Supplemental table 2. Haploinsufficiency list and Triprosensitivity list used for the filtering

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| --- | --- | --- |
| Haploinsufficiency list | 　 | Triplosensitivity list |
| Gene Symbol | Genomic Location | HI Score | 　 | Gene Symbol | Genomic Location | TS Score |
| *GNB1* | chr1:1716724-1822556 | 1 |  | *MBD5* | chr2:148778580\_149271046 | 1 |
| *CAMTA1* | chr1:6845384-7829766 | 3 |  | *TBL1XR1* | chr3:176737143\_176915114 | 1 |
| *CASZ1* | chr1:10696661-10856733 | 1 |  | *FGF12* | chr3:191857182\_192445388 | 1 |
| *SPEN* | chr1:16174359-16266950 | 1 |  | *PAK2* | chr3:196466728\_196559518 | 1 |
| *SDHB* | chr1:17345217-17380665 | 3 |  | *NIPBL* | chr5:36876861\_37065921 | 1 |
| *ARID1A* | chr1:27022522-27108601 | 3 |  | *MEF2C* | chr5:88014058\_88199922 | 1 |
| *AHDC1* | chr1:27860756-27930143 | 3 |  | *LMNB1* | chr5:126112315\_126172712 | 3 |
| *HIVEP3* | chr1:41972036-42501596 | 1 |  | *FBXW11* | chr5:171288556\_171433877 | 1 |
| *SLC2A1* | chr1:43391046-43424847 | 3 |  | *EHMT1* | chr9:140513444\_140730579 | 1 |
| *NFIA* | chr1:61542946-61928460 | 3 |  | *KCNQ1OT1* | chr11:2629558\_2721228 | 2 |
| *GLMN* | chr1:92711955-92764566 | 3 |  | *PAX6* | chr11:31806340\_31839509 | 1 |
| *COL11A1* | chr1:103342023-103574052 | 1 |  | *PTHLH* | chr12:28111017\_28124916 | 1 |
| *TAF13* | chr1:109606998-109618624 | 1 |  | *MED13L* | chr12:116396381\_116714991 | 1 |
| *GJA5* | chr1:147228332-147245466 | 1 |  | *APP* | chr21:27252861\_27543446 | 2 |
| *GJA8* | chr1:147374946-147381396 | 1 |  | *EFNB1* | chrX:68048840\_68062007 | 1 |
| *SF3B4* | chr1:149895209-149900144 | 3 |  | *PLP1* | chrX:103031434\_103047548 | 3 |
| *POGZ* | chr1:151375200-151431941 | 3 |  |  |  |  |
| *FLG* | chr1:152274651-152297679 | 3 |  |  |  |  |
| *GATAD2B* | chr1:153777383-153895451 | 3 |  |  |  |  |
| *ASH1L* | chr1:155305052-155532324 | 3 |  |  |  |  |
| *LMNA* | chr1:156052337-156109880 | 2 |  |  |  |  |
| *SDHC* | chr1:161284166-161334541 | 3 |  |  |  |  |
| *PBX1* | chr1:164528597-164821067 | 3 |  |  |  |  |
| *LHX4* | chr1:180199433-180244188 | 1 |  |  |  |  |
| *CDC73* | chr1:193091088-193223945 | 3 |  |  |  |  |
| *KDM5B* | chr1:202694313-202778598 | 1 |  |  |  |  |
| *IRF6* | chr1:209958968-209979520 | 3 |  |  |  |  |
| *WDR26* | chr1:224572845-224622001 | 3 |  |  |  |  |
| *CHRM3* | chr1:239550230-240078750 | 1 |  |  |  |  |
| *FH* | chr1:241660857-241683085 | 3 |  |  |  |  |
| *AKT3* | chr1:243651535-244006886 | 1 |  |  |  |  |
| *ZBTB18* | chr1:244212241-244220778 | 3 |  |  |  |  |
| *MYT1L* | chr2:1792885-2335085 | 3 |  |  |  |  |
| *SOX11* | chr2:5832799-5841517 | 3 |  |  |  |  |
| *MYCN* | chr2:16080560-16087129 | 3 |  |  |  |  |
| *APOB* | chr2:21224301-21266945 | 3 |  |  |  |  |
| *DNMT3A* | chr2:25455830-25565459 | 1 |  |  |  |  |
| *SPAST* | chr2:32288680-32382706 | 3 |  |  |  |  |
| *SIX3* | chr2:45169037-45173216 | 3 |  |  |  |  |
| *MSH2* | chr2:47630206-47710367 | 3 |  |  |  |  |
| *MSH6* | chr2:48010221-48034092 | 3 |  |  |  |  |
| *NRXN1* | chr2:50145643-51259674 | 3 |  |  |  |  |
| *BCL11A* | chr2:60678302-60780633 | 3 |  |  |  |  |
| *TMEM127* | chr2:96915946-96931751 | 3 |  |  |  |  |
| *PAX8* | chr2:113973574-114036498 | 1 |  |  |  |  |
