
COL18A1	1	5	no
COL1A1	0	0	no
COL1A2	0	0	no
COL25A1	1	0	yes
COL27A1	0	1	yes
COL2A1	0	1	no
COL3A1	0	0	no
COL4A1	0	0	no
COL4A2	0	0	no
COL4A3	1	1	no
COL4A4	2	1	no
COL5A1	0	1	no
COL5A2	1	0	yes
COL6A1	0	0	no
COL6A2	0	0	no
COL6A3	0	0	no
COL7A1	0	1	no
COL8A2	0	0	no
COL9A1	0	0	yes
COL9A2	0	0	no
COL9A3	0	0	no
COLEC10	0	0	no
COLEC11	0	2	no
COLGALT1	0	0	no
COLQ	0	0	no
COMP	0	1	no
COMT	1	4	no
COPA	0	0	yes
COPB1	0	0	no
COPB2	0	0	no

COQ2	0	0	no
COQ4	0	0	no
COQ5	0	0	no
COQ6	0	0	no
COQ7	0	0	no
COQ8A	1	2	no
COQ8B	0	0	no
COQ9	0	0	no
CORIN	0	2	no
CORO1A	7	37	yes
COX10	0	48	yes
COX11	0	0	yes
COX14	0	0	no
COX15	0	0	no
COX16	0	0	no
COX20	0	0	no
COX4I1	0	0	no
COX4I2	0	4	no
COX5A	0	1	no
COX6A1	0	0	no
COX6A2	0	0	no
COX6B1	0	1	no
COX8A	0	0	no
CP	0	0	yes
CPA6	0	0	yes
CPAMD8	0	0	yes
CPE	0	0	yes
CPLANE1	0	0	no
CPLX1	0	2	no
CPN1	0	0	no
CPOX	0	0	no
CPS1	0	1	no
CPSF1	0	14	yes
CPSF3	0	0	no
CPT1A	0	0	no
CPT1C	0	1	no
CPT2	0	1	no
CR1	3	0	yes
CR2	0	0	yes
CRADD	0	1	no
CRAT	0	0	no

CRB1	0	0	no
CRB2	0	0	no
CRBN	0	1	no
CREB1	0	0	no
CREB3L1	0	0	no
CREB3L3	0	1	no
CREBBP	0	1	no
CRELD1	0	0	no
CRIP1	0	0	no
CRLF1	0	1	yes
CRLS1	0	0	no
CRPPA	0	1	no
CRTAP	0	0	no
CRTC1	0	1	no
CRX	0	0	no
CRY1	0	1	no
CRYAA	0	0	yes
CRYAB	0	0	no
CRYBA1	0	1	yes
CRYBA2	0	1	no
CRYBA4	0	0	no
CRYBB1	0	0	no
CRYBB2	0	0	yes
CRYBB3	0	0	no
CRYGB	0	0	no
CRYGC	0	0	no
CRYGD	0	0	no
CRYGS	0	0	no
CRYM	1	0	no
CSF1R	0	0	no
CSF2RB	0	0	no
CSF3R	0	0	no
CSGALNACT1	0	0	no
CSH1	0	0	yes
CSNK1D	0	0	no
CSNK2A1	0	0	no
CSNK2B	0	1	no
CSPP1	1	0	yes
CSR3P	0	0	no
CST3	0	0	no
CST6	0	1	no

CSTA	0	0	no
CSTB	0	0	no
CTBP1	0	0	no
CTC1	0	1	no
CTCF	1	0	no
CTDP1	1	15	no
CTH	0	0	no
CTHRC1	0	0	no
CTLA4	0	0	no
CTNNA1	0	0	no
CTNNA2	0	3	yes
CTNNA3	3	3	no
CTNNB1	0	0	no
CTNNBL1	0	2	no
CTNND1	0	1	yes
CTNS	0	0	no
CTPS1	0	0	no
CTRC	0	0	yes
CTSA	0	0	no
CTSB	0	0	no
CTSC	0	2	no
CTSD	0	0	no
CTSF	0	1	no
CTSK	0	0	no
CTU2	0	0	no
CUBN	0	0	yes
CUL3	0	1	no
CUL7	0	0	no
CUX1	2	1	yes
CUX2	0	0	no
CWC27	0	0	no
CWF19L1	0	0	no
CX3CR1	0	1	no
CXCL12	0	0	no
CXCR1	0	0	no
CXCR2	0	0	no
CXCR4	0	0	no
CYB561	0	0	no
CYB5A	0	1	no
CYB5R3	0	0	no
CYBA	0	0	no

CYBC1	0	0	no
CYC1	0	11	no
CYCS	0	0	yes
CYFIP2	0	2	no
CYLD	0	0	no
CYP11A1	0	0	no
CYP11B1	0	1	yes
CYP11B2	0	1	yes
CYP17A1	0	0	no
CYP19A1	0	0	no
CYP1B1	0	0	no
CYP21A2	15	1	yes
CYP24A1	0	0	no
CYP26B1	0	0	no
CYP26C1	0	0	no
CYP27A1	0	0	no
CYP27B1	0	0	no
CYP2A6	1	0	yes
CYP2B6	0	0	yes
CYP2C19	0	6	yes
CYP2C8	0	0	yes
CYP2C9	0	2	no
CYP2D6	5	0	yes
CYP2R1	0	0	no
CYP2U1	0	1	no
CYP3A4	0	0	yes
CYP3A5	0	0	yes
CYP4F22	0	0	yes
CYP4V2	1	0	no
CYP7B1	0	1	no
D2HGDH	1	0	no
DAAM2	0	0	yes
DAB1	4	3	yes
DACT1	0	0	no
DAG1	0	1	no
DALRD3	0	1	no
DAOA	0	0	no
DARS1	1	0	no
DARS2	0	0	no
DAZL	0	0	yes
DBH	0	1	no

DBR1	0	0	no
DBT	0	0	no
DCAF17	0	2	no
DCAF8	0	0	yes
DCC	1	0	no
DCDC2	1	1	no
DCHS1	0	0	no
DCLRE1B	0	0	no
DCLRE1C	0	1	yes
DCN	0	0	no
DCPS	0	0	no
DCT	0	0	no
DCTN1	0	0	no
DCXR	0	0	no
DDB1	0	0	no
DDB2	0	0	no
DDC	0	0	no
DDHD1	0	0	no
DDHD2	0	0	no
DDOST	0	1	no
DDR2	0	25	yes
DDRGK1	0	0	no
DDX11	1	53	yes
DDX41	0	0	no
DDX59	0	0	no
DDX6	0	1	yes
DEAF1	0	0	no
DEF6	0	0	no
DEGS1	0	0	no
DEK	0	0	no
DENND5A	0	0	no
DEPDC5	0	1	no
DES	0	0	no
DGAT1	0	13	no
DGKE	0	0	yes
DGUOK	0	0	no
DHCR24	0	1	no
DHCR7	0	0	no
DHDDS	0	0	yes
DHFR	0	0	yes
DHH	0	0	no

DHODH	1	0	yes
DHPS	0	1	no
DHTKD1	0	0	no
DHX16	0	0	no
DHX30	0	0	no
DHX37	0	0	no
DHX38	0	0	no
DIABLO	0	0	no
DIAPH1	0	0	no
DIAPH3	0	0	no
DICER1	0	0	yes
DIO1	0	1	no
DIP2B	0	0	no
DIS3L2	4	0	yes
DISC1	0	2	no
DLAT	0	0	no
DLC1	0	0	no
DLD	0	0	no
DLG4	0	0	no
DLL1	0	0	no
DLL3	0	0	no
DLL4	0	0	no
DLST	0	0	yes
DLX3	0	0	no
DLX4	0	0	no
DLX5	0	0	no
DMGDH	3	2	yes
DMP1	0	0	no
DMPK	0	0	no
DMXL2	0	0	no
DNA2	0	0	no
DNAAF1	0	0	no
DNAAF11	0	0	no
DNAAF2	0	0	no
DNAAF3	0	0	no
DNAAF4	0	0	yes
DNAAF5	0	1	no
DNAH1	0	0	no
DNAH10	0	1	no
DNAH11	0	1	yes
DNAH17	0	0	no

DNAH2	0	0	no
DNAH5	0	0	no
DNAH7	0	1	no
DNAH8	0	0	no
DNAH9	0	0	no
DNAI1	0	0	no
DNAI2	0	0	no
DNAJB11	0	0	no
DNAJB13	0	0	no
DNAJB2	0	0	no
DNAJB4	0	1	no
DNAJB6	0	0	no
DNAJC12	0	0	no
DNAJC19	0	0	yes
DNAJC21	0	0	no
DNAJC3	0	1	no
DNAJC30	0	0	no
DNAJC5	0	0	yes
DNAJC6	1	0	no
DNAL1	0	0	no
DNAL4	0	0	no
DNALI1	0	0	no
DNASE1	0	0	no
DNASE1L3	0	0	no
DNASE2	0	0	no
DNHD1	0	0	no
DNM1	0	0	yes
DNM1L	0	0	yes
DNM2	0	0	no
DNMBP	0	0	yes
DNMT1	0	1	no
DNMT3A	0	1	no
DNMT3B	0	0	no
DOCK2	1	0	yes
DOCK3	1	1	yes
DOCK6	0	0	no
DOCK7	0	0	no
DOCK8	2	2	yes
DOHH	0	0	no
DOK7	0	0	no
DOLK	0	0	no

DONSON	0	1	yes
DPAGT1	0	0	no
DPF2	0	0	yes
DPH1	0	0	no
DPH2	0	0	no
DPH5	0	0	no
DPM1	0	0	yes
DPM2	0	0	no
DPM3	0	0	yes
DPP6	98	100	yes
DPP9	0	0	no
DPY19L2	43	14	yes
DPYD	0	3	no
DPYS	0	0	no
DPYSL5	0	0	no
DRAM2	0	0	no
DRC1	0	0	no
DRD3	0	0	no
DRD4	0	0	no
DRD5	0	0	yes
DSC2	0	0	no
DSC3	0	1	no
DSE	0	0	yes
DSG1	0	0	no
DSG2	0	0	no
DSG3	0	0	no
DSG4	0	0	no
DSP	0	0	no
DSPP	0	0	no
DST	1	2	yes
DSTYK	0	0	no
DTNA	0	0	no
DTNBP1	0	1	no
DTYMK	0	0	no
DUOX2	0	0	yes
DUOXA2	0	0	yes
DUSP6	0	0	no
DUT	0	0	yes
DVL1	0	0	no
DVL3	0	0	no
DYM	1	0	no

DYNC1H1	0	1	no
DYNC1I2	0	2	no
DYNC2H1	0	0	yes
DYNC2I1	2	15	yes
DYNC2I2	0	0	no
DYNC2LI1	0	0	no
DYNLT2B	0	1	no
DYRK1A	0	0	no
DYRK1B	0	0	no
DYSF	0	0	no
DZIP1	0	0	no
DZIP1L	0	0	yes
EARS2	0	0	no
EBF3	0	0	no
ECE1	0	1	no
ECEL1	0	0	no
ECHS1	0	3	no
ECM1	0	0	no
EDAR	0	0	no
EDARADD	0	0	no
EDC3	0	0	no
EDEM3	0	0	no
EDN1	0	1	no
EDN3	0	1	no
EDNRA	0	0	no
EDNRB	1	0	no
EED	0	1	no
EEF1A2	0	0	no
EEF2	0	0	yes
EFEMP1	0	0	yes
EFEMP2	0	0	no
EFHC1	4	0	no
EFL1	4	0	yes
EFTUD2	0	0	no
EGF	0	0	no
EGFR	0	5	no
EGLN1	0	2	yes
EGR2	0	0	no
EHBP1	0	1	yes
EHHADH	0	0	yes
EHMT1	2	5	no

EIF2AK1	0	1	no
EIF2AK2	0	0	yes
EIF2AK3	0	1	no
EIF2AK4	0	0	yes
EIF2B1	0	1	no
EIF2B2	0	0	no
EIF2B3	0	0	yes
EIF2B4	0	0	no
EIF2B5	0	0	no
EIF3F	0	0	no
EIF4A2	0	0	no
EIF4A3	0	0	no
EIF4E	0	0	yes
EIF4G1	0	0	no
EIF5A	0	0	no
ELAC2	0	0	no
ELANE	0	0	no
ELMO2	1	0	yes
ELMOD3	0	1	yes
ELN	0	0	no
ELOVL1	0	0	no
ELOVL4	0	0	yes
ELOVL5	0	0	no
ELP1	0	0	yes
ELP2	0	0	no
ELP4	0	0	yes
EMC1	0	0	no
EMC10	0	1	no
EMG1	0	0	no
EMILIN1	0	0	no
EML1	0	0	no
EMP2	0	0	no
EMX2	0	0	no
EN1	0	0	no
ENAM	0	0	no
ENG	0	1	no
ENO3	0	1	no
ENPP1	0	1	yes
ENTPD1	0	0	no
EOGT	0	0	yes
EP300	0	0	no

EPAS1	0	0	no
EPB41	0	1	no
EPB41L1	0	0	no
EPB42	6	1	no
EPCAM	0	1	no
EPG5	0	0	yes
EPHA10	0	0	no
EPHA2	0	1	no
EPHB2	0	2	no
EPHB4	0	0	no
EPHX2	0	1	no
EPM2A	0	1	yes
EPO	0	0	no
EPOR	0	0	no
EPRS1	0	1	no
EPS8	1	1	no
EPS8L2	0	0	no
EPS8L3	0	2	no
EPX	0	0	no
ERAL1	0	1	no
ERBB2	0	0	no
ERBB3	0	0	no
ERBB4	1	3	yes
ERCC1	0	0	no
ERCC2	0	0	no
ERCC3	0	1	yes
ERCC4	0	0	no
ERCC5	0	0	no
ERCC6	2	0	yes
ERCC6L2	0	1	no
ERCC8	0	1	no
ERF	0	0	no
ERGIC1	0	1	no
ERLIN1	0	0	no
ERLIN2	0	0	no
ERMAP	0	0	yes
ERMARD	0	0	no
ESAM	0	0	yes
ESCO2	0	0	no
ESPN	1	0	yes
ESR1	0	1	no

