

**Appendix:**

seq[hg19]dup(22)(q11.1q11.23)

chr22:g.16840001\_25380000dup

RefSeqGenes:CRKL,THAP7,TPTEP1,ADORA2A,TUBA8,TUBA3FP,SNRPD3,TMEM191A,ANKRD62P1-

PARP4P3,MIR648,CES5AP1,TMEM191B,TBX1,GSTT2,SUSD2,GNB1L,FBXW4P1,ARVCF,USP18,MIR3198-

1,POM121L4P,COMT,TANGO2,DGCR6L,MICAL3,P2RX6P,MIR301B,POM121L10P,ADORA2A-

AS1,DGCR6,LINC00896,PI4KAP1,GAB4,IPLL1,DERL3,UFD1L,LOC101929374,ZNF280A,C22orf39,ZNF70,MIR130B,MIR5571,VPREB1,SNAP29,CLDN5,TXNRD2,PRODH,DGCR11,MED15,TMEM211,TSSK2,GSTT2B,C22orf29,MRPL40,LOC101928891,LOC100996342,SDF2L1,RTN4R,LOC388849,RSPH14,MIR185,FAM230B,MIR3618,RGL4,SLC25A18,PI4KAP2,GUCD1,UBE2L3,CCT8L2,C22orf15,TMEM191C,THAP7-

AS1, TOP3B,BCRP2,ZNF74,GNAZ,FLJ41941,POM121L9P,HIC2,MIF,SLC25A1,DDT,CDC45,PIWIL3,HSFY1P1,BCR,BCL2L13,CLTCL1,GSTT1,SLC2A11,DGCR5,ATP6V1E1,BID,DGCR2,DDTL,PEX26,HIRA,SPECC1L,CCDC116,DRICH1,RIMBP3B, TOP1P2,P2RX6,IPLL5,SGSM1,DGCR9,LOC391322,LRRRC75B,DGCR14,PRAME,PI4KA,GSTTP2,LL22NC03-

63E9.3,POM121L1P,MAPK1,VPREB3,GP1BB,RIMBP3,GSTTP1,GUSBP11,LOC101929372,TRMT2A,MIF-AS1,YDJC,GGTLC2,LOC388882,LOC284865,MIR649,CECR6,SEPT5-

GP1BB,LINC01311,XKR3,SERPIND1,CHCHD10,GGT1,SLC7A4,RANBP1,CECR1,KLHL22,SMARCB1,LINC00895,LRRRC74B,BMS1P20,BCRP3,MIR6816,SPECC1L-

ADORA2A,AIFM3,CECR3,ZDHHC8,RAB36,LZTR1,GGT3P,POM121L8P,RIMBP3C,MIR650,ZDHHC8P1,ZNF280B,SCARF2,YPEL1,CABIN1,PPIL2,SEPT5,DGCR8,CECR2,CECR7,CECR5,DGCR10,CECR5-

AS1,MIR1286,LINC00528,GGT5,MIR4761,PPM1F,GSC2,IL17RA,MIR1306,MMP11,UPB1.