| *GLI2* | chr2:121554867-121750229 | 3 |  |  |  |  |
| *ZEB2* | chr2:145141942-145277958 | 3 |  |  |  |  |
| *MBD5* | chr2:148778580-149271046 | 3 |  |  |  |  |
| *TBR1* | chr2:162272605-162282378 | 3 |  |  |  |  |
| *SLC4A10* | chr2:162480845-162841786 | 1 |  |  |  |  |
| *SCN2A* | chr2:166095912-166248820 | 3 |  |  |  |  |
| *SCN1A* | chr2:166845670-167005642 | 3 |  |  |  |  |
| *HOXD13* | chr2:176957532-176960666 | 3 |  |  |  |  |
| *TTN* | chr2:179390716-179672150 | 3 |  |  |  |  |
| *NCKAP1* | chr2:183789579-183903586 | 3 |  |  |  |  |
| *COL3A1* | chr2:189839099-189877472 | 3 |  |  |  |  |
| *SATB2* | chr2:200134223-200335989 | 3 |  |  |  |  |
| *CASP10* | chr2:202047604-202094129 | 1 |  |  |  |  |
| *BMPR2* | chr2:203241050-203432474 | 3 |  |  |  |  |
| *BARD1* | chr2:215590370-215674435 | 3 |  |  |  |  |
| *PAX3* | chr2:223064606-223163715 | 3 |  |  |  |  |
| *TRIP12* | chr2:230628553-230786725 | 3 |  |  |  |  |
| *DIS3L2* | chr2:232826293-233208678 | 1 |  |  |  |  |
| *GIGYF2* | chr2:233562015-233725287 | 2 |  |  |  |  |
| *HDAC4* | chr2:239969864-240322643 | 1 |  |  |  |  |
| *CNTN6* | chr3:1134342-1445292 | 1 |  |  |  |  |
| *SETD5* | chr3:9439384-9519838 | 3 |  |  |  |  |
| *VHL* | chr3:10183319-10195354 | 3 |  |  |  |  |
| *SLC6A1* | chr3:11034420-11080935 | 3 |  |  |  |  |
| *RPL15* | chr3:23958295-23965187 | 1 |  |  |  |  |
| *TGFBR2* | chr3:30647994-30735634 | 2 |  |  |  |  |
| *MLH1* | chr3:37034841-37092337 | 3 |  |  |  |  |
| *SCN5A* | chr3:38589553-38691164 | 3 |  |  |  |  |
| *CTNNB1* | chr3:41240915-41281944 | 3 |  |  |  |  |
| *TDGF1* | chr3:46616045-46623953 | 1 |  |  |  |  |
| *SETD2* | chr3:47057898-47205467 | 3 |  |  |  |  |
| *BAP1* | chr3:52435020-52444121 | 3 |  |  |  |  |
| *MITF* | chr3:69788586-70017488 | 3 |  |  |  |  |
| *FOXP1* | chr3:71003865-71633140 | 3 |  |  |  |  |
| *MYLK* | chr3:123331143-123603149 | 1 |  |  |  |  |
| *GATA2* | chr3:128198265-128212030 | 3 |  |  |  |  |
| *FOXL2* | chr3:138663066-138665982 | 3 |  |  |  |  |
| *ATR* | chr3:142168077-142297668 | 1 |  |  |  |  |
| *TBL1XR1* | chr3:176737143-176915114 | 3 |  |  |  |  |
| *SOX2* | chr3:181429712-181432224 | 3 |  |  |  |  |
| *TP63* | chr3:189314535-189615068 | 1 |  |  |  |  |
| *PAK2* | chr3:196466728-196559518 | 1 |  |  |  |  |
| *MSX1* | chr4:4861392-4865663 | 3 |  |  |  |  |
| *YTHDC1* | chr4:69176105-69215835 | 1 |  |  |  |  |
| *PKD2* | chr4:88928799-88998931 | 3 |  |  |  |  |
| *PITX2* | chr4:111538579-111563279 | 3 |  |  |  |  |
| *ANK2* | chr4:113739239-114304896 | 3 |  |  |  |  |
| *NAA15* | chr4:140222676-140311935 | 3 |  |  |  |  |
| *NR3C2* | chr4:148999915-149363672 | 3 |  |  |  |  |
| *TERT* | chr5:1253282-1295162 | 1 |  |  |  |  |
| *CTNND2* | chr5:10971952-11904155 | 1 |  |  |  |  |
| *TRIO* | chr5:14143811-14510313 | 3 |  |  |  |  |
| *DNAJC21* | chr5:34929698-34959069 | 1 |  |  |  |  |
| *NIPBL* | chr5:36876861-37065921 | 3 |  |  |  |  |
| *FGF10* | chr5:44305097-44388784 | 3 |  |  |  |  |
| *RASA1* | chr5:86564070-86687743 | 3 |  |  |  |  |
| *MEF2C* | chr5:88014058-88199922 | 3 |  |  |  |  |
| *APC* | chr5:112043202-112181936 | 3 |  |  |  |  |
| *PURA* | chr5:139493708-139499001 | 3 |  |  |  |  |
| *SPINK1* | chr5:147204143-147218794 | 3 |  |  |  |  |
| *CAMK2A* | chr5:149599054-149669403 | 1 |  |  |  |  |