ESR2	0	0	no
ESRP1	0	0	no
ESRRB	0	0	no
ETFA	1	0	yes
ETFB	0	0	no
ETFDH	0	0	no
ETHE1	0	0	no
ETV6	0	3	no
EVC	0	0	no
EVC2	0	0	no
EWSR1	0	1	no
EXOC2	1	1	yes
EXOC6B	1	1	no
EXOC7	0	1	no
EXOC8	0	0	no
EXOSC1	0	0	yes
EXOSC2	0	0	no
EXOSC3	0	0	no
EXOSC5	0	0	no
EXOSC8	0	0	no
EXOSC9	0	0	no
EXPH5	0	1	no
EXT1	1	2	no
EXT2	0	0	no
EXTL3	1	0	no
EYA1	1	1	no
EYA4	0	0	no
EYS	8	56	yes
EZH2	0	0	no
F10	0	3	no
F11	0	0	no
F12	0	0	no
F13A1	2	0	no
F13B	0	0	no
F2	0	0	no
F5	0	1	no
F7	0	2	no
FA2H	0	0	no
FAAH	0	0	no
FADD	0	0	no
FAH	0	0	no

FAM111A	0	1	no
FAM111B	0	1	yes
FAM149B1	0	0	yes
FAM161A	0	0	no
FAM20A	0	2	no
FAM20C	100	100	no
FAM83H	1	7	no
FAN1	0	0	yes
FANCA	0	0	no
FANCC	0	1	yes
FANCD2	0	0	yes
FANCE	1	0	no
FANCF	0	0	no
FANCG	0	1	no
FANCI	0	0	no
FANCL	0	0	no
FANCM	0	0	no
FAR1	0	0	yes
FARS2	0	1	yes
FARSA	0	0	no
FARSB	0	0	yes
FAS	0	0	no
FASLG	0	1	no
FASTKD2	0	0	no
FAT2	0	0	no
FAT4	0	0	no
FBLN1	0	2	no
FBLN5	0	0	no
FBN1	0	2	no
FBN2	0	0	no
FBP1	0	2	no
FBP2	0	2	no
FBXL3	0	0	no
FBXL4	0	0	yes
FBXO11	0	1	yes
FBXO28	0	0	no
FBXO31	0	1	no
FBXO38	0	0	no
FBXO43	0	0	no
FBXO7	0	0	no
FBXW11	0	0	yes

FBXW7	0	1	no
FCGR1A	21	61	yes
FCGR2A	69	9	yes
FCGR2B	60	7	yes
FCGR3A	46	8	yes
FCHO1	0	0	no
FCN3	0	0	no
FCSK	0	0	no
FDFT1	0	0	yes
FDPS	0	1	no
FDX2	0	0	no
FDXR	0	0	no
FECH	0	0	no
FERMT1	0	0	no
FERMT3	0	0	no
FEZF1	0	0	no
FFAR4	0	0	no
FGA	0	0	no
FGB	0	0	no
FGD4	0	1	no
FGF10	0	0	no
FGF12	0	0	no
FGF14	0	1	yes
FGF17	0	1	no
FGF20	0	0	no
FGF23	0	0	no
FGF3	0	0	no
FGF5	0	0	no
FGF8	0	0	no
FGF9	0	0	no
FGFR1	0	0	no
FGFR2	0	0	no
FGFR3	0	0	yes
FGFR4	1	0	no
FGG	0	0	no
FH	0	0	no
FHOD3	0	0	no
FIBP	0	0	yes
FIG4	0	1	no
FIGLA	0	0	no
FITM2	0	0	no

FKBP10	0	0	no
FKBP14	0	0	no
FKBP5	1	0	no
FKBP6	16	0	yes
FKRP	0	0	no
FKTN	1	0	no
FLAD1	0	0	no
FLCN	0	0	no
FLG	0	0	yes
FLG2	0	0	no
FLI1	0	0	no
FLNB	0	0	no
FLNC	0	1	yes
FLRT3	0	1	no
FLT3	0	1	no
FLT4	0	0	no
FLVCR1	0	0	no
FLVCR2	0	0	no
FMN2	0	0	yes
FMO3	0	0	no
FN1	0	0	no
FNIP1	0	1	yes
FOCAD	0	0	no
FOLR1	0	0	no
FOXC1	0	0	no
FOXC2	0	0	no
FOXD3	0	0	no
FOXE1	0	0	no
FOXE3	0	0	no
FOXF1	0	0	no
FOXG1	0	0	no
FOXI1	0	0	no
FOXI3	0	0	no
FOXJ1	0	0	no
FOXL2	0	0	no
FOXN1	0	1	no
FOXO1	0	0	yes
FOXP1	0	1	no
FOXP2	1	0	no
FOXRED1	0	0	no
FRA10AC1	0	0	no

FRAS1	4	2	yes
FREM1	0	0	yes
FREM2	0	1	no
FRMD4A	5	1	no
FRMD5	0	1	yes
FRRS1L	0	0	no
FRZB	0	1	no
FSCN2	0	0	yes
FSHB	0	0	no
FSHR	1	0	no
FSIP2	0	0	no
FTCD	0	0	no
FTH1	0	0	no
FTL	0	0	no
FTO	0	0	no
FUCA1	0	0	no
FUS	0	0	no
FUT1	0	0	no
FUT2	0	0	no
FUT3	0	0	yes
FUT6	0	0	yes
FUT8	34	30	no
FUZ	0	1	no
FXN	0	0	yes
FXR1	0	0	yes
FXYD2	0	0	no
FYB1	0	0	no
FYCO1	0	1	no
FZD2	0	0	no
FZD4	0	0	no
FZD6	0	0	no
FZR1	0	0	no
G6PC1	0	1	no
G6PC3	0	0	no
GAA	0	0	no
GAB1	0	1	yes
GABBR2	2	1	yes
GABRA1	0	0	no
GABRA2	0	0	no
GABRA5	0	1	no
GABRB1	0	1	no

GABRB2	0	0	yes
GABRB3	0	1	no
GABRD	0	0	no
GABRG2	0	0	no
GAD1	0	0	no
GAL	0	0	no
GALC	0	1	yes
GALE	0	0	no
GALK1	0	0	no
GALM	4	1	yes
GALNS	0	0	no
GALNT12	0	0	no
GALNT2	0	0	no
GALNT3	0	1	no
GALT	0	0	no
GAMT	0	0	no
GAN	0	0	no
GANAB	0	0	yes
GARS1	0	0	no
GAS2L2	0	0	no
GAS8	0	0	no
GATA2	0	0	no
GATA3	0	0	no
GATA4	1	1	yes
GATA5	0	0	no
GATA6	0	0	no
GATAD1	0	0	no
GATAD2B	0	0	no
GATB	0	0	no
GATC	0	0	yes
GATM	0	0	no
GBA1	0	0	yes
GBA2	0	1	no
GBE1	0	0	yes
GBF1	0	0	no
GCDH	0	0	no
GCGR	0	0	no
GCH1	0	0	no
GCK	0	0	no
GCKR	0	0	no
GCLC	0	0	no

GCLM	0	0	no
GCM2	0	0	no
GCNT2	0	0	no
GCSH	0	0	no
GDAP1	4	1	no
GDAP2	0	1	no
GDF1	0	1	no
GDF11	0	0	no
GDF2	0	0	no
GDF3	0	1	no
GDF5	0	0	no
GDF6	0	0	no
GDF9	0	0	no
GDNF	0	0	no
GEMIN4	0	7	no
GEMIN5	0	0	no
GET3	0	1	no
GET4	0	0	no
GFAP	0	0	no
GFER	0	0	yes
GFI1	0	0	no
GFI1B	0	1	no
GFM1	0	1	no
GFM2	0	0	no
GFPT1	0	0	yes
GFRA1	0	0	no
GGCX	0	0	yes
GGN	0	0	no
GGPS1	0	0	no
GGT1	9	5	yes
GH1	0	0	yes
GHR	2	2	yes
GHRH	0	1	no
GHRHR	0	0	no
GHRL	0	0	no
GHSR	0	0	no
GIGYF2	0	0	no
GIMAP5	0	0	yes
GINS1	0	0	no
GIPC1	0	1	no
GIPC3	0	0	no

GJA1	0	0	yes
GJA3	0	0	no
GJA5	0	0	no
GJA8	0	0	yes
GJB2	0	0	no
GJB3	0	0	no
GJB4	0	0	no
GJB6	0	0	no
GJC2	0	1	no
GLB1	0	0	no
GLCCI1	0	0	no
GLDC	1	0	no
GLDN	0	0	no
GLE1	0	0	no
GLI1	0	0	no
GLI2	0	0	no
GLI3	0	1	yes
GLIS2	0	0	no
GLIS3	0	0	no
GLMN	0	0	no
GLRA1	0	1	no
GLRB	0	1	no
GLRX5	0	0	no
GLS	0	0	no
GLUD1	0	0	yes
GLUL	1	0	no
GLYCTK	0	0	no
GM2A	0	0	no
GMNN	0	0	no
GMPPA	0	1	no
GMPPB	0	0	no
GNA11	0	0	no
GNAI1	0	0	no
GNAI2	0	0	no
GNAI3	0	3	no
GNAL	0	1	no
GNAO1	0	4	no
GNAQ	0	0	yes
GNAS	0	0	no
GNAS-AS1	0	0	no
GNAT1	0	0	no

GNAT2	0	2	no
GNB1	0	0	no
GNB2	0	0	no
GNB3	0	0	no
GNB4	1	0	yes
GNB5	0	1	no
GNE	0	2	no
GNMT	1	0	yes
GNPAT	0	0	yes
GNPNAT1	0	0	yes
GNPTAB	0	0	no
GNPTG	0	0	no
GNRH1	0	1	yes
GNRHR	0	0	no
GNS	0	2	no
GOLGA2	0	0	yes
GON7	0	0	no
GORAB	0	0	no
GOSR2	0	1	yes
GOT1	0	2	no
GOT2	0	0	yes
GP1BA	0	1	no
GP1BB	0	2	no
GP6	0	0	no
GP9	0	0	no
GPAA1	2	10	no
GPC6	2	2	no
GPD1	0	0	no
GPD1L	1	0	no
GPD2	0	0	yes
GPHN	3	0	yes
GPI	0	0	no
GPIHBP1	0	3	yes
GNPMB	0	0	no
GPR161	0	0	no
GPR179	0	0	yes
GPR68	0	0	no
GPR88	0	0	no
GPRC5B	0	0	no
GPSM2	0	4	no
GPT2	0	0	no

GPX1	0	1	no
GPX4	0	0	no
GRAP	3	34	yes
GREB1L	2	3	no
GREM2	0	1	no
GRHL2	0	0	yes
GRHL3	0	0	no
GRHPR	0	1	no
GRIA1	2	0	no
GRIA2	0	0	no
GRIA4	0	2	no
GRID2	24	17	no
GRIK2	1	2	no
GRIN1	0	0	no
GRIN2A	0	1	no
GRIN2B	0	1	no
GRIN2D	0	0	no
GRIP1	0	0	no
GRK1	100	97	yes
GRM1	0	0	no
GRM6	0	0	no
GRM7	0	3	yes
GRN	0	0	no
GRXCR1	0	0	no
GRXCR2	0	0	no
GSC	0	0	no
GSDME	0	0	no
GSN	0	0	no
GSR	0	0	no
GSS	0	0	no
GSTZ1	0	0	no
GSX2	0	0	no
GTF2E2	0	0	no
GTF2H5	0	0	no
GTPBP2	0	0	no
GTPBP3	0	0	no
GUCA1A	0	0	no
GUCA1B	0	0	no
GUCY1A1	0	0	no
GUCY2C	0	0	no
GUCY2D	0	0	no

GUF1	0	1	no
GUSB	1	1	yes
GYG1	0	0	yes
GYP A	15	5	yes
GYP B	7	1	yes
GYP C	0	2	yes
GYS1	0	0	no
GYS2	0	1	no
GZF1	0	0	no
H1-4	0	0	no
H3-3A	0	1	no
H3-3B	0	0	yes
H4C11	1	1	yes
H4C3	0	0	no
H4C5	0	0	no
H4C9	0	1	no
H6PD	0	0	no
HAAO	0	0	no
HABP2	0	0	no
HACD1	0	0	no
HACE1	3	1	no
HADH	0	1	no
HADHA	0	1	no
HADHB	0	1	no
HAGH	0	0	no
HAL	0	0	no
HAMP	0	2	no
HARS1	0	0	yes
HARS2	0	0	no
HAVCR2	0	0	no
HAX1	0	0	no
HBA1	0	1	yes
HBA2	0	1	yes
HBB	0	0	no
HBD	0	0	no
HBEGF	0	0	no
HBG1	0	0	yes
HBG2	0	0	yes
HCK	0	2	no
HCN1	5	6	no
HCN2	0	0	yes