| *TCOF1* | chr5:149737202-149779871 | 3 |  |  |  |  |
| *GABRA1* | chr5:161274197-161326965 | 1 |  |  |  |  |
| *GABRG2* | chr5:161494648-161582545 | 1 |  |  |  |  |
| *NKX2-5* | chr5:172659107-172662315 | 3 |  |  |  |  |
| *NSD1* | chr5:176560080-176727214 | 3 |  |  |  |  |
| *DDX41* | chr5:176938578-176944327 | 3 |  |  |  |  |
| *FOXC1* | chr6:1610681-1614132 | 3 |  |  |  |  |
| *DSP* | chr6:7541808-7586950 | 3 |  |  |  |  |
| *NEDD9* | chr6:11183531-11382581 | 1 |  |  |  |  |
| *SYNGAP1* | chr6:33387847-33421466 | 3 |  |  |  |  |
| *PPP2R5D* | chr6:42952237-42980083 | 1 |  |  |  |  |
| *VEGFA* | chr6:43737946-43754224 | 1 |  |  |  |  |
| *TFAP2B* | chr6:50786439-50815326 | 3 |  |  |  |  |
| *PHF3* | chr6:64345707-64425418 | 1 |  |  |  |  |
| *RIMS1* | chr6:72596406-73112845 | 1 |  |  |  |  |
| *PHIP* | chr6:79644136-79788015 | 3 |  |  |  |  |
| *SIM1* | chr6:100836750-100911551 | 1 |  |  |  |  |
| *EYA4* | chr6:133562495-133853258 | 3 |  |  |  |  |
| *BCLAF1* | chr6:136578001-136610989 | 1 |  |  |  |  |
| *CITED2* | chr6:139693392-139695787 | 2 |  |  |  |  |
| *HIVEP2* | chr6:143072604-143266338 | 3 |  |  |  |  |
| *TAB2* | chr6:149539060-149732749 | 1 |  |  |  |  |
| *ARID1B* | chr6:157098989-157531913 | 3 |  |  |  |  |
| *ERMARD* | chr6:170151718-170181680 | 1 |  |  |  |  |
| *DLL1* | chr6:170591294-170599697 | 3 |  |  |  |  |
| *TWIST1* | chr7:19155091-19157295 | 3 |  |  |  |  |
| *TBX20* | chr7:35242042-35293711 | 1 |  |  |  |  |
| *CDK13* | chr7:39989959-40136733 | 2 |  |  |  |  |
| *GLI3* | chr7:42000547-42276618 | 3 |  |  |  |  |
| *AUTS2* | chr7:69063905-70258054 | 3 |  |  |  |  |
| *ELN* | chr7:73442119-73484237 | 3 |  |  |  |  |
| *SEMA3A* | chr7:83587659-83824217 | 1 |  |  |  |  |
| *SGCE* | chr7:94214536-94285521 | 3 |  |  |  |  |
| *TRRAP* | chr7:98476113-98610866 | 1 |  |  |  |  |
| *KMT2E* | chr7:104654637-104754532 | 3 |  |  |  |  |
| *FOXP2* | chr7:113726365-114333827 | 1 |  |  |  |  |
| *FLNC* | chr7:128470483-128499328 | 3 |  |  |  |  |
| *UBN2* | chr7:138916231-138992982 | 1 |  |  |  |  |
| *BRAF* | chr7:140433812-140624564 | 1 |  |  |  |  |
| *CNTNAP2* | chr7:145813453-148118090 | 1 |  |  |  |  |
| *KCNH2* | chr7:150642044-150675402 | 3 |  |  |  |  |
| *KMT2C* | chr7:151832010-152133090 | 3 |  |  |  |  |
| *DPP6* | chr7:153584182-154686000 | 1 |  |  |  |  |
| *SHH* | chr7:155592678-155604967 | 3 |  |  |  |  |
| *MNX1* | chr7:156797547-156803347 | 3 |  |  |  |  |
| *CSMD1* | chr8:2792875-4852328 | 1 |  |  |  |  |
| *GATA4* | chr8:11534428-11617511 | 3 |  |  |  |  |
| *FGFR1* | chr8:38268656-38326352 | 3 |  |  |  |  |
| *KAT6A* | chr8:41786997-41909544 | 3 |  |  |  |  |
| *RB1CC1* | chr8:53535018-53627026 | 1 |  |  |  |  |
| *CHD7* | chr8:61591324-61780587 | 3 |  |  |  |  |
| *EYA1* | chr8:72109668-72274467 | 3 |  |  |  |  |
| *NBN* | chr8:90945564-90996952 | 3 |  |  |  |  |
| *ZFPM2* | chr8:106331147-106816767 | 1 |  |  |  |  |
| *TRPS1* | chr8:116420724-116681255 | 3 |  |  |  |  |
| *RAD21* | chr8:117858173-117887105 | 3 |  |  |  |  |
| *EXT1* | chr8:118811602-119124058 | 3 |  |  |  |  |
| *CDKN2A* | chr9:21967751-21994490 | 3 |  |  |  |  |
| *ELAVL2* | chr9:23690102-23826063 | 1 |  |  |  |  |
| *PAX5* | chr9:36833272-37034476 | 1 |  |  |  |  |
| *HNRNPK* | chr9:86582998-86595697 | 3 |  |  |  |  |