HCN4	0	0	no
HCRT	0	0	no
HDAC4	1	0	yes
HDAC9	0	1	no
HDC	0	0	no
HEATR3	0	0	no
HECTD4	0	1	no
HECW2	0	1	no
HELLS	0	0	no
HEPACAM	0	0	no
HEPHL1	2	0	no
HERC1	0	0	no
HERC2	99	99	yes
HES7	0	0	no
HESX1	0	0	no
HEXA	0	0	no
HEXB	0	0	no
HFE	0	0	no
HFM1	0	0	yes
HGD	0	0	no
HGF	0	0	no
HGSNAT	0	0	no
HHAT	0	2	no
HIBCH	0	1	no
HID1	0	0	no
HIKESHI	0	1	no
HINT1	0	0	no
HIVEP2	0	2	no
HJV	0	0	no
HK1	0	1	no
HKDC1	0	2	no
HLA-A	16	0	yes
HLA-B	0	1	yes
HLA-C	0	0	yes
HLA-DPB1	0	0	no
HLA-DQA1	76	50	no
HLA-DQB1	47	3	no
HLA-DRB1	49	37	yes
HLA-G	2	0	yes
HLCS	1	0	no
HMBS	0	0	no

HMCN1	2	2	no
HMGA1	0	0	yes
HMGA2	0	0	no
HMGCL	0	0	no
HMGCR	0	0	no
HMGCS2	0	0	no
HMMR	0	0	no
HMOX1	0	0	no
HMX1	1	9	no
HNF1A	0	0	no
HNF1B	0	0	no
HNF4A	0	0	no
HNMT	0	0	no
HNRNPA1	0	0	yes
HNRNPA2B1	0	0	yes
HNRNPDL	0	0	yes
HNRNPH1	1	0	yes
HNRNPK	0	0	yes
HNRNPR	0	0	yes
HNRNPU	0	0	no
HOGA1	0	0	no
HOMER2	1	0	yes
HOXA1	0	1	no
HOXA11	0	1	no
HOXA13	0	1	no
HOXA2	0	1	no
HOXB1	0	0	no
HOXB13	0	0	no
HOXC13	0	0	no
HOXD10	0	0	no
HOXD13	0	0	no
HP	4	0	yes
HPCA	0	0	no
HPD	0	0	no
HPDL	0	0	no
HPGD	0	0	no
HPS1	0	1	yes
HPS3	0	0	yes
HPS4	0	0	no
HPS5	0	0	yes
HPS6	0	0	no

HPSE2	5	3	yes
HR	0	1	no
HRAS	0	0	no
HRG	0	0	no
HRURF	0	1	no
HS2ST1	0	0	no
HS3ST6	0	0	no
HS6ST1	0	0	yes
HSCB	0	0	no
HSD11B1	0	0	no
HSD11B2	0	0	no
HSD17B13	0	0	no
HSD17B3	2	2	no
HSD17B4	0	0	no
HSD3B2	0	0	no
HSD3B7	0	0	no
HSF2BP	1	1	yes
HSF4	0	0	yes
HSPA9	0	0	no
HSPB1	0	0	no
HSPB3	0	0	no
HSPB8	0	0	yes
HSPD1	0	0	yes
HSPG2	0	1	no
HTR1A	0	0	no
HTR2A	0	0	no
HTRA1	0	0	no
HTRA2	0	0	no
HTT	0	0	no
HYAL1	0	0	no
HYCC1	0	0	no
HYDIN	100	100	yes
HYLS1	0	0	no
HYOU1	0	0	no
IARS1	1	1	yes
IARS2	1	1	no
IBA57	0	1	no
ICAM1	0	0	no
ICAM4	0	0	no
ICOS	0	0	no
IDH1	0	1	no

IDH2	0	0	yes
IDH3A	0	0	no
IDH3B	0	0	no
IDUA	0	1	no
IER3IP1	0	1	no
IFIH1	0	1	no
IFITM3	1	1	yes
IFITM5	0	0	yes
IFNA1	0	0	yes
IFNAR1	0	0	no
IFNAR2	0	0	no
IFNG	0	2	no
IFNGR1	0	0	no
IFNGR2	0	0	no
IFNL3	0	0	yes
IFT122	0	0	yes
IFT140	0	0	no
IFT172	0	0	no
IFT27	0	0	no
IFT43	0	0	no
IFT52	1	0	no
IFT56	0	0	no
IFT57	0	0	no
IFT74	0	1	no
IFT80	0	0	no
IFT81	0	0	no
IGF1	0	0	no
IGF1R	0	1	no
IGF2	0	0	no
IGF2BP2	0	0	yes
IGF2R	0	0	yes
IGFALS	0	0	no
IGFBP7	0	0	no
IGHG2	15	25	yes
IGHM	15	41	yes
IGHMBP2	0	0	no
IGKC	23	29	no
IGLL1	0	1	yes
IGSF3	12	0	yes
IHH	0	0	no
IKBKB	0	0	no

IKZF1	0	0	no
IKZF3	0	0	no
IKZF5	0	0	no
IL10	0	0	no
IL10RA	0	0	no
IL10RB	0	0	no
IL11RA	0	0	no
IL12B	0	0	no
IL12RB1	0	0	no
IL13	0	0	no
IL17F	0	0	no
IL17RA	0	0	no
IL17RC	0	0	no
IL17RD	0	0	no
IL18BP	0	0	no
IL1B	0	0	no
IL1R1	0	1	no
IL1RN	0	0	no
IL21	0	0	no
IL21R	0	0	no
IL23R	0	1	no
IL2RA	0	0	no
IL2RB	0	0	no
IL31RA	1	0	no
IL36RN	0	0	no
IL37	0	0	no
IL4R	1	0	no
IL6	0	0	no
IL6R	0	0	no
IL6ST	0	0	yes
IL7	0	1	yes
IL7R	0	0	no
ILDR1	0	1	no
IMPA1	0	0	yes
IMPDH1	0	0	no
IMPDH2	0	1	no
IMPG1	0	1	no
IMPG2	0	0	no
INAVA	0	0	yes
INF2	0	2	no
ING1	0	1	no

INPP5E	0	0	no
INPP5K	0	2	no
INPPL1	0	0	no
INS	0	0	no
INSL3	0	0	no
INSR	0	0	no
INTS1	0	0	no
INTS11	0	0	no
INTS8	0	0	no
INTU	0	0	no
INVS	0	0	no
IPO8	0	0	no
IQCB1	0	0	no
IQCE	0	1	no
IQCN	0	0	no
IQSEC1	0	0	yes
IRAK3	0	2	no
IRAK4	0	0	yes
IREB2	0	0	no
IRF1	0	0	no
IRF2BP2	0	0	no
IRF2BPL	0	0	no
IRF3	0	1	yes
IRF4	0	0	no
IRF5	0	0	no
IRF6	0	0	yes
IRF7	0	0	no
IRF8	0	0	no
IRF9	0	0	no
IRGM	0	0	yes
IRS1	0	1	no
IRS2	0	1	no
IRX5	0	0	no
ISCA1	0	0	yes
ISCA2	0	0	no
ISCU	0	0	no
ISG15	0	0	no
ITCH	0	1	yes
ITGA2B	0	0	yes
ITGA3	0	0	no
ITGA6	0	0	no

ITGA7	0	0	no
ITGA8	1	1	no
ITGB2	0	1	yes
ITGB3	0	0	no
ITGB4	0	0	no
ITGB6	0	2	no
ITK	0	0	no
ITM2B	0	1	no
ITPA	0	0	no
ITPR1	0	0	no
ITPR2	0	2	no
ITPR3	0	0	no
IVD	0	0	no
IVNS1ABP	0	0	no
IYD	0	0	no
JAG1	0	0	no
JAG2	2	7	no
JAGN1	0	0	no
JAK1	0	0	no
JAK2	0	1	no
JAK3	0	0	no
JAM2	0	0	no
JAM3	0	4	yes
JARID2	0	0	no
JPH1	0	0	no
JPH2	0	1	no
JPH3	0	1	no
JUP	0	0	no
KANK1	2	0	no
KANK2	0	0	no
KANSL1	30	56	yes
KARS1	0	0	yes
KAT5	0	0	no
KAT6A	0	0	no
KAT6B	0	1	no
KAT8	0	0	no
KATNB1	0	0	no
KATNIP	0	1	no
KBTBD13	0	1	no
KCNA1	0	1	no
KCNA2	0	0	no

KCNA4	0	0	no
KCNA5	0	0	no
KCNB1	0	2	no
KCNC1	0	0	no
KCNC2	0	1	no
KCNC3	0	2	no
KCND3	0	1	no
KCNE1	1	0	yes
KCNE2	0	0	yes
KCNE3	0	0	no
KCNH1	0	0	yes
KCNH2	0	0	no
KCNJ1	0	0	no
KCNJ10	0	0	no
KCNJ11	0	0	no
KCNJ13	0	0	no
KCNJ16	0	0	no
KCNJ18	63	44	yes
KCNJ2	0	0	no
KCNJ5	1	0	no
KCNJ6	0	1	no
KCNK18	0	0	no
KCNK3	0	0	no
KCNK4	0	0	yes
KCNK9	0	0	no
KCNMA1	0	0	no
KCNMB1	0	0	no
KCNN2	2	1	no
KCNN3	0	1	no
KCNN4	0	0	no
KCNQ1	0	1	no
KCNQ1OT1	0	0	no
KCNQ2	0	0	no
KCNQ3	1	0	yes
KCNQ4	0	0	no
KCNQ5	6	29	yes
KCNT1	0	0	no
KCNT2	0	0	no
KCNU1	0	0	no
KCNV2	0	0	no
KCTD1	1	0	yes

KCTD17	0	0	no
KCTD7	0	1	yes
KDELR2	0	0	no
KDF1	0	0	no
KDM1A	0	0	no
KDM3B	0	0	no
KDM4B	0	0	yes
KDM5B	0	1	no
KDM6B	0	0	no
KDR	0	0	no
KDSR	0	0	no
KEL	0	5	no
KERA	0	0	no
KHDC3L	0	0	yes
KHK	0	0	no
KIAA0586	0	1	yes
KIAA0753	0	0	no
KIAA0825	0	0	yes
KIAA1549	0	0	no
KIDINS220	0	0	yes
KIF11	0	0	no
KIF12	0	0	no
KIF14	0	0	no
KIF15	0	1	yes
KIF1A	1	1	no
KIF1B	0	2	no
KIF1C	0	1	yes
KIF20A	0	0	no
KIF21A	0	1	no
KIF22	0	1	no
KIF23	0	0	no
KIF26A	0	0	no
KIF2A	0	1	yes
KIF3B	1	2	no
KIF5A	0	0	no
KIF5C	0	1	yes
KIF7	0	0	no
KIFBP	0	1	no
KIR3DL1	22	7	yes
KIRREL1	0	0	no
KISS1	0	0	no

KISS1R	0	0	no
KIT	0	0	no
KITLG	0	0	no
KIZ	0	2	no
KL	0	1	no
KLC2	8	9	yes
KLF1	0	0	no
KLF11	0	1	no
KLF6	0	0	no
KLHDC8B	0	1	no
KLHL10	0	0	no
KLHL24	0	0	no
KLHL3	0	0	no
KLHL40	0	0	no
KLHL41	0	0	no
KLHL7	0	0	no
KLK1	0	1	no
KLK4	0	1	no
KLKB1	1	0	no
KLLN	0	0	no
KMT2A	0	1	no
KMT2B	0	1	no
KMT2C	87	68	yes
KMT2D	0	0	no
KMT2E	0	1	yes
KMT5B	0	0	no
KNG1	0	0	no
KNL1	0	0	no
KNSTRN	0	0	no
KPNA3	1	0	no
KPNA7	0	0	no
KPTN	0	0	no
KRAS	0	0	yes
KREMEN1	0	1	no
KRIT1	0	1	no
KRT1	0	0	no
KRT10	0	0	no
KRT12	0	0	no
KRT13	0	0	no
KRT14	0	0	yes
KRT16	0	0	yes

KRT17	0	0	yes
KRT18	0	0	no
KRT2	0	0	no
KRT25	0	0	no
KRT3	0	0	no
KRT4	0	0	no
KRT5	0	0	no
KRT6A	0	0	yes
KRT6B	0	0	yes
KRT6C	0	0	yes
KRT71	0	0	no
KRT74	0	0	no
KRT75	0	0	no
KRT81	0	0	yes
KRT83	0	0	yes
KRT85	0	0	no
KRT86	0	0	yes
KRT9	0	0	yes
KY	0	0	no
KYNU	0	2	no
L2HGDH	0	0	no
LACC1	0	0	no
LAMA1	0	0	no
LAMA2	8	10	yes
LAMA3	0	1	no
LAMA4	0	0	no
LAMA5	0	0	no
LAMB1	0	0	no
LAMB2	0	1	no
LAMB3	0	0	no
LAMC2	0	0	no
LAMC3	0	0	no
LAMTOR2	0	1	no
LARGE1	0	0	no
LARP7	0	0	no
LARS1	0	0	no
LARS2	0	0	no
LAT	0	1	no
LBR	0	1	no
LBX1	0	0	no
LCA5	0	0	no

LCAT	0	2	no
LCK	0	1	no
LCP2	0	0	no
LCT	0	0	no
LDB3	0	0	no
LDHA	0	0	no
LDHB	0	0	no
LDHD	0	0	no
LDLR	0	0	no
LDLRAP1	0	0	no
LEF1	0	1	no
LEMD2	0	0	no
LEMD3	0	1	no
LEP	0	0	no
LEPR	6	7	no
LETM1	0	0	yes
LFNG	0	0	yes
LGALS2	0	0	no
LGI1	0	2	no
LGI3	0	1	no
LGI4	0	1	no
LGR4	0	0	no
LHB	0	0	yes
LHCGR	1	0	no
LHFPL5	0	0	no
LHX3	0	0	yes
LHX4	0	0	yes
LIAS	0	0	no
LIFR	0	0	no
LIG1	0	0	no
LIG3	0	0	no
LIG4	0	0	no
LIM2	0	1	no
LIMA1	0	0	yes
LIMS2	0	0	no
LINGO1	1	1	no
LINS1	0	0	yes
LIPA	0	0	no
LIPC	0	0	no
LIPE	0	0	no
LIPH	0	0	yes

LIPN	0	0	no
LIPT1	0	0	no
LIPT2	0	0	yes
LITAF	0	0	no
LMAN1	0	0	no
LMAN2L	0	0	no
LMBR1	0	1	no
LMBRD1	0	1	yes
LMBRD2	0	0	no
LMF1	16	6	yes
LMNA	0	3	no
LMNB1	0	0	no
LMNB2	0	0	no
LMO1	0	0	no
LMO2	0	0	no
LMOD1	0	0	no
LMOD2	0	0	no
LMOD3	0	0	no
LMX1A	0	0	no
LMX1B	0	0	no
LNPK	2	0	no
LONP1	0	0	no
LORICRIN	0	0	no
LOX	0	0	no
LOXHD1	0	0	no
LOXL1	0	0	no
LOXL3	0	0	yes
LPA	77	7	yes
LPAR6	0	1	no
LPIN1	0	2	no
LPIN2	0	0	yes
LPL	0	0	no
LPP	0	0	no
LRAT	0	0	no
LRBA	3	2	no
LRIF1	0	0	no
LRIG2	1	1	no
LRIT3	0	0	no
LRMDA	2	2	no
LRP1	0	0	no
LRP12	0	0	no

LRP2	3	1	no
LRP4	0	0	no
LRP5	0	0	yes
LRP6	0	1	yes
LRP8	0	1	no
LRPAP1	1	0	yes
LRPPRC	0	1	no
LRRC32	0	0	no
LRRC56	0	2	no
LRRC8A	0	0	no
LRRK1	0	0	no
LRRK2	0	0	no
LRSAM1	1	0	no
LRTOMT	0	0	no
LSM11	0	0	no
LSS	0	1	no
LTA	0	1	no
LTBP1	2	1	no
LTBP2	0	0	no
LTBP3	0	0	no
LTBP4	0	0	no
LTC4S	0	0	no
LTV1	0	0	no
LYL1	0	0	no
LYN	0	0	no
LYRM4	0	0	yes
LYRM7	0	0	no
LYSET	0	0	no
LYST	0	1	yes
LYZ	0	1	no
LZTFL1	0	0	no
LZTR1	0	18	no
LZTS1	0	0	no
M1AP	0	1	yes
MAB21L1	0	0	no
MAB21L2	0	0	no
MACF1	0	0	yes
MAD1L1	0	3	yes
MAD2L2	0	3	no
MADD	0	0	no
MAF	0	0	no

MAFA	0	2	no
MAFB	0	0	no
MAG	0	2	no
MAGEL2	0	0	no
MAGI2	3	2	yes
MAK	0	0	no
MALT1	0	0	no
MAML2	0	0	no
MAN1B1	0	0	no
MAN2B1	0	0	no
MAN2C1	0	0	no
MANBA	0	0	yes
MAP1B	0	1	no
MAP2K1	0	0	no
MAP2K2	0	0	no
MAP3K1	0	1	no
MAP3K14	0	0	no
MAP3K20	0	1	no
MAP3K7	0	0	no
MAP3K8	0	1	no
MAPK1	0	6	no
MAPK8IP1	2	0	no
MAPK8IP3	0	0	no
MAPKAPK3	0	0	no
MAPKAPK5	0	0	no
MAPKBP1	0	0	no
MAPRE2	0	0	no
MAPT	0	1	no
MARCHF6	0	0	no
MARK3	0	0	no
MARS1	0	0	no
MARS2	1	0	no
MARVELD2	1	0	no
MASP1	0	0	no
MASP2	0	1	yes
MAST1	0	0	no
MAST3	0	0	no
MAT1A	0	0	no
MATN3	0	0	no
MATR3	0	0	yes
MAX	0	0	no

MB	0	0	no
MBD4	0	0	no
MBD5	2	1	yes
MBL2	0	1	no
MBOAT7	0	0	no
MBTPS1	0	0	no
MC1R	0	0	no
MC2R	0	0	no
MC3R	0	0	no
MC4R	0	0	no
MCC	1	13	no
MCCC1	0	0	no
MCCC2	0	0	no
MCEE	0	0	no
MCFD2	0	0	yes
MCIDAS	0	0	no
MCM10	0	1	yes
MCM2	0	0	no
MCM3AP	0	0	no
MCM4	0	1	no
MCM5	0	0	no
MCM6	1	0	no
MCM8	0	0	no
MCM9	0	0	no
MCOLN1	0	0	no
MCPH1	0	0	no
MDFIC	0	0	no
MDH1	0	0	no
MDH2	0	0	yes
MDM2	0	0	yes
MDM4	0	0	no
MECOM	1	3	no
MECR	0	0	no
MED11	0	1	no
MED12L	0	3	no
MED13	0	1	no
MED13L	0	1	no
MED17	0	0	no
MED23	0	0	no
MED25	0	2	no
MED27	0	1	no

MEF2A	0	0	no
MEF2C	0	1	yes
MEFV	0	0	no
MEGF10	1	1	yes
MEGF8	0	0	no
MEI1	0	2	yes
MEIOB	0	0	no
MEIS2	0	1	no
MEN1	0	0	no
MEOX1	0	1	no
MERTK	0	0	no
MESD	0	1	no
MESP2	0	0	no
MET	0	0	no
METTL13	0	1	no
METTL23	0	1	no
METTL5	1	0	no
MFAP5	0	0	yes
MFF	0	1	no
MFHAS1	0	0	no
MFN2	0	4	no
MFRP	0	0	no
MFSD2A	0	0	no
MFSD8	0	1	no
MGAT2	0	0	no
MGME1	0	0	no
MGP	0	0	no
MIA3	0	0	yes
MIAT	0	0	no
MIB1	0	0	no
MICOS13	0	0	yes
MICU1	1	0	no
MIEF2	0	0	no
MIF	0	1	no
MINAR2	0	0	no
MINPP1	0	0	yes
MIP	0	0	no
MIPEP	0	1	yes
MIR140	0	0	no
MIR184	0	0	no
MIR204	0	0	no

MIR2861	0	1	no
MIR96	0	0	no
MITF	0	0	no
MKKS	0	0	no
MKRN3	0	0	no
MKS1	0	0	no
MLC1	0	0	no
MLH1	2	0	no
MLH3	0	0	no
MLIP	3	0	yes
MLLT10	1	0	yes
MLPH	0	0	yes
MLYCD	0	0	no
MMAA	0	0	yes
MMAB	0	1	no
MMACHC	0	0	no
MMADHC	0	0	no
MME	1	1	no
MMP1	0	0	no
MMP13	0	0	no
MMP14	0	0	no
MMP19	0	0	no
MMP2	0	0	no
MMP20	0	0	no
MMP21	0	0	no
MMP3	0	0	no
MMP9	0	0	no
MMUT	0	0	no
MN1	0	0	no
MNS1	0	0	no
MNX1	0	0	no
MOCOS	0	0	no
MOCS1	0	0	yes
MOCS2	0	0	no
MOG	0	0	no
MOGS	0	0	no
MORC2	0	1	no
MOS	0	0	no
MOV10L1	0	0	no
MPC1	0	1	yes
MPDU1	0	0	no

MPDZ	0	1	no
MPEG1	0	0	no
MPI	0	1	no
MPIG6B	0	1	no
MPL	0	0	no
MPLKIP	0	0	yes
MPO	0	0	no
MPV17	0	0	no
MPZ	0	0	no
MPZL2	0	0	no
MRAP	0	0	no
MRAP2	0	0	no
MRAS	0	0	no
MRE11	0	0	yes
MRM2	0	0	no
MRPL12	0	0	no
MRPL3	0	1	yes
MRPL44	0	1	no
MRPS14	0	0	no
MRPS16	0	0	yes
MRPS2	0	0	yes
MRPS22	0	0	no
MRPS23	0	0	no
MRPS25	0	1	no
MRPS28	0	0	no
MRPS34	0	0	no
MRPS7	0	0	no
MRTFA	1	1	no
MS4A1	0	0	no
MS4A2	0	0	no
MSH2	0	1	no
MSH3	1	0	yes
MSH4	0	0	no
MSH5	0	1	no
MSH6	0	1	yes
MSMB	0	2	no
MSMO1	0	0	no
MSR1	0	0	no
MSRB3	0	1	no
MST1R	0	0	no
MSTN	0	0	no

MSTO1	0	1	yes
MSX1	0	0	no
MSX2	0	0	yes
MTAP	0	0	no
MTFMT	0	0	no
MTHFD1	0	0	no
MTHFR	0	3	no
MTHFS	0	0	no
MTMR14	0	0	no
MTMR2	0	0	no
MTNR1B	0	0	no
MTO1	0	0	yes
MTOR	0	1	no
MTPAP	0	1	yes
MTR	0	1	yes
MTRFR	0	0	no
MTRR	0	0	no
MTSS2	0	0	no
MTTP	0	0	no
MTX2	2	0	no
MUC1	0	0	yes
MUC5B	6	2	yes
MUC7	0	0	no
MUSK	2	2	no
MUTYH	0	0	no
MVD	0	0	no
MVK	0	0	no
MXI1	0	0	no
MYB	0	0	no
MYBPC1	0	1	no
MYBPC3	0	0	no
MYC	0	0	no
MYCN	0	0	no
MYD88	0	0	no
MYF5	0	0	no
MYH11	0	0	no
MYH14	0	2	no
MYH2	0	0	no
MYH3	0	0	no
MYH6	0	0	no
MYH7	0	0	no

MYH8	0	0	no
MYH9	0	0	no
MYL1	0	0	no
MYL11	0	0	no
MYL2	0	0	no
MYL3	0	0	no
MYL4	0	0	no
MYL9	0	1	no
MYLK	1	0	yes
MYLK2	0	3	no
MYMK	0	1	no
MYMX	0	1	no
MYO15A	0	0	no
MYO18B	0	0	no
MYO1E	0	0	yes
MYO1H	0	0	no
MYO3A	0	0	yes
MYO5A	0	1	no
MYO5B	0	0	yes
MYO6	0	0	yes
MYO7A	0	0	no
MYO9A	0	1	yes
MYO9B	0	0	no
MYOC	0	1	no
MYOCD	0	0	no
MYOD1	0	0	no
MYOF	0	0	no
MYORG	0	0	no
MYOT	0	0	no
MYOZ2	0	0	no
MYPN	0	0	no
MYRF	0	0	yes
MYSM1	0	0	no
MYT1L	0	0	yes
NAA15	0	0	no
NAA20	0	0	no
NACC1	0	0	yes
NADK2	0	1	yes
NADSYN1	0	0	no
NAE1	0	0	no
NAF1	0	0	no

NAGA	0	1	no
NAGLU	0	1	yes
NAGS	0	0	no
NALCN	1	0	no
NANOS1	0	0	yes
NANS	0	0	no
NAPB	0	0	no
NARS1	0	0	no
NARS2	1	1	no
NAT2	0	0	no
NAT8L	0	0	no
NAXD	0	0	no
NAXE	0	0	no
NBAS	0	1	no
NBEA	8	8	yes
NBEAL2	0	0	no
NBN	0	0	no
NCAPD2	0	1	yes
NCAPD3	0	4	no
NCAPG2	0	10	yes
NCAPH	0	0	no
NCDN	0	0	no
NCF1	28	72	yes
NCF2	0	1	no
NCF4	0	0	no
NCKAP1L	0	0	no
NCR3	0	1	no
NCSTN	0	0	no
NDE1	0	0	no
NDNF	0	0	no
NDRG1	0	1	no
NDST1	0	0	no
NDUFA10	0	0	yes
NDUFA11	0	0	no
NDUFA12	0	1	no
NDUFA13	0	1	no
NDUFA2	0	0	no
NDUFA4	0	0	no
NDUFA6	0	0	no
NDUFA8	0	0	no
NDUFA9	0	0	no

NDUFAF1	0	0	no
NDUFAF2	2	3	yes
NDUFAF3	0	1	no
NDUFAF4	0	0	yes
NDUFAF5	0	0	no
NDUFAF6	0	0	no
NDUFAF8	0	0	no
NDUFB10	0	0	no
NDUFB3	0	1	yes
NDUFB7	0	0	no
NDUFB8	0	0	no
NDUFB9	0	0	no
NDUFC2	0	0	yes
NDUFS1	0	0	yes
NDUFS2	0	0	no
NDUFS3	0	0	no
NDUFS4	0	1	no
NDUFS6	0	1	no
NDUFS7	0	0	no
NDUFS8	0	0	yes
NDUFV1	0	1	no
NDUFV2	0	0	no
NEB	3	1	yes
NECAP1	0	0	yes
NECTIN1	1	1	no
NECTIN4	0	0	no
NEDD4L	0	0	no
NEFH	0	0	yes
NEFL	0	0	no
NEK1	0	0	no
NEK10	0	1	no
NEK2	0	0	yes
NEK8	0	1	no
NEK9	0	0	yes
NEMF	0	0	no
NEPRO	0	0	no
NEU1	0	2	no
NEUROD1	0	0	no
NEUROD2	0	0	no
NEUROG1	0	0	no
NEUROG3	0	1	no