| *PHF2* | chr9:96338909-96441869 | 1 |  |  |  |  |
| *PTCH1* | chr9:98205264-98279247 | 3 |  |  |  |  |
| *GALNT12* | chr9:101569981-101612363 | 1 |  |  |  |  |
| *TGFBR1* | chr9:101867371-101916474 | 2 |  |  |  |  |
| *ZNF462* | chr9:109625378-109775915 | 3 |  |  |  |  |
| *ASTN2* | chr9:119187504-120177317 | 1 |  |  |  |  |
| *NR5A1* | chr9:127243515-127269699 | 3 |  |  |  |  |
| *LMX1B* | chr9:129376722-129463311 | 3 |  |  |  |  |
| *STXBP1* | chr9:130374486-130454995 | 3 |  |  |  |  |
| *ENG* | chr9:130577291-130617052 | 3 |  |  |  |  |
| *TSC1* | chr9:135766735-135820020 | 3 |  |  |  |  |
| *COL5A1* | chr9:137533651-137736689 | 3 |  |  |  |  |
| *EHMT1* | chr9:140513444-140730579 | 3 |  |  |  |  |
| *ZMYND11* | chr10:180405-300577 | 3 |  |  |  |  |
| *GATA3* | chr10:8096667-8117164 | 3 |  |  |  |  |
| *WAC* | chr10:28821517-28912041 | 3 |  |  |  |  |
| *RET* | chr10:43572517-43625799 | 3 |  |  |  |  |
| *NODAL* | chr10:72191692-72207704 | 1 |  |  |  |  |
| *KAT6B* | chr10:76586171-76792380 | 3 |  |  |  |  |
| *RPS24* | chr10:79793518-79816571 | 3 |  |  |  |  |
| *BMPR1A* | chr10:88516396-88684945 | 3 |  |  |  |  |
| *PTEN* | chr10:89623195-89731687 | 3 |  |  |  |  |
| *FAS* | chr10:90750316-90776818 | 1 |  |  |  |  |
| *SLC16A12* | chr10:91190051-91295313 | 1 |  |  |  |  |
| *KIF11* | chr10:94352825-94415152 | 3 |  |  |  |  |
| *PAX2* | chr10:102495466-102589698 | 3 |  |  |  |  |
| *TCF7L2* | chr10:114710009-114927437 | 1 |  |  |  |  |
| *EMX2* | chr10:119301956-119309057 | 1 |  |  |  |  |
| *BAG3* | chr10:121410882-121437331 | 3 |  |  |  |  |
| *KCNQ1* | chr11:2466221-2870340 | 3 |  |  |  |  |
| *KCNQ1OT1* | chr11:2629558-2721228 | 1 |  |  |  |  |
| *CDKN1C* | chr11:2904448-2906995 | 3 |  |  |  |  |
| *DCHS1* | chr11:6642555-6677080 | 1 |  |  |  |  |
| *PAX6* | chr11:31806340-31839509 | 3 |  |  |  |  |
| *WT1* | chr11:32409321-32457081 | 3 |  |  |  |  |
| *EXT2* | chr11:44117099-44266980 | 3 |  |  |  |  |
| *ALX4* | chr11:44282278-44331716 | 3 |  |  |  |  |
| *PHF21A* | chr11:45950870-46142985 | 2 |  |  |  |  |
| *MYBPC3* | chr11:47352957-47374253 | 3 |  |  |  |  |
| *SDHAF2* | chr11:61197597-61214239 | 3 |  |  |  |  |
| *MEN1* | chr11:64570986-64578766 | 3 |  |  |  |  |
| *LRP5* | chr11:68080077-68216743 | 2 |  |  |  |  |
| *SHANK2* | chr11:70313961-70935842 | 2 |  |  |  |  |
| *DLG2* | chr11:83166055-85338314 | 1 |  |  |  |  |
| *FZD4* | chr11:86656717-86666440 | 3 |  |  |  |  |
| *YAP1* | chr11:101981192-102104154 | 1 |  |  |  |  |
| *ATM* | chr11:108093559-108239826 | 3 |  |  |  |  |
| *SDHD* | chr11:111957548-111966525 | 3 |  |  |  |  |
| *KMT2A* | chr11:118307205-118397539 | 3 |  |  |  |  |
| *ARCN1* | chr11:118443102-118473748 | 3 |  |  |  |  |
| *HMBS* | chr11:118955587-118964259 | 3 |  |  |  |  |
| *CACNA1C* | chr12:2162416-2807115 | 1 |  |  |  |  |
| *CDKN1B* | chr12:12870204-12875317 | 3 |  |  |  |  |
| *GRIN2B* | chr12:13714410-14133022 | 3 |  |  |  |  |
| *SOX5* | chr12:23682438-24715524 | 3 |  |  |  |  |
| *PTHLH* | chr12:28111017-28124916 | 2 |  |  |  |  |
| *ARID2* | chr12:46123492-46301823 | 3 |  |  |  |  |
| *COL2A1* | chr12:48366748-48398285 | 3 |  |  |  |  |
| *KMT2D* | chr12:49412758-49449107 | 3 |  |  |  |  |
| *ACVRL1* | chr12:52301202-52317145 | 3 |  |  |  |  |