NEXN	0	0	no
NF1	0	67	yes
NF2	0	0	yes
NFASC	0	0	no
NFATC2	0	0	no
NFE2L2	0	0	yes
NFIA	0	0	no
NFIB	0	0	no
NFIX	0	0	no
NFKB1	0	0	no
NFKB2	0	0	no
NFKBIA	0	0	no
NFKBIL1	0	1	no
NFS1	0	0	yes
NFU1	0	0	no
NGF	0	0	no
NGLY1	0	1	yes
NHEJ1	0	0	no
NHERF1	0	0	no
NHLH2	0	0	no
NHLRC1	0	0	yes
NHLRC2	1	0	no
NHP2	0	0	no
NIN	0	0	no
NIPA1	0	0	yes
NIPAL4	0	0	no
NIPBL	0	1	yes
NKX2-1	0	0	no
NKX2-5	0	1	no
NKX2-6	0	1	no
NKX3-2	0	0	no
NKX6-2	0	4	no
NLGN1	0	3	no
NLRC4	0	0	no
NLRP1	0	0	no
NLRP12	1	0	no
NLRP2	0	0	yes
NLRP3	1	1	no
NLRP5	0	0	yes
NLRP7	1	0	yes
NME5	0	0	no

NME8	0	0	no
NMNAT1	0	0	no
NNMT	0	0	no
NNT	0	0	no
NOBOX	1	4	no
NOD2	0	0	no
NODAL	0	1	yes
NOG	0	1	no
NOL3	0	0	yes
NOP10	0	0	no
NOP56	0	0	no
NOS1AP	0	0	no
NOS2	2	1	yes
NOS3	0	0	no
NOTCH1	2	2	no
NOTCH2	25	100	yes
NOTCH2NLC	100	100	yes
NOTCH3	0	0	no
NOVA2	0	0	no
NPC1	1	0	no
NPC1L1	0	0	no
NPC2	0	0	no
NPHP1	0	21	yes
NPHP3	1	0	yes
NPHP4	0	1	no
NPHS1	0	1	no
NPHS2	0	0	no
NPM1	0	0	no
NPPA	0	4	no
NPR2	0	1	no
NPR3	0	0	no
NPRL2	0	0	no
NPRL3	0	1	no
NPSR1	1	2	yes
NPTX1	0	0	no
NQO1	0	0	no
NQO2	0	0	yes
NR0B2	0	0	no
NR1H4	0	0	no
NR2E3	0	0	no
NR2F1	0	1	no

NR2F2	0	0	no
NR3C1	0	0	yes
NR3C2	0	0	no
NR4A2	0	0	no
NR4A3	0	0	no
NR5A1	0	0	no
NRAS	0	0	yes
NRCAM	6	1	no
NRG1	0	4	no
NRIP1	0	0	no
NRL	0	0	no
NRROS	0	0	no
NRXN1	1	1	no
NSD1	0	1	no
NSD2	0	0	no
NSF	37	53	yes
NSMCE2	0	0	no
NSMCE3	0	0	no
NSMF	0	0	no
NSRP1	0	1	yes
NSUN2	0	0	no
NSUN3	1	0	yes
NT5C2	0	0	no
NT5C3A	0	0	yes
NT5E	0	0	no
NTF4	0	0	yes
NTHL1	0	0	no
NTN1	0	1	no
NTNG2	0	0	no
NTRK1	0	0	no
NTRK2	0	0	no
NUAK2	0	0	no
NUBPL	0	0	no
NUDT15	0	1	no
NUDT2	0	0	no
NUMA1	0	0	no
NUP107	0	1	yes
NUP133	0	0	yes
NUP155	0	0	yes
NUP160	0	0	no
NUP188	0	0	no

NUP205	0	0	no
NUP214	0	0	no
NUP37	0	0	no
NUP54	0	0	no
NUP62	0	2	no
NUP85	0	0	no
NUP88	0	0	no
NUP93	1	2	no
NUS1	0	0	yes
NUTM2B-AS1	92	98	yes
NXN	1	7	yes
OAS1	0	1	no
OAT	0	0	no
OBSCN	0	1	no
OBSL1	0	2	no
OCA2	0	0	yes
OCLN	25	96	yes
ODAD1	0	0	no
ODAD2	0	0	yes
ODAD3	0	1	no
ODAD4	0	0	no
ODAPH	0	0	no
ODC1	0	0	no
OGDH	0	0	no
OGDHL	0	0	yes
OGG1	0	0	no
OLR1	0	1	no
OPA1	0	0	yes
OPA3	0	0	no
OPCML	0	3	no
OPLAH	0	10	no
OPN1SW	0	0	no
OPTN	0	1	no
OR2J3	0	0	yes
ORC1	0	0	no
ORC4	0	0	yes
ORC6	0	0	yes
OSBPL2	0	0	no
OSGEP	0	1	no
OSMR	0	0	no
OSTM1	0	0	no

OTOA	11	78	yes
OTOF	0	0	no
OTOG	0	0	no
OTOGL	2	0	yes
OTUD6B	0	0	no
OTULIN	0	1	no
OTX2	0	0	no
OVOL2	0	0	no
OXCT1	0	0	no
OXGR1	0	0	no
OXR1	5	5	yes
P2RX2	0	4	no
P2RY12	0	0	no
P3H1	0	0	no
P3H2	1	0	no
P4HA2	1	0	no
P4HB	0	0	no
P4HTM	0	1	no
PABPN1	0	0	no
PACS1	0	1	no
PACS2	0	9	no
PADI3	0	0	no
PADI6	0	0	yes
PAFAH1B1	0	0	yes
PAH	0	0	no
PAICS	0	0	no
PAK1	0	1	yes
PAK2	1	3	yes
PALB2	1	0	no
PALLD	1	0	no
PAM16	0	0	no
PANK2	0	0	no
PANK4	0	0	no
PANX1	0	0	no
PAPPA2	1	1	yes
PAPSS2	0	0	yes
PARK7	0	0	no
PARN	7	0	yes
PARS2	0	0	yes
PATL2	0	0	no
PAX1	0	0	no

PAX2	0	0	no
PAX3	0	0	no
PAX4	0	0	no
PAX5	0	0	no
PAX6	0	0	no
PAX7	0	1	no
PAX8	0	0	yes
PAX9	0	0	no
PBRM1	0	0	no
PBX1	0	0	yes
PC	1	1	no
PCARE	0	0	no
PCBD1	0	1	no
PCCA	0	0	yes
PCCB	0	0	no
PCDH12	0	0	no
PCDH15	18	46	yes
PCDHGC4	0	0	no
PCGF2	0	0	yes
PCK1	0	0	no
PCK2	0	0	no
PCLO	1	2	no
PCNA	0	0	no
PCNT	0	0	yes
PCSK1	2	0	no
PCSK9	0	0	no
PCYT1A	0	0	no
PCYT2	0	0	yes
PDCD1	1	0	yes
PDCD10	0	0	no
PDCD6IP	0	1	yes
PDE10A	0	2	no
PDE11A	2	1	yes
PDE1C	2	3	no
PDE2A	0	0	no
PDE3A	1	0	yes
PDE4D	0	3	yes
PDE6A	1	1	no
PDE6B	0	2	no
PDE6C	0	0	no
PDE6D	1	0	no

PDE6G	0	0	no
PDE6H	0	0	no
PDE8B	0	1	no
PDGFB	0	0	no
PDGFRA	0	0	yes
PDGFRB	0	0	no
PDGFRL	0	0	yes
PDHA2	0	0	no
PDHB	0	0	no
PDHX	0	0	no
PDLIM4	0	0	no
PDP1	0	0	no
PDSS1	0	0	yes
PDSS2	0	2	no
PDX1	0	1	no
PDXK	0	0	no
PDYN	0	0	no
PDZD7	0	0	no
PDZD8	0	0	no
PEPD	0	1	no
PER2	0	0	yes
PER3	0	0	no
PERCC1	0	0	no
PERP	0	0	yes
PET100	0	0	no
PET117	0	0	no
PEX1	0	0	yes
PEX10	0	0	no
PEX11B	0	0	yes
PEX12	0	0	no
PEX13	0	0	no
PEX14	0	0	no
PEX16	0	0	no
PEX19	0	0	yes
PEX2	0	0	no
PEX26	0	0	no
PEX3	0	0	no
PEX5	0	0	yes
PEX6	1	0	yes
PEX7	0	0	no
PFKL	1	0	no

PFKM	0	0	no
PFN1	0	1	no
PGAM2	0	1	no
PGAP1	0	1	no
PGAP2	0	0	no
PGAP3	0	1	no
PGM1	0	0	no
PGM2L1	0	0	yes
PGM3	0	0	no
PGR	0	0	no
PHACTR1	4	0	yes
PHB1	0	0	yes
PHC1	0	0	yes
PHF21A	0	1	no
PHGDH	0	0	no
PHIP	2	0	no
PHKB	0	0	yes
PHKG2	0	0	no
PHOX2A	0	0	yes
PHOX2B	0	1	no
PHYH	0	0	no
PHYKPL	0	0	no
PI4KA	6	19	yes
PI4KB	0	0	no
PIBF1	0	1	no
PICALM	0	2	no
PIDD1	1	1	no
PIEZO1	0	2	no
PIEZO2	0	0	yes
PIGB	0	0	no
PIGC	0	2	yes
PIGF	0	0	yes
PIGG	0	3	yes
PIGH	0	0	no
PIGK	0	0	yes
PIGL	0	5	yes
PIGM	0	0	no
PIGN	0	0	yes
PIGO	0	1	yes
PIGP	0	0	no
PIGQ	0	2	no

PIGS	0	1	no
PIGT	0	0	no
PIGU	3	1	no
PIGV	0	0	no
PIGW	0	0	no
PIGY	0	0	yes
PIK3C2A	0	0	no
PIK3CA	41	2	yes
PIK3CD	0	1	yes
PIK3CG	0	1	no
PIK3R1	0	0	no
PIK3R2	0	0	no
PIK3R5	1	0	no
PIKFYVE	0	0	no
PINK1	0	1	no
PIP5K1C	0	1	no
PISD	0	1	no
PITPNM3	0	0	no
PITRM1	0	0	no
PITX1	0	0	no
PITX2	0	1	no
PITX3	0	0	no
PJKV	0	0	no
PKD1	12	12	yes
PKD1L1	11	0	no
PKD2	0	0	no
PKDCC	0	0	no
PKHD1	1	1	no
PKLR	0	1	no
PKP1	1	1	no
PKP2	0	0	yes
PLA2G2A	0	1	no
PLA2G4A	0	1	no
PLA2G5	0	1	no
PLA2G6	0	0	no
PLA2G7	0	0	no
PLAA	0	1	no
PLAG1	0	0	no
PLAU	0	0	no
PLCB1	1	0	no
PLCB2	0	0	yes

PLCB3	0	0	no
PLCB4	0	0	no
PLCD1	0	0	no
PLCE1	0	1	no
PLCG2	0	0	no
PLCH1	4	0	no
PLCZ1	0	0	yes
PLD1	0	0	no
PLD3	0	0	no
PLEC	0	9	no
PLEKHG2	0	1	no
PLEKHG5	0	0	yes
PLEKHM1	15	90	yes
PLG	3	2	yes
PLIN1	0	0	no
PLIN4	0	1	no
PLK4	0	0	no
PLN	0	0	no
PLOD1	0	4	yes
PLOD2	0	2	no
PLOD3	0	1	yes
PLPBP	0	0	no
PLS1	1	1	no
PLVAP	0	0	no
PLXNA1	0	0	no
PLXND1	0	0	no
PMFBP1	0	0	no
PML	0	1	yes
PMM2	0	1	no
PMP2	0	0	no
PMP22	0	3	no
PMPCA	0	0	no
PMPCB	0	0	yes
PMS2	7	99	yes
PMVK	0	0	no
PNKD	0	0	no
PNKP	0	2	no
PNLDC1	0	0	no
PNLIP	0	0	no
PNP	0	1	no
PNPLA1	0	0	no

PNPLA2	0	0	no
PNPLA6	0	0	no
PNPLA8	0	0	yes
PNPO	0	0	no
PNPT1	0	0	yes
POC1A	0	0	no
POC1B	0	0	no
POFUT1	0	2	yes
POGLUT1	0	0	no
POGZ	0	0	no
POLD1	0	2	no
POLE	0	4	yes
POLG	0	0	no
POLG2	0	0	no
POLH	0	0	yes
POLR1A	0	0	no
POLR1B	0	0	no
POLR1C	0	2	yes
POLR1D	0	1	no
POLR2A	0	0	yes
POLR3A	0	0	no
POLR3B	0	0	no
POLR3F	0	0	no
POLR3GL	0	0	no
POLR3K	0	2	yes
POLRMT	0	0	yes
POMC	0	0	no
POMGNT1	0	0	no
POMGNT2	0	0	no
POMK	0	0	no
POMP	0	0	no
POMT1	0	0	no
POMT2	0	0	no
PON1	0	0	no
PON2	0	0	no
POP1	0	1	no
POPDC3	0	1	no
POR	0	1	yes
POT1	0	0	no
POU1F1	0	0	no
POU3F3	0	0	no

POU4F1	0	1	no
POU4F3	0	0	no
POU6F2	0	0	no
PPA2	0	0	no
PPARG	0	0	no
PPCS	0	0	no
PPFIBP1	0	2	yes
PPIB	0	0	no
PPIL1	0	0	no
PIIP5K2	0	0	no
PPM1D	0	1	no
PPM1K	0	0	no
PPOX	0	0	no
PPP1CB	0	0	no
PPP1R12A	0	0	no
PPP1R15B	1	0	no
PPP1R17	0	0	no
PPP1R21	0	1	no
PPP1R3A	0	0	no
PPP2CA	0	0	no
PPP2R1A	0	0	no
PPP2R1B	0	0	no
PPP2R2B	0	0	yes
PPP2R3C	0	0	no
PPP2R5D	0	0	no
PPP3CA	0	0	no
PPT1	0	0	yes
PRCC	0	0	no
PRCD	0	2	no
PRDM10	0	0	yes
PRDM12	0	1	no
PRDM13	0	0	no
PRDM16	0	1	no
PRDM5	0	1	no
PRDM6	0	0	no
PRDM8	0	0	no
PRDX1	0	0	no
PRDX3	0	0	no
PREPL	0	0	no
PRF1	0	1	no
PRG4	0	0	no

PRICKLE1	0	0	no
PRIM1	0	0	no
PRIMPOL	0	0	no
PRKACA	0	0	no
PRKACB	5	0	no
PRKACG	0	0	no
PRKAG2	0	1	no
PRKAG3	0	0	no
PRKAR1A	0	2	no
PRKAR1B	100	100	yes
PRKCA	1	1	yes
PRKCD	0	1	no
PRKCG	0	0	no
PRKCH	1	0	no
PRKCSH	0	0	no
PRKD1	0	2	no
PRKDC	0	1	no
PRKG1	0	0	yes
PRKG2	0	0	no
PRKN	4	7	no
PRKRA	0	1	no
PRLR	0	0	no
PRMT7	0	1	no
PRNP	0	0	no
PROC	0	0	no
PRODH	3	2	yes
PROK2	0	0	no
PROKR2	0	0	yes
PROM1	0	1	no
PROP1	2	1	yes
PRORP	2	0	no
PROS1	1	0	yes
PROZ	0	3	no
PRPF3	0	0	no
PRPF31	1	0	no
PRPF4	0	0	no
PRPF6	0	0	no
PRPF8	0	0	no
PRPH	1	0	no
PRPH2	0	0	no
PRR12	0	1	no

PRRT2	0	1	no
PRRX1	0	0	no
PRSS1	3	3	yes
PRSS12	0	0	no
PRSS2	1	4	yes
PRSS56	0	0	no
PRUNE1	0	0	no
PRX	0	0	no
PSAP	0	0	no
PSAT1	0	0	yes
PSEN1	0	0	no
PSEN2	0	1	no
PSENE1	0	1	no
PSMA6	0	0	no
PSMB1	0	0	no
PSMB10	0	2	no
PSMB4	0	0	no
PSMB8	0	0	no
PSMB9	0	0	no
PSMC1	0	0	no
PSMC3	0	0	no
PSMC3IP	0	1	no
PSMD12	0	1	no
PSMG2	0	1	no
PSPH	0	12	yes
PSTPIP1	0	1	no
PTCD3	0	0	no
PTCH1	0	0	no
PTCH2	0	0	no
PTDSS1	0	0	no
PTEN	0	0	yes
PTF1A	0	0	no
PTGDR	0	0	no
PTGER2	0	0	no
PTGIS	0	1	no
PTH	0	0	yes
PTH1R	0	0	no
PTHLH	0	0	no
PTPA	0	0	no
PTPN1	0	0	no
PTPN11	0	0	yes

PTPN12	0	1	no
PTPN14	0	0	yes
PTPN22	0	0	no
PTPN23	1	0	no
PTPRC	0	1	no
PTPRF	66	73	no
PTPRJ	0	0	no
PTPRO	0	1	no
PTPRQ	0	0	no
PTRH2	0	1	no
PTS	0	0	yes
PUF60	0	7	no
PUM1	0	0	no
PURA	0	0	no
PUS1	0	2	no
PUS3	0	0	no
PUS7	0	0	no
PXDN	3	7	no
PYCR1	0	0	no
PYCR2	0	1	no
PYGL	0	0	no
PYGM	0	0	no
PYROXD1	0	1	yes
QARS1	0	1	no
QDPR	0	0	no
QRICH1	0	1	no
QRICH2	1	0	no
QRSL1	0	0	no
RAB11B	0	0	no
RAB18	0	1	no
RAB23	0	0	no
RAB27A	0	0	no
RAB28	0	0	no
RAB33B	0	0	no
RAB3GAP1	0	0	yes
RAB3GAP2	0	1	yes
RAB5IF	0	0	no
RAB7A	0	0	no
RABL3	0	0	no
RAC1	0	0	no
RAC2	0	0	no

RAC3	0	0	no
RACGAP1	0	0	yes
RAD21	0	0	yes
RAD50	0	0	no
RAD51	0	0	no
RAD51C	0	0	yes
RAD51D	0	0	no
RAD54B	0	0	no
RAD54L	1	0	yes
RAF1	0	0	yes
RAG1	5	0	no
RAG2	0	0	no
RAI1	0	0	no
RALA	0	0	yes
RALGAPA1	0	0	yes
RANBP2	71	100	yes
RAP1GDS1	0	0	no
RAPGEF2	0	0	no
RAPSN	0	0	no
RARA	0	1	no
RARB	2	1	no
RARS1	0	0	no
RARS2	0	0	yes
RASA1	0	0	no
RASGRP1	0	0	no
RASGRP2	0	0	no
RAX	0	0	no
RAX2	0	0	no
RB1	0	1	yes
RB1CC1	0	0	no
RBBP8	1	1	no
RBCK1	0	1	no
RBL2	0	0	yes
RBM12	0	0	no
RBM20	0	0	no
RBM28	0	0	no
RBM8A	0	0	yes
RBP3	0	0	no
RBP4	0	0	no
RBPJ	2	3	yes
RC3H1	0	0	no

RCBTB1	0	0	no
RD3	0	0	no
RDH11	0	0	no
RDH12	0	0	no
RDH5	0	0	no
RDX	9	7	yes
REC114	1	4	no
RECQL	0	0	yes
RECQL4	0	15	no
REEP1	0	0	no
REEP2	0	0	yes
REEP6	0	0	no
REL	0	0	no
RELA	0	0	yes
RELB	0	0	no
RELN	0	1	no
RELT	0	0	no
REN	0	0	no
REPS1	0	0	no
RERE	15	1	yes
REST	0	0	yes
RET	1	1	no
RETN	0	0	no
RETREG1	0	3	no
RFC1	0	1	no
RFT1	0	0	yes
RFWD3	0	0	no
RFX5	0	0	no
RFX6	0	1	no
RFX7	1	0	no
RFXANK	0	1	no
RFXAP	0	0	no
RGR	0	0	no
RGS5	0	1	no
RGS9	0	0	no
RGS9BP	0	0	no
RHAG	0	0	no
RHBDF2	0	1	no
RHCE	29	3	yes
RHD	69	3	yes
RHO	0	2	no

RHOA	0	1	no
RHOBTB2	0	1	no
RHOH	1	1	no
RIC1	0	1	no
RIGI	0	0	no
RILPL1	0	2	no
RIMS2	40	5	no
RIN2	0	0	no
RINT1	0	0	no
RIPK1	0	0	yes
RIPK4	0	1	no
RIPOR2	3	9	yes
RIPPLY2	0	0	no
RIT1	0	1	no
RLBP1	0	0	no
RMND1	0	0	yes
RMRP	0	1	no
RNASEH1	0	0	no
RNASEH2A	0	0	no
RNASEH2B	0	0	no
RNASEH2C	0	0	no
RNASEL	0	0	no
RNASET2	0	1	no
RNF125	0	0	yes
RNF13	0	1	yes
RNF139	0	0	no
RNF168	0	0	no
RNF170	0	0	no
RNF2	0	0	yes
RNF212	0	1	no
RNF213	7	2	no
RNF216	0	0	yes
RNF220	0	0	no
RNF43	0	0	yes
RNF6	0	1	yes
RNH1	0	0	no
RNPC3	2	1	yes
RNU12	0	0	no
RNU4ATAC	0	0	no
RNU7-1	0	0	no
ROBO1	2	3	yes

ROBO2	30	4	yes
ROBO3	0	0	no
ROBO4	0	0	no
ROGDI	0	0	no
ROM1	0	0	yes
ROR1	1	5	yes
ROR2	0	0	no
RORA	0	0	yes
RORB	0	1	no
RORC	0	0	no
RP1	1	1	yes
RP1L1	0	0	no
RP9	0	0	no
RPA1	0	0	yes
RPE65	1	0	no
RPGRIP1	0	0	yes
RPGRIP1L	0	0	yes
RPIA	1	0	yes
RPL10L	0	0	no
RPL11	0	0	no
RPL13	0	0	no
RPL15	0	0	yes
RPL18	0	0	no
RPL21	0	1	no
RPL26	0	0	no
RPL27	0	1	yes
RPL35	0	0	no
RPL35A	0	1	no
RPL3L	0	0	no
RPL5	0	0	no
RPS10	1	0	no
RPS14	0	1	no
RPS15A	21	61	yes
RPS17	0	0	yes
RPS19	0	0	no
RPS23	0	0	no
RPS24	0	0	no
RPS26	0	0	no
RPS27	0	1	no
RPS28	0	0	no
RPS29	0	0	yes

RPS7	0	0	no
RPSA	0	1	no
RRAGD	0	0	no
RRAS2	0	0	yes
RRM2B	0	0	yes
RRP7A	3	1	yes
RSPH1	0	0	no
RSPH3	0	0	no
RSPH4A	0	0	no
RSPH9	0	0	no
RSPO1	0	0	no
RSPO2	0	0	yes
RSPO4	0	0	no
RSPRY1	0	0	no
RSRC1	1	0	yes
RTEL1	0	0	no
RTN2	0	0	no
RTN4IP1	0	1	no
RTN4R	3	3	yes
RTTN	1	1	no
RUBCN	0	0	yes
RUNX1	0	0	no
RUNX2	0	1	no
RUSC2	0	1	no
RXYLT1	0	0	no
RYR1	0	0	no
RYR2	0	0	no
RYR3	1	0	no
S1PR2	0	0	no
SACS	0	1	no
SAG	0	1	no
SALL1	0	0	yes
SALL2	0	0	no
SALL4	0	0	no
SAMD12	0	0	no
SAMD9	0	0	no
SAMD9L	0	0	no
SAMHD1	0	1	no
SAR1B	1	0	no
SARDH	0	1	no
SARS1	0	4	no

SARS2	1	0	no
SASH1	0	0	yes
SASS6	0	0	no
SATB1	0	0	no
SATB2	1	1	no
SBDS	44	0	yes
SBF1	0	0	yes
SBF2	0	2	yes
SC5D	0	0	yes
SCAPER	3	0	no
SCARB1	0	0	no
SCARB2	0	0	no
SCARF2	0	15	no
SCD5	0	0	no
SCGB3A2	0	0	no
SCN10A	0	2	no
SCN11A	0	1	no
SCN1A	0	1	no
SCN1B	0	0	no
SCN2A	1	0	no
SCN2B	0	0	no
SCN3A	1	1	no
SCN3B	0	0	no
SCN4A	0	0	no
SCN4B	0	0	no
SCN5A	0	1	no
SCN8A	1	1	yes
SCN9A	0	0	no
SCNM1	0	0	no
SCNN1A	0	0	no
SCNN1B	0	0	no
SCNN1G	0	0	no
SCO1	0	0	no
SCO2	0	1	no
SCP2	1	1	yes
SCUBE3	0	0	yes
SCYL1	0	0	no
SCYL2	0	0	yes
SDC3	0	0	no
SDCCAG8	0	1	no
SDHA	21	26	yes

SDHAF1	0	1	no
SDHAF2	0	0	no
SDHB	0	1	no
SDHC	0	0	no
SDHD	0	0	no
SDR9C7	0	0	yes
SEC23A	0	0	yes
SEC23B	0	0	no
SEC24D	0	0	no
SEC31A	0	1	no
SEC61A1	0	0	no
SEC63	0	2	no
SECISBP2	0	1	no
SELENBP1	0	0	no
SELENOI	0	0	no
SELENON	0	0	no
SEMA3A	0	3	no
SEMA4A	0	1	no
SEMA6B	0	0	no
SEMA7A	0	0	no
SEPSECS	0	0	no
SEPTIN12	0	0	no
SEPTIN9	0	2	no
SERAC1	0	0	no
SERPINA1	0	0	yes
SERPINA3	0	0	no
SERPINA6	0	1	no
SERPINB6	0	0	no
SERPINB7	0	0	no
SERPINB8	0	0	no
SERPINC1	0	0	no
SERPIND1	0	16	no
SERPINE1	0	1	no
SERPINF1	0	0	no
SERPINF2	0	0	yes
SERPING1	0	0	no
SERPINH1	0	0	no
SERPINI1	0	1	no
SET	0	0	yes
SETBP1	0	0	yes
SETD1A	0	0	no

SETD1B	0	1	no
SETD2	0	0	no
SETD5	0	0	no
SETX	0	0	no
SF3B1	0	0	yes
SF3B2	0	1	no
SF3B4	0	0	no
SFRP4	0	2	no
SFTPA1	0	0	no
SFTPA2	0	0	yes
SFTPB	0	0	no
SFTPC	0	1	no
SFXN4	0	0	yes
SGCA	0	0	no
SGCB	0	1	no
SGCD	12	0	no
SGCE	0	0	no
SGCG	0	2	yes
SGMS2	0	1	no
SGO1	0	0	no
SGPL1	0	1	yes
SGSH	0	0	no
SH2B3	0	0	no
SH3BP2	0	0	no
SH3GL1	0	0	no
SH3PXD2B	0	1	no
SH3TC2	0	0	yes
SHANK2	100	100	yes
SHANK3	16	23	yes
SHH	0	0	no
SHMT2	0	0	no
SHOC1	0	1	no
SHOC2	0	0	no
SHPK	0	1	no
SHQ1	0	2	yes
SI	0	0	no
SIAE	0	0	no
SIAH1	0	0	no
SIGMAR1	0	0	no
SIK1	0	0	yes
SIK3	0	3	no