| *RPS26* | chr12:56435686-56438007 | 3 |  |  |  |  |
| *LEMD3* | chr12:65563351-65642141 | 3 |  |  |  |  |
| *HMGA2* | chr12:66218240-66360071 | 1 |  |  |  |  |
| *SLC17A8* | chr12:100750857-100815837 | 1 |  |  |  |  |
| *PTPN11* | chr12:112856702-112947722 | 3 |  |  |  |  |
| *RPH3A* | chr12:113012901-113336686 | 1 |  |  |  |  |
| *TBX5* | chr12:114791735-114846247 | 3 |  |  |  |  |
| *TBX3* | chr12:115108059-115121969 | 3 |  |  |  |  |
| *MED13L* | chr12:116396381-116714991 | 3 |  |  |  |  |
| *POLE* | chr12:133200348-133264110 | 1 |  |  |  |  |
| *ATP8A2* | chr13:25946149-26599989 | 1 |  |  |  |  |
| *POLR1D* | chr13:28194880-28241559 | 3 |  |  |  |  |
| *BRCA2* | chr13:32889617-32973809 | 3 |  |  |  |  |
| *NBEA* | chr13:35516424-36246874 | 3 |  |  |  |  |
| *RB1* | chr13:48877883-49056026 | 3 |  |  |  |  |
| *EDNRB* | chr13:78469616-78549858 | 1 |  |  |  |  |
| *ZIC2* | chr13:100634026-100639019 | 3 |  |  |  |  |
| *CHAMP1* | chr13:115079810-115092803 | 2 |  |  |  |  |
| *CHD8* | chr14:21853353-21905457 | 3 |  |  |  |  |
| *FOXG1* | chr14:29236278-29239483 | 3 |  |  |  |  |
| *PAX9* | chr14:37126773-37147012 | 3 |  |  |  |  |
| *BMP4* | chr14:54416454-54423609 | 2 |  |  |  |  |
| *GCH1* | chr14:55308723-55369542 | 3 |  |  |  |  |
| *OTX2* | chr14:57267425-57277194 | 3 |  |  |  |  |
| *MAX* | chr14:65472819-65569413 | 3 |  |  |  |  |
| *GPHN* | chr14:66974125-67648525 | 2 |  |  |  |  |
| *DICER1* | chr14:95552565-95624347 | 3 |  |  |  |  |
| *MEG3* | chr14:101292445-101327363 | 1 |  |  |  |  |
| *CDC42BPB* | chr14:103398716-103523742 | 1 |  |  |  |  |
| *MAGEL2* | chr15:23888696-23892993 | 1 |  |  |  |  |
| *SNURF* | chr15:25200040-25223870 | 1 |  |  |  |  |
| *UBE3A* | chr15:25582396-25684175 | 3 |  |  |  |  |
| *ACTC1* | chr15:35080297-35087927 | 1 |  |  |  |  |
| *MEIS2* | chr15:37183222-37393500 | 3 |  |  |  |  |
| *SPRED1* | chr15:38545052-38649450 | 3 |  |  |  |  |
| *FBN1* | chr15:48700503-48937985 | 3 |  |  |  |  |
| *TCF12* | chr15:57210288-57583459 | 3 |  |  |  |  |
| *ZWILCH* | chr15:66797421-66841823 | 1 |  |  |  |  |
| *SMAD3* | chr15:67358195-67487533 | 3 |  |  |  |  |
| *AAGAB* | chr15:67493013-67547536 | 3 |  |  |  |  |
| *SIN3A* | chr15:75661720-75748124 | 3 |  |  |  |  |
| *RPS17* | chr15:82821158-82824952 | 3 |  |  |  |  |
| *CHD2* | chr15:93443551-93571237 | 3 |  |  |  |  |
| *IGF1R* | chr15:99191768-99507759 | 3 |  |  |  |  |
| *TSC2* | chr16:2097896-2138721 | 3 |  |  |  |  |
| *PKD1* | chr16:2138711-2185899 | 3 |  |  |  |  |
| *CREBBP* | chr16:3775055-3930121 | 3 |  |  |  |  |
| *GRIN2A* | chr16:9847261-10276611 | 3 |  |  |  |  |
| *SH2B1* | chr16:28857921-28885534 | 1 |  |  |  |  |
| *PRRT2* | chr16:29823409-29827202 | 3 |  |  |  |  |
| *SRCAP* | chr16:30710462-30751450 | 1 |  |  |  |  |
| *SETD1A* | chr16:30968615-30995985 | 3 |  |  |  |  |
| *CYLD* | chr16:50775961-50835846 | 3 |  |  |  |  |
| *SALL1* | chr16:51169886-51185183 | 1 |  |  |  |  |
| *GNAO1* | chr16:56225251-56391356 | 1 |  |  |  |  |
| *CTCF* | chr16:67596310-67673088 | 3 |  |  |  |  |
| *ACD* | chr16:67691415-67694718 | 1 |  |  |  |  |
| *CDH1* | chr16:68771193-68869445 | 3 |  |  |  |  |
| *FOXF1* | chr16:86544133-86548070 | 3 |  |  |  |  |
| *FOXC2* | chr16:86600857-86602539 | 3 |  |  |  |  |
| *ANKRD11* | chr16:89334029-89556969 | 3 |  |  |  |  |
| *PAFAH1B1* | chr17:2496923-2588909 | 3 |  |  |  |  |
| *TP53* | chr17:7571720-7590868 | 3 |  |  |  |  |
| *KDM6B* | chr17:7743235-7758118 | 1 |  |  |  |  |
| *MYH10* | chr17:8377523-8534079 | 1 |  |  |  |  |
| *PMP22* | chr17:15133094-15168690 | 3 |  |  |  |  |
| *FLCN* | chr17:17115526-17140502 | 3 |  |  |  |  |
| *RAI1* | chr17:17584787-17714767 | 3 |  |  |  |  |
| *NF1* | chr17:29421945-29704695 | 3 |  |  |  |  |
| *RAD51D* | chr17:33426811-33446888 | 2 |  |  |  |  |
| *HNF1B* | chr17:36046434-36105069 | 3 |  |  |  |  |
| *BRCA1* | chr17:41196312-41277500 | 3 |  |  |  |  |
| *EFTUD2* | chr17:42927655-42976993 | 3 |  |  |  |  |
| *KANSL1* | chr17:44107282-44302740 | 3 |  |  |  |  |
| *COL1A1* | chr17:48261457-48279000 | 3 |  |  |  |  |
| *NOG* | chr17:54671060-54672951 | 3 |  |  |  |  |
| *RAD51C* | chr17:56769934-56811703 | 3 |  |  |  |  |
| *TBX2* | chr17:59477257-59486827 | 1 |  |  |  |  |
| *TBX4* | chr17:59529779-59562471 | 3 |  |  |  |  |
| *BRIP1* | chr17:59756547-59940920 | 3 |  |  |  |  |
| *AXIN2* | chr17:63524681-63557740 | 3 |  |  |  |  |
| *TGIF1* | chr18:3411925-3458409 | 3 |  |  |  |  |
| *GATA6* | chr18:19749398-19782491 | 3 |  |  |  |  |
| *DSC2* | chr18:28645940-28682395 | 2 |  |  |  |  |
| *DSG2* | chr18:29077967-29128971 | 1 |  |  |  |  |
| *ASXL3* | chr18:31158541-31331158 | 3 |  |  |  |  |
| *SETBP1* | chr18:42260138-42648475 | 3 |  |  |  |  |
| *KATNAL2* | chr18:44526787-44628614 | 1 |  |  |  |  |
| *SMAD4* | chr18:48556583-48611412 | 3 |  |  |  |  |
| *TCF4* | chr18:52889429-53303224 | 3 |  |  |  |  |
| *STK11* | chr19:1205798-1228434 | 3 |  |  |  |  |
| *MAP2K2* | chr19:4090319-4124126 | 1 |  |  |  |  |
| *SMARCA4* | chr19:11071598-11172958 | 2 |  |  |  |  |
| *LDLR* | chr19:11200038-11244506 | 3 |  |  |  |  |
| *NFIX* | chr19:13106584-13209610 | 3 |  |  |  |  |
| *CACNA1A* | chr19:13317256-13617274 | 3 |  |  |  |  |
| *KMT2B* | chr19:36208920-36229779 | 3 |  |  |  |  |
| *RPS19* | chr19:42363988-42375484 | 3 |  |  |  |  |
| *ERF* | chr19:42751713-42759316 | 3 |  |  |  |  |
| *CIC* | chr19:42772689-42799948 | 2 |  |  |  |  |
| *LMTK3* | chr19:48988528-49016446 | 1 |  |  |  |  |
| *POLD1* | chr19:50887580-50921275 | 1 |  |  |  |  |
| *SHANK1* | chr19:51162514-51220195 | 1 |  |  |  |  |
| *TNNI3* | chr19:55663135-55669100 | 1 |  |  |  |  |
| *JAG1* | chr20:10618332-10654694 | 3 |  |  |  |  |
| *ASXL1* | chr20:30946147-31027122 | 3 |  |  |  |  |
| *GDF5* | chr20:34021145-34042568 | 3 |  |  |  |  |
| *RALGAPB* | chr20:37101449-37207504 | 1 |  |  |  |  |
| *ADNP* | chr20:49505455-49547750 | 3 |  |  |  |  |
| *SALL4* | chr20:50399256-50419062 | 3 |  |  |  |  |
| *GNAS* | chr20:57414773-57486251 | 3 |  |  |  |  |
| *KCNQ2* | chr20:62031567-62104030 | 3 |  |  |  |  |
| *SON* | chr21:34915344-34949820 | 3 |  |  |  |  |
| *ITSN1* | chr21:35014706-35261988 | 1 |  |  |  |  |
| *RUNX1* | chr21:36160098-36421595 | 3 |  |  |  |  |
| *DYRK1A* | chr21:38737875-38887679 | 3 |  |  |  |  |
| *DSCAM* | chr21:41384343-42219039 | 3 |  |  |  |  |
| *DIP2A* | chr21:47878862-47989926 | 1 |  |  |  |  |
| *TBX1* | chr22:19744226-19771116 | 2 |  |  |  |  |
| *CRKL* | chr22:21271714-21308037 | 1 |  |  |  |  |
| *SMARCB1* | chr22:24129118-24176705 | 3 |  |  |  |  |