SIL1	0	0	no
SIN3A	0	0	yes
SIPA1L3	0	1	no
SIX1	0	0	no
SIX3	0	0	no
SIX5	0	0	no
SIX6	0	0	no
SKI	0	0	no
SKIC2	0	1	no
SKIC3	0	0	no
SLC10A1	0	0	no
SLC10A2	0	0	yes
SLC10A7	2	2	no
SLC11A1	0	0	no
SLC11A2	0	1	no
SLC12A1	0	0	no
SLC12A2	0	0	no
SLC12A3	0	2	no
SLC12A5	0	0	no
SLC12A6	1	0	no
SLC13A3	0	0	no
SLC13A5	0	0	no
SLC14A1	0	0	no
SLC16A1	0	0	no
SLC16A12	0	0	yes
SLC17A3	0	0	no
SLC17A5	0	0	no
SLC17A8	0	0	no
SLC17A9	0	0	no
SLC18A2	0	0	no
SLC18A3	0	0	no
SLC19A1	3	3	no
SLC19A2	0	0	no
SLC19A3	0	0	no
SLC1A1	0	0	no
SLC1A2	0	0	no
SLC1A3	0	0	no
SLC1A4	0	0	no
SLC20A2	0	0	no
SLC22A12	0	0	no
SLC22A18	0	0	no

SLC22A4	0	0	no
SLC22A5	0	0	no
SLC24A1	0	0	no
SLC24A4	0	0	no
SLC24A5	0	0	no
SLC25A1	0	2	no
SLC25A10	0	0	no
SLC25A11	0	1	no
SLC25A12	0	0	yes
SLC25A13	0	0	no
SLC25A15	0	0	yes
SLC25A19	0	0	no
SLC25A20	0	1	no
SLC25A21	0	0	yes
SLC25A22	0	0	no
SLC25A24	3	6	no
SLC25A26	0	2	no
SLC25A3	0	1	no
SLC25A32	0	0	no
SLC25A36	0	0	no
SLC25A38	0	1	no
SLC25A4	0	0	no
SLC25A42	0	1	no
SLC25A46	0	0	no
SLC26A1	0	1	no
SLC26A2	0	0	no
SLC26A3	0	0	no
SLC26A4	0	0	no
SLC26A5	0	0	no
SLC26A8	0	0	no
SLC27A4	0	1	no
SLC28A1	0	8	no
SLC29A3	0	0	no
SLC2A1	0	0	no
SLC2A10	0	0	no
SLC2A2	0	0	no
SLC2A9	0	1	yes
SLC30A10	0	0	no
SLC30A2	0	0	no
SLC30A8	0	0	no
SLC30A9	0	1	yes

SLC31A1	0	0	yes
SLC33A1	0	0	yes
SLC34A1	0	0	no
SLC34A2	0	0	no
SLC34A3	1	0	no
SLC35A1	0	0	no
SLC35A3	0	0	no
SLC35B2	0	0	no
SLC35C1	0	0	no
SLC35D1	0	0	no
SLC36A2	0	0	no
SLC37A4	0	0	no
SLC38A3	0	0	no
SLC38A8	0	0	no
SLC39A13	0	0	no
SLC39A14	0	0	no
SLC39A4	0	14	no
SLC39A5	0	0	no
SLC39A7	0	0	no
SLC39A8	0	0	no
SLC3A1	0	0	no
SLC40A1	0	0	no
SLC41A1	0	0	no
SLC44A1	0	0	no
SLC44A4	0	2	no
SLC45A1	0	0	no
SLC45A2	0	0	no
SLC46A1	0	1	no
SLC4A1	0	0	no
SLC4A11	0	0	no
SLC4A2	0	0	no
SLC4A3	0	1	no
SLC4A4	0	1	no
SLC51A	0	0	no
SLC51B	0	1	no
SLC52A1	0	1	yes
SLC52A2	0	14	no
SLC52A3	0	0	no
SLC5A1	0	1	yes
SLC5A2	0	0	no
SLC5A5	0	0	no

SLC5A6	0	0	no
SLC5A7	0	0	no
SLC6A1	0	0	no
SLC6A17	0	0	no
SLC6A19	0	7	no
SLC6A2	1	0	no
SLC6A3	0	5	no
SLC6A4	0	1	yes
SLC6A5	0	0	yes
SLC6A6	0	0	no
SLC6A9	0	0	no
SLC7A14	1	0	yes
SLC7A6OS	0	1	no
SLC7A7	0	0	no
SLC7A9	0	0	no
SLC9A1	0	0	no
SLC9A3	22	33	yes
SLC9A9	2	4	yes
SLCO1B1	1	0	no
SLCO1B3	0	0	no
SLCO2A1	0	0	no
SLF2	0	0	no
SLFN14	0	0	no
SLITRK1	0	0	no
SLITRK6	0	0	no
SLURP1	0	1	yes
SLX4	0	0	no
SMAD2	0	1	no
SMAD3	0	1	no
SMAD4	0	1	no
SMAD6	0	0	no
SMAD7	0	0	no
SMAD9	0	0	no
SMARCA2	0	1	no
SMARCA4	0	0	no
SMARCAD1	0	0	no
SMARCAL1	0	1	no
SMARCB1	0	1	no
SMARCC1	0	0	no
SMARCC2	0	0	no
SMARCD1	0	0	no

SMARCD2	0	0	no
SMARCE1	0	0	no
SMC3	0	0	no
SMC5	0	0	no
SMCHD1	0	0	no
SMG8	0	0	yes
SMG9	0	0	no
SMIM1	0	0	no
SMN1	83	65	yes
SMN2	83	76	yes
SMO	0	0	no
SMOC1	0	0	no
SMOC2	22	22	yes
SMPD1	0	0	no
SMPD4	53	29	yes
SNAP25	0	0	no
SNAP29	0	16	no
SNCA	0	0	no
SNCB	0	0	no
SNIP1	0	0	no
SNORA31	0	0	no
SNORD118	0	0	no
SNRN200	0	0	no
SNRPB	0	0	no
SNRPE	0	1	yes
SNTA1	0	0	no
SNX10	0	1	no
SNX14	0	0	no
SOBP	0	0	no
SOCS1	0	1	yes
SOD1	0	0	no
SOD2	0	0	yes
SOD3	0	0	no
SOHLH1	0	0	no
SON	0	2	yes
SORD	72	2	yes
SORT1	0	4	no
SOS1	0	0	no
SOS2	0	0	yes
SOST	0	1	no
SOX10	0	0	no

SOX11	0	0	no
SOX17	0	0	no
SOX18	0	0	no
SOX2	0	0	yes
SOX4	0	0	no
SOX5	0	4	no
SOX6	0	2	yes
SOX9	0	0	no
SP110	0	0	no
SP6	0	0	no
SP7	0	0	no
SPACA1	0	0	no
SPAG1	0	0	no
SPAG17	0	1	no
SPARC	0	0	no
SPART	0	0	no
SPAST	0	0	no
SPATA16	1	0	yes
SPATA7	0	0	no
SPECC1L	2	2	yes
SPEF2	0	0	no
SPEG	0	0	no
SPEN	0	2	no
SPG11	0	0	yes
SPG21	1	0	no
SPG7	0	0	no
SPI1	0	0	no
SPIDR	8	9	yes
SPINK1	0	0	no
SPINK2	0	0	no
SPINK5	0	0	no
SPINT2	0	0	no
SPNS2	0	1	no
SPOP	0	0	no
SPPL2A	0	0	no
SPR	0	0	no
SPRED1	0	0	no
SPRED2	0	0	no
SPRTN	0	1	yes
SPRY2	0	0	no
SPRY4	0	0	no

SPTA1	0	0	no
SPTAN1	0	0	no
SPTB	0	0	no
SPTBN1	0	0	no
SPTBN2	0	0	yes
SPTBN4	0	0	no
SPTLC1	0	0	yes
SPTLC2	1	0	no
SPTSSA	0	0	no
SQOR	0	0	no
SQSTM1	0	0	yes
SRC	0	1	no
SRCAP	0	0	no
SRD5A2	0	0	no
SRD5A3	0	0	yes
SREBF1	0	0	no
SRGAP1	0	0	no
SRP54	1	0	no
SRP72	1	1	yes
SRRM2	0	0	no
SRSF1	0	0	no
SS18	0	1	yes
SSBP1	0	0	no
ST14	0	0	no
ST3GAL3	0	0	yes
ST3GAL5	0	0	no
STAC3	0	0	no
STAG1	0	0	yes
STAG3	1	0	yes
STAMBP	0	1	no
STAR	0	0	no
STARD7	0	0	no
STAT1	0	0	no
STAT2	0	0	no
STAT3	0	1	no
STAT4	0	0	no
STAT5B	0	1	yes
STEAP3	0	0	no
STIL	0	1	no
STIM1	0	0	yes
STING1	0	0	no

STK11	0	0	no
STK36	0	0	no
STK4	0	1	no
STN1	0	0	no
STOX1	0	0	no
STRA6	0	0	no
STRADA	0	0	no
STRC	1	4	yes
STT3A	1	0	yes
STT3B	0	0	no
STUB1	0	1	no
STX11	0	0	no
STX16	0	0	no
STX1B	0	0	no
STX3	0	0	no
STX5	0	1	no
STXBP1	0	0	no
STXBP2	0	0	no
SUCLA2	0	1	no
SUCLG1	0	0	no
SUFU	0	1	no
SUGCT	0	4	yes
SULT2B1	0	0	no
SUMF1	4	3	no
SUMO1	0	1	yes
SUMO4	0	0	no
SUN5	0	0	no
SUOX	0	1	yes
SUPT16H	0	0	yes
SURF1	0	1	no
SUZ12	15	67	yes
SVBP	0	0	yes
SVIL	1	0	yes
SYCE1	0	11	yes
SYCP2	0	0	no
SYCP3	0	0	no
SYK	0	0	no
SYN2	0	0	yes
SYNE1	0	1	no
SYNE2	1	1	no
SYNE4	0	1	no

SYNGAP1	1	0	no
SYNJ1	0	0	yes
SYT1	1	2	yes
SYT14	0	1	yes
SYT2	0	0	yes
SZT2	1	0	no
TAB2	0	0	no
TAC3	1	0	no
TACO1	0	0	yes
TACR3	0	1	yes
TACSTD2	0	0	no
TAF13	0	3	no
TAF15	0	0	yes
TAF2	0	0	no
TAF4	0	2	no
TAF4B	1	0	yes
TAF6	0	0	no
TAF8	0	0	no
TAL1	0	0	no
TAL2	0	0	no
TALDO1	0	0	no
TAMM41	0	0	no
TANC2	0	1	yes
TANGO2	0	4	no
TAOK1	0	1	no
TAP1	0	0	no
TAP2	0	0	no
TAPBP	0	0	no
TAPT1	0	2	yes
TARDBP	0	1	yes
TARS1	0	0	no
TARS2	1	0	no
TAS2R16	0	0	no
TAS2R38	0	0	no
TASP1	0	1	yes
TAT	0	0	no
TBC1D20	0	1	no
TBC1D23	0	1	no
TBC1D24	0	0	no
TBC1D2B	0	0	yes
TBC1D4	0	0	no

TBC1D7	0	0	no
TBCD	0	2	yes
TBCE	1	0	no
TBCK	1	0	yes
TBK1	0	0	yes
TBL1XR1	0	1	yes
TBP	1	0	no
TBR1	0	0	no
TBX1	0	3	no
TBX15	0	0	no
TBX18	0	0	no
TBX19	0	0	no
TBX2	0	0	no
TBX20	4	17	yes
TBX21	0	0	no
TBX3	0	0	no
TBX4	0	0	no
TBX5	0	0	no
TBX6	0	1	no
TBXA2R	1	0	no
TBXAS1	0	0	no
TBXT	0	0	no
TCAP	0	0	no
TCF12	0	2	yes
TCF20	0	1	yes
TCF3	0	4	no
TCF4	0	1	no
TCF7L2	0	0	no
TCHH	0	0	no
TCIRG1	0	0	no
TCL1A	0	0	no
TCL1B	0	0	no
TCN2	0	0	no
TCOF1	0	0	no
TCTN1	0	0	no
TCTN2	0	1	no
TCTN3	0	0	no
TDO2	0	0	no
TDP1	0	0	no
TDP2	0	0	no
TDRD7	0	1	no

TDRD9	0	1	yes
TEAD1	0	0	no
TECPR2	0	0	no
TECR	0	0	yes
TECRL	0	0	no
TECTA	0	1	no
TEFM	0	65	no
TEK	0	0	no
TEKT3	0	3	no
TELO2	0	0	no
TENM3	2	3	no
TENM4	1	1	no
TENT5A	0	0	no
TERB1	0	1	no
TERB2	15	0	yes
TERC	0	0	no
TERT	0	6	yes
TET2	0	0	no
TET3	0	0	no
TEX14	0	0	no
TEX15	0	0	no
TF	0	1	no
TFAM	0	0	yes
TFAP2A	0	1	no
TFAP2B	0	0	no
TFG	0	0	no
TFR2	0	0	no
TFRC	0	1	no
TG	0	0	no
TGDS	0	0	no
TGFB1	0	0	no
TGFB2	0	0	no
TGFB3	0	0	no
TGFBI	0	0	no
TGFBR1	0	0	no
TGFBR2	0	0	no
TGIF1	0	0	no
TGM1	0	0	no
TGM3	0	1	no
TGM5	0	1	no
TGM6	0	0	no