| *CRYBB2* | chr22:25615612-25627836 | 1 |  |  |  |  |
| *CHEK2* | chr22:29083731-29137822 | 3 |  |  |  |  |
| *NF2* | chr22:29999545-30094589 | 3 |  |  |  |  |
| *SOX10* | chr22:38368319-38380539 | 3 |  |  |  |  |
| *TNRC6B* | chr22:40440821-40731812 | 3 |  |  |  |  |
| *EP300* | chr22:41488614-41576081 | 3 |  |  |  |  |
| *TCF20* | chr22:42556019-42679933 | 3 |  |  |  |  |
| *SHANK3* | chr22:51113070-51171640 | 3 |  |  |  |  |
| *ARSL* | chrX:2852673-2886351 | 3 |  |  |  |  |
| *STS* | chrX:7065293-7272684 | 3 |  |  |  |  |
| *ANOS1* | chrX:8496915-8700228 | 3 |  |  |  |  |
| *CLCN4* | chrX:10124985-10205700 | 2 |  |  |  |  |
| *MID1* | chrX:10413350-10851809 | 3 |  |  |  |  |
| *TRAPPC2* | chrX:13730361-13752754 | 3 |  |  |  |  |
| *OFD1* | chrX:13752832-13787480 | 3 |  |  |  |  |
| *FANCB* | chrX:14861529-14891191 | 3 |  |  |  |  |
| *PIGA* | chrX:15337573-15353676 | 2 |  |  |  |  |
| *AP1S2* | chrX:15843929-15873137 | 3 |  |  |  |  |
| *NHS* | chrX:17393543-17754114 | 3 |  |  |  |  |
| *CDKL5* | chrX:18443725-18671749 | 3 |  |  |  |  |
| *RS1* | chrX:18657808-18690223 | 3 |  |  |  |  |
| *PDHA1* | chrX:19362011-19379825 | 3 |  |  |  |  |
| *RPS6KA3* | chrX:20168029-20284750 | 3 |  |  |  |  |
| *CNKSR2* | chrX:21392416-21672813 | 3 |  |  |  |  |
| *SMS* | chrX:21958691-22012955 | 3 |  |  |  |  |
| *PHEX* | chrX:22050562-22269427 | 3 |  |  |  |  |
| *PTCHD1* | chrX:23352985-23414918 | 3 |  |  |  |  |
| *ARX* | chrX:25021811-25034065 | 3 |  |  |  |  |
| *IL1RAPL1* | chrX:28605681-29974017 | 3 |  |  |  |  |
| *NR0B1* | chrX:30322539-30327495 | 3 |  |  |  |  |
| *GK* | chrX:30671476-30749579 | 3 |  |  |  |  |
| *DMD* | chrX:31137345-33357726 | 3 |  |  |  |  |
| *CYBB* | chrX:37639270-37672714 | 3 |  |  |  |  |
| *OTC* | chrX:38211736-38280703 | 3 |  |  |  |  |
| *TSPAN7* | chrX:38420731-38548172 | 1 |  |  |  |  |
| *BCOR* | chrX:39910499-40036582 | 3 |  |  |  |  |
| *USP9X* | chrX:40944888-41095832 | 3 |  |  |  |  |
| *DDX3X* | chrX:41192561-41223725 | 3 |  |  |  |  |
| *NYX* | chrX:41306713-41334905 | 3 |  |  |  |  |
| *MAOA* | chrX:43514155-43606071 | 1 |  |  |  |  |
| *NDP* | chrX:43808022-43832921 | 3 |  |  |  |  |
| *KDM6A* | chrX:44732421-44971857 | 3 |  |  |  |  |
| *ZNF674* | chrX:46357160-46404892 | 1 |  |  |  |  |
| *RP2* | chrX:46696347-46741793 | 3 |  |  |  |  |
| *ZNF41* | chrX:47304577-47342668 | 1 |  |  |  |  |
| *SYN1* | chrX:47431300-47479256 | 2 |  |  |  |  |
| *FTSJ1* | chrX:48334409-48344752 | 3 |  |  |  |  |
| *PORCN* | chrX:48367347-48379202 | 3 |  |  |  |  |
| *EBP* | chrX:48380164-48387104 | 3 |  |  |  |  |
| *PQBP1* | chrX:48755195-48760422 | 3 |  |  |  |  |
| *SLC35A2* | chrX:48760457-48769235 | 3 |  |  |  |  |
| *WDR45* | chrX:48932092-48958059 | 3 |  |  |  |  |
| *SYP* | chrX:49044265-49056661 | 1 |  |  |  |  |
| *CLCN5* | chrX:49687225-49863892 | 3 |  |  |  |  |
| *KDM5C* | chrX:53220503-53254604 | 3 |  |  |  |  |
| *IQSEC2* | chrX:53262058-53350522 | 3 |  |  |  |  |
| *SMC1A* | chrX:53401070-53449677 | 3 |  |  |  |  |
| *PHF8* | chrX:53963113-54071569 | 3 |  |  |  |  |
| *FGD1* | chrX:54471887-54522599 | 3 |  |  |  |  |
| *ARHGEF9* | chrX:62854847-63005426 | 3 |  |  |  |  |
| *ZC4H2* | chrX:64135682-64254624 | 3 |  |  |  |  |
| *AR* | chrX:66763874-66950461 | 3 |  |  |  |  |
| *OPHN1* | chrX:67262186-67653299 | 3 |  |  |  |  |
| *EFNB1* | chrX:68048840-68062007 | 3 |  |  |  |  |
| *EDA* | chrX:68835911-69259322 | 3 |  |  |  |  |
| *DLG3* | chrX:69664705-69725340 | 2 |  |  |  |  |
| *HDAC8* | chrX:71549366-71792953 | 3 |  |  |  |  |
| *XIST* | chrX:73040486-73072588 | 3 |  |  |  |  |
| *SLC16A2* | chrX:73641328-73753764 | 3 |  |  |  |  |
| *NEXMIF* | chrX:73952691-74145287 | 3 |  |  |  |  |
| *ATRX* | chrX:76760356-77041755 | 3 |  |  |  |  |
| *MAGT1* | chrX:77081861-77151065 | 3 |  |  |  |  |
| *ATP7A* | chrX:77166153-77305892 | 3 |  |  |  |  |
| *PGK1* | chrX:77359666-77382324 | 2 |  |  |  |  |
| *TBX22* | chrX:79270255-79287268 | 3 |  |  |  |  |
| *BRWD3* | chrX:79924987-80065233 | 2 |  |  |  |  |
| *CHM* | chrX:85116185-85302569 | 3 |  |  |  |  |
| *PCDH19* | chrX:99546642-99665271 | 3 |  |  |  |  |
| *TIMM8A* | chrX:100600644-100603957 | 3 |  |  |  |  |
| *BTK* | chrX:100604435-100645784 | 3 |  |  |  |  |
| *GLA* | chrX:100652779-100663001 | 3 |  |  |  |  |
| *NXF5* | chrX:101087085-101112549 | 1 |  |  |  |  |
| *PLP1* | chrX:103031434-103047548 | 3 |  |  |  |  |
| *COL4A5* | chrX:107683074-107940775 | 3 |  |  |  |  |
| *ACSL4* | chrX:108884559-108976632 | 1 |  |  |  |  |
| *CHRDL1* | chrX:109917084-110039286 | 3 |  |  |  |  |
| *PAK3* | chrX:110187469-110470589 | 2 |  |  |  |  |
| *DCX* | chrX:110537007-110655460 | 3 |  |  |  |  |
| *UBE2A* | chrX:118708430-118718392 | 3 |  |  |  |  |
| *UPF3B* | chrX:118967989-118986991 | 3 |  |  |  |  |
| *LAMP2* | chrX:119560003-119603204 | 3 |  |  |  |  |
| *CUL4B* | chrX:119658444-119709684 | 3 |  |  |  |  |
| *GRIA3* | chrX:122318096-122624766 | 2 |  |  |  |  |
| *SH2D1A* | chrX:123480132-123507010 | 3 |  |  |  |  |
| *OCRL* | chrX:128674232-128726538 | 3 |  |  |  |  |
| *ZDHHC9* | chrX:128937264-128977910 | 3 |  |  |  |  |
| *FRMD7* | chrX:131211014-131262050 | 3 |  |  |  |  |
| *GPC3* | chrX:132669773-133119673 | 3 |  |  |  |  |
| *PHF6* | chrX:133507342-133562822 | 3 |  |  |  |  |
| *HPRT1* | chrX:133594175-133634698 | 3 |  |  |  |  |
| *SLC9A6* | chrX:135067583-135129428 | 3 |  |  |  |  |
| *CD40LG* | chrX:135730336-135742549 | 3 |  |  |  |  |
| *ZIC3* | chrX:136648286-136659850 | 3 |  |  |  |  |
| *F9* | chrX:138612895-138645617 | 3 |  |  |  |  |
| *FMR1* | chrX:146993469-147032647 | 3 |  |  |  |  |
| *AFF2* | chrX:147582139-148082193 | 3 |  |  |  |  |
| *IDS* | chrX:148558521-148586884 | 3 |  |  |  |  |
| *MTM1* | chrX:149737047-149841616 | 3 |  |  |  |  |
| *NSDHL* | chrX:151999511-152037907 | 3 |  |  |  |  |
| *CCNQ* | chrX:152853383-152864632 | 2 |  |  |  |  |
| *SLC6A8* | chrX:152953752-152962048 | 3 |  |  |  |  |
| *ABCD1* | chrX:152990323-153010216 | 3 |  |  |  |  |
| *L1CAM* | chrX:153126969-153151628 | 3 |  |  |  |  |
| *AVPR2* | chrX:153167985-153172620 | 3 |  |  |  |  |
| *MECP2* | chrX:153287264-153363188 | 3 |  |  |  |  |
| *FLNA* | chrX:153576900-153603006 | 3 |  |  |  |  |
| *GDI1* | chrX:153665259-153671814 | 1 |  |  |  |  |
| *IKBKG* | chrX:153770455-153793261 | 3 |  |  |  |  |
| *DKC1* | chrX:153991017-154005964 | 1 |  |  |  |  |
| *F8* | chrX:154064063-154250998 | 3 |  |  |  |  |
| *RAB39B* | chrX:154487519-154493874 | 3 |  |  |  |  |
| *TMLHE* | chrX:154718672-154842622 | 1 |  |  |  |  |
| *SRY* | chrY:2654896-2655782 | 3 |  |  |  |  |