TH	0	0	no
THAP1	0	0	no
THBD	0	0	no
THBS2	0	0	no
THG1L	0	0	no
THOC1	0	5	no
THOC6	0	0	yes
THPO	0	0	no
THRA	0	0	no
THRB	0	1	no
THSD1	0	4	yes
THSD4	3	1	yes
THUMPD1	0	0	yes
TIA1	0	0	no
TIAM1	0	0	yes
TICAM1	0	0	no
TIE1	0	0	no
TIMELESS	0	0	no
TIMM22	0	3	no
TIMM50	0	0	no
TIMMDC1	0	0	no
TIMP3	0	0	no
TINF2	0	0	no
TIRAP	0	0	no
TJP2	1	0	no
TK2	0	0	no
TKFC	0	0	no
TKT	0	0	no
TLCD3B	0	2	no
TLE6	0	0	no
TLK2	72	2	yes
TLL1	0	0	no
TLR1	0	0	yes
TLR2	0	0	no
TLR3	1	0	no
TLR5	0	1	no
TM4SF20	0	0	no
TMC1	0	0	no
TMC6	0	1	no
TMC8	0	0	no
TMCO1	0	0	no

TMEM106B	0	0	no
TMEM107	0	0	no
TMEM126A	0	1	no
TMEM126B	0	1	no
TMEM127	0	0	no
TMEM132E	0	0	no
TMEM138	0	0	no
TMEM147	0	1	no
TMEM151A	0	2	no
TMEM163	1	0	yes
TMEM165	1	0	no
TMEM199	0	1	no
TMEM216	0	0	no
TMEM218	0	0	no
TMEM222	0	0	yes
TMEM231	0	0	no
TMEM237	0	0	no
TMEM240	0	0	yes
TMEM260	0	0	no
TMEM38B	0	0	yes
TMEM43	0	0	no
TMEM53	0	0	no
TMEM63A	0	1	yes
TMEM63C	0	0	no
TMEM67	0	0	no
TMEM70	0	0	no
TMEM94	0	0	no
TMEM98	0	0	no
TMIE	0	0	no
TMPRSS15	0	1	yes
TMPRSS3	0	0	no
TMPRSS6	0	0	no
TMTC3	0	1	no
TMX2	0	0	no
TNC	0	0	no
TNF	0	1	no
TNFAIP3	0	0	no
TNFRSF10B	0	1	no
TNFRSF11A	0	0	no
TNFRSF11B	0	0	no
TNFRSF13B	0	0	no

TNFRSF13C	0	0	no
TNFRSF1A	0	0	no
TNFRSF4	0	0	no
TNFRSF9	0	0	no
TNFSF11	0	0	no
TNFSF4	1	0	yes
TNIK	0	2	yes
TNNC1	0	0	no
TNNC2	0	1	no
TNNI2	0	0	no
TNNI3	0	0	no
TNNI3K	0	0	no
TNNT1	0	0	no
TNNT2	0	0	no
TNNT3	0	0	yes
TNPO2	0	1	no
TNPO3	0	0	yes
TNR	0	0	no
TNRC6A	0	0	no
TNRC6B	0	2	no
TNXB	25	1	yes
TOE1	0	0	no
TOGARAM1	0	0	no
TOM1	0	0	no
TONSL	0	14	no
TOP1	0	0	yes
TOP2A	0	1	no
TOP2B	0	0	no
TOP3A	0	0	no
TOP6BL	0	0	no
TOPORS	0	0	no
TOR1A	0	0	no
TOR1AIP1	0	0	no
TP53	0	0	no
TP53RK	0	0	no
TP63	0	0	no
TP73	1	0	no
TPCN2	0	0	no
TPH2	0	0	no
TPI1	0	0	no
TPK1	0	5	yes

TPM1	0	0	no
TPM2	0	1	no
TPM3	0	0	yes
TPM4	1	0	yes
TPMT	0	0	yes
TPO	28	19	yes
TPP1	0	0	no
TPP2	0	0	no
TPR	0	0	no
TPRKB	0	0	no
TPRN	0	0	no
TRAC	0	0	no
TRAF3	0	0	no
TRAF3IP1	0	1	no
TRAF3IP2	1	0	no
TRAF7	0	0	no
TRAIP	0	0	no
TRAK1	0	0	no
TRAPPC10	0	1	yes
TRAPPC11	0	0	no
TRAPPC12	1	1	no
TRAPPC14	0	0	no
TRAPPC2L	0	0	no
TRAPPC4	0	0	no
TRAPPC6B	1	0	no
TRAPPC9	1	0	yes
TRDN	8	1	no
TREH	0	1	yes
TREM2	0	0	no
TREX1	0	0	yes
TRH	0	0	no
TRHR	0	0	no
TRIM2	0	0	yes
TRIM32	0	0	no
TRIM36	0	0	yes
TRIM37	0	0	no
TRIM44	0	0	no
TRIM71	0	0	no
TRIM8	0	0	no
TRIO	0	2	no
TRIOBP	0	1	no

TRIP11	1	0	yes
TRIP12	0	0	no
TRIP13	0	10	yes
TRIP4	0	0	no
TRIT1	0	0	no
TRMT1	0	0	no
TRMT10A	0	0	no
TRMT10C	0	0	no
TRMT5	0	0	yes
TRMU	2	2	no
TRNT1	0	0	no
TRPA1	1	0	no
TRPC3	0	0	no
TRPC6	0	0	no
TRPM1	0	0	no
TRPM3	1	3	yes
TRPM4	0	0	no
TRPM6	1	0	yes
TRPM7	0	0	no
TRPS1	0	1	no
TRPV3	0	0	no
TRPV4	0	0	no
TRPV6	0	5	no
TRRAP	0	2	no
TSC1	0	0	no
TSC2	0	0	yes
TSEN15	0	0	no
TSEN2	0	0	no
TSEN34	0	0	no
TSEN54	0	0	no
TSFM	0	0	no
TSGA10	0	0	no
TSHB	0	0	no
TSHR	0	2	yes
TSHZ1	0	0	no
TSPAN12	0	0	no
TSPEAR	1	0	yes
TSPOAP1	0	0	no
TSPYL1	0	0	no
TTBK2	0	0	yes
TTC12	0	0	no

TTC19	0	5	no
TTC21A	0	1	no
TTC21B	0	0	no
TTC29	0	0	no
TTC5	0	1	yes
TTC7A	0	0	no
TTC8	0	0	no
TTI1	0	1	no
TTI2	0	1	no
TLL5	0	0	no
TTN	32	2	yes
TTPA	0	0	no
TTR	0	0	no
TUB	0	1	no
TUBA1A	0	0	yes
TUBA3D	42	30	yes
TUBA4A	1	0	no
TUBA8	0	1	no
TUBB	0	0	yes
TUBB1	0	0	yes
TUBB2A	0	1	yes
TUBB2B	0	0	yes
TUBB3	0	0	yes
TUBB4A	0	0	yes
TUBB4B	0	0	no
TUBB6	0	1	yes
TUBB8	32	44	yes
TUBG1	0	1	no
TUBGCP2	0	3	no
TUBGCP4	0	0	no
TUBGCP6	0	1	no
TUFM	0	2	no
TUFT1	0	1	no
TULP1	0	0	no
TULP3	0	0	no
TUSC3	2	0	no
TWIST1	0	0	no
TWIST2	24	19	no
TWNK	0	0	no
TXN2	0	0	no
TXNDC15	0	0	no

TXNL4A	0	20	no
TXNRD2	0	4	no
TYK2	0	1	no
TYMP	0	1	no
TYMS	0	5	no
TYR	71	8	yes
TYROBP	0	1	no
TYRP1	0	0	no
UBA2	0	0	no
UBA5	0	0	yes
UBAP1	0	0	yes
UBAP2L	0	0	no
UBE2T	0	1	no
UBE3A	0	0	yes
UBE3B	0	1	no
UBE3C	0	0	yes
UBE4A	0	1	yes
UBIAD1	0	1	no
UBR1	0	0	yes
UBR7	0	0	no
UBTF	0	1	yes
UCHL1	0	1	no
UCP2	0	0	no
UCP3	0	0	no
UFC1	0	1	no
UFM1	0	0	yes
UFSP2	0	0	no
UGDH	0	1	no
UGP2	0	0	no
UGT1A1	0	0	yes
UGT2B17	6	9	yes
UMOD	0	0	no
UMPS	0	0	no
UNC119	0	1	no
UNC13D	0	0	no
UNC45A	0	0	no
UNC45B	0	0	yes
UNC80	0	0	no
UNC93B1	2	0	yes
UNG	0	0	no
UPB1	0	3	no

UQCC2	0	0	no
UQCC3	0	0	no
UQCRB	0	0	yes
UQCRC1	0	1	no
UQCRC2	0	0	no
UQCRFS1	0	0	yes
UQCRH	0	0	no
UQCRQ	0	0	no
UROC1	0	0	no
UROD	0	0	yes
UROS	0	0	no
USB1	0	0	no
USF1	0	0	no
USH1C	0	0	no
USH1G	0	0	no
USH2A	0	1	no
USP18	33	56	yes
USP45	0	0	no
USP48	0	1	no
USP53	0	0	no
USP7	0	0	no
USP8	0	0	yes
UVSSA	0	0	no
VAC14	0	1	no
VAMP1	0	0	yes
VAMP2	0	0	no
VANGL1	0	0	no
VANGL2	0	0	no
VAPB	0	0	no
VAR1	0	1	no
VAR2	0	0	no
VAX1	0	0	no
VCAN	0	1	no
VCL	0	1	no
VCP	0	1	no
VDR	1	1	no
VEGFA	0	0	no
VEGFC	0	0	no
VEZF1	0	0	yes
VHL	0	0	no
VIM	0	0	no

VIPAS39	0	0	no
VKORC1	0	0	no
VLDLR	0	1	no
VPS11	0	0	no
VPS13A	0	6	no
VPS13B	0	2	yes
VPS13C	0	1	no
VPS13D	0	7	no
VPS16	0	0	no
VPS33A	0	0	no
VPS33B	0	0	yes
VPS35	0	0	yes
VPS35L	0	1	no
VPS37A	0	0	yes
VPS41	0	0	no
VPS45	0	0	no
VPS4A	0	0	no
VPS50	9	0	no
VPS51	0	0	no
VPS53	10	16	yes
VRK1	0	0	no
VSX1	0	0	no
VSX2	0	0	no
VWA1	0	0	yes
VWA3B	0	0	no
VWA8	2	0	no
VWF	3	0	yes
WAC	0	1	yes
WARS1	0	0	no
WARS2	0	1	yes
WASF1	2	5	no
WASHC4	0	0	no
WASHC5	0	1	no
WBP11	0	0	yes
WBP2	0	0	no
WDFY3	1	1	no
WDPCP	0	2	yes
WDR1	0	0	no
WDR11	0	1	no
WDR19	0	0	no
WDR26	0	0	no

WDR35	0	0	no
WDR36	0	0	no
WDR37	1	2	no
WDR4	0	0	yes
WDR45B	0	1	yes
WDR62	0	1	no
WDR72	4	1	no
WDR73	0	8	yes
WDR81	0	1	yes
WEE2	0	0	no
WFS1	0	0	no
WHRN	0	0	no
WIPF1	0	0	no
WIP12	1	0	no
WLS	0	0	yes
WNK1	1	0	no
WNK4	0	1	no
WNT1	0	0	no
WNT10A	0	0	no
WNT10B	0	0	no
WNT2B	0	0	no
WNT3	0	1	no
WNT4	0	0	no
WNT5A	0	0	no
WNT7A	0	1	no
WRAP53	0	0	no
WRN	0	0	yes
WT1	0	0	no
WWC1	1	1	no
WWOX	5	1	no
XBP1	0	0	no
XDH	0	1	yes
XPA	0	1	yes
XPC	0	0	no
XPNPEP3	1	2	no
XPR1	6	2	no
XRCC1	0	0	no
XRCC2	0	0	no
XRCC3	0	0	no
XRCC4	0	0	no
XYLT1	1	0	yes

XYLT2	0	0	no
YAP1	0	0	yes
YARS1	0	0	no
YARS2	0	0	yes
YEATS2	2	0	no
YIF1B	0	0	no
YIPF5	0	0	no
YME1L1	1	0	yes
YRDC	1	0	no
YWHAG	0	0	no
YY1	0	0	no
YY1AP1	0	1	yes
ZAP70	0	0	no
ZBTB11	0	0	yes
ZBTB16	0	0	no
ZBTB18	0	1	no
ZBTB20	0	3	no
ZBTB24	0	1	no
ZBTB42	0	2	no
ZBTB7A	0	0	no
ZC3H14	0	0	no
ZCCHC8	0	0	no
ZEB1	0	1	yes
ZEB2	0	0	yes
ZFAT	0	0	yes
ZFHX2	0	1	no
ZFHX3	1	1	no
ZFHX4	0	0	no
ZFP36L2	0	0	no
ZFP57	0	1	no
ZFPM2	0	0	no
ZFYVE19	0	0	no
ZFYVE26	0	0	yes
ZFYVE27	0	0	no
ZIC1	0	0	no
ZIC2	0	0	no
ZMIZ1	0	1	no
ZMPSTE24	0	0	no
ZMYM2	0	1	yes
ZMYND10	0	0	no
ZMYND11	0	4	no

ZMYND15	0	1	no
ZNF141	0	3	yes
ZNF142	0	0	no
ZNF148	0	0	no
ZNF292	67	82	no
ZNF335	0	0	yes
ZNF341	0	0	yes
ZNF365	0	0	no
ZNF407	0	3	no
ZNF408	0	0	no
ZNF423	0	0	no
ZNF462	0	0	no
ZNF469	89	32	yes
ZNF513	0	0	no
ZNF526	0	0	no
ZNF644	0	0	no
ZNF668	0	0	no
ZNF687	0	0	no
ZNF699	0	0	no
ZNF750	0	2	no
ZNFX1	0	2	no
ZNHIT3	0	0	no
ZP1	0	0	no
ZP2	1	0	no
ZP3	5	2	yes
ZPBP	0	0	no
ZPR1	0	1	no
ZSWIM6	0	1	yes
ZSWIM7	0	5	no