

Table S5. List of top 20 enriched KEGG and Reactome pathways in wildtype (WT) or progesterin receptor knockout (Pgr-KO) WT

GO.ID	Description	FDR p.Val	Genes
KEGG:04014	Ras signaling pathway	2.15E-09	PDGFB,RAB5B,CALM1,GAB2,IGF1R,KIT,EPHA2,RHOA,MET,RAB5A,KITL,EGFR,SHC2,ETS2,RALBP1,PDGFRB,CSF1R,RELA,FGF14,ABL2,ABL1,RASGRP1,EFNA1,EFNA3,PIK3R3,FGF5,FLT1,FGFR2,ANGPT2,ETS1,FGF1,PAK7,PIK3R1,RAPGEF5,ARF6,GNG7,PLA2G4A,FGF18,PLA2G16,KDR,MAPK1,MLLT4,GNG5,RASAL2
KEGG:05200	Pathways in cancer	1.12E-08	AXIN2,PDGFB,JUP,PPARD,CDKN1B,BAX,IGF1R,KIT,RHOA,MET,PTEN,KITL,EGFR,ROCK2,NFKBIA,BDKRB2,HIF1A,TGFB3,WNT7B,RUNX1,RALBP1,SMAD4,PDGFRB,CSF1R,RELA,FGF14,ITGB1,XIAP,CASP8,ABL1,RASGRP1,GNAS,LEF1,JAK1,SLC2A1,PIK3R3,FGF5,FGFR2,MMP2,SMAD3,PTGS2,CEBPA,DAPK3,EGLN3,FGF1,TGFB2,PTGER4,PIK3R1,FOXO1,FZD5,AR,GNG7,PLCB1,AGTR1B,GNAI1,FGF18,MAX,MAPK1,ZBTB16,GNG5,COL4A3
KEGG:04015	Rap1 signaling pathway	1.35E-07	PDGFB,CALM1,IGF1R,KIT,PARD6A,EPHA2,RHOA,MET,KITL,EGFR,PRKD3,ARAP3,PDGFRB,CSF1R,FGF14,ITGB1,GNAS,SRC,EFNA1,EFNA3,PIK3R3,FGF5,FLT1,FGFR2,ANGPT2,GNAO1,BCAR1,CTNND1,FGF1,PIK3R1,RAPGEF5,PLCB1,MAGI3,GNAI1,FGF18,ACTG1,KDR,MAPK1,MLLT4
KEGG:04360	Axon guidance	8.66E-07	SEMA4F,EPHB3,EPHA2,RHOA,MET,ROCK2,SEMA4D,DPYSL2,ABLIM1,ITGB1,NRP1,EPHA4,ABL1,EFNA1,EFNA3,SEMA3A,PLXNA4,SEMA4B,PLXNB2,SEMA7A,PAK7,SEMA3D,ROBO2,FES,GNAI1,MAPK1,NCK2
REAC:6010930	Axon guidance	8.86E-07	PDGFB,CALM1,KIT,EPHB3,EPHA2,RHOA,UBC,ARPC5,MET,KITL,EGFR,ACTR2,FRS2,SHC2,RPS27A,ROCK2,NUMB,SEMA4D,RASGRF2,DPYSL2,PDGFRB,ABLIM1,GFRA1,ITGB1,NRP1,NRP2,EPHA4,ABL2,ABL1,DAB2IP,RASGRP1,SRC,EFNA1,EFNA3,SH3GL2,JAK1,SEMA3A,FGF5,PLXNA4,FGFR2,MMP2,TRPC6,NEO1,FGF1,SEMA7A,IRS2,ITGA9,PSME4,AGRN,ITGA1,EZR,ROBO2,FES,IRS1,CACNB2,FGF18,DOCK1,KALRN,ACTG1,KDR,MAPK1,NCK2,MYL9,RASAL2,COL4A3
REAC:6011438	Transport of inorganic cations/anions and amino acids/oligopeptides	1.41E-06	SLC26A3,SLC38A3,SLC3A2,SLC12A7,SLC6A15,SLC5A8,SLC6A19,SLC4A7,SLC38A2,SLC38A4,SLC20A1,SLC7A11,SLC4A2,SLC34A2,SLC6A6,SLC7A10,SLC17A6,SLC12A3,SLC20A2,SLC43A2,SLC7A5,SLC7A1,SLC4A4,SLC24A3

KEGG:04068	FoxO signaling pathway	2.69E-06	CDKN1B,IGF1R,PTEN,GADD45B,NLK,GABARAP,SGK1,EGFR,TGFB3,GADD45G,SMAD4,PC K1,PIK3R3,CCNG2,SMAD3,GADD45A,IRS2,TGFB2,TNFSF10,PIK3R1,FOXO1,S1PR1,FOXO3 ,FOXO6,KLF2,IRS1,MAPK1
KEGG:04144	Endocytosis	9.75E-06	RAB5B,CYTH2,RAB11A,IGF1R,KIT,PARD6A,RHOA,ARPC5,MET,HSPA8,RAB5A,EGFR,ARF5, TGFB3,DAB2,AGAP3,EHD3,ARAP3,CSF1R,ARFGAP2,SRC,PIP5K1A,SH3GL2,FLT1,FGFR2,LD LR,SMAD3,CHMP2A,ZFYVE9,SPG20,LDLRAP1,TGFB2,VPS37D,ARF6,PIP5KL1,CLTB,ARF1,C HMP3,AGAP1,KDR,H2-Q10
KEGG:04810	Regulation of actin cytoskeleton	1.16E-05	PDGFB,PPP1CC,RHOA,ARPC5,PPP1R12A,EGFR,ROCK2,BDKRB2,ITGB5,PDGFRB,BAIAP2,F GF14,ITGB1,GSN,F2,SRC,PIP5K1A,PIK3R3,FGF5,FGFR2,BCAR1,DIAP2,FGF1,ARHGEF4,SSH 2,ITGA9,PAK7,PIK3R1,ITGA1,EZR,FGF18,DOCK1,ACTG1,MAPK1,MYL9
KEGG:04520	Adherens junction	1.18E-05	IGF1R,RHOA,MET,NLK,EGFR,PTPRB,SNAI2,SMAD4,BAIAP2,SRC,LEF1,SMAD3,PTPRF,CTN ND1,PVRL2,ACTG1,MAPK1,MLLT4
KEGG:04022	cGMP-PKG signaling pathway	3.09E-05	CALM1,PPP1CC,RHOA,SRF,PPP1R12A,ATP2B1,ROCK2,BDKRB2,RGS2,ATP1B1,NPR2,PIK3 R3,ATP2A2,ITPR2,PDE2A,TRPC6,ADRA2A,CREB3L3,IRS2,ATP1A3,PIK3R1,ATF4,ADORA1,P LCB1,AGTR1B,IRS1,GNAI1,MAPK1,MYL9
REAC:6011436	Amino acid transport across the plasma membrane	3.48E-05	SLC38A3,SLC3A2,SLC6A15,SLC6A19,SLC38A2,SLC38A4,SLC7A11,SLC6A6,SLC7A10,SLC43 A2,SLC7A5,SLC7A1
KEGG:04151	PI3K-Akt signaling pathway	4.69E-05	PDGFB,CDKN1B,IGF1R,KIT,EPHA2,MET,PTEN,KITL,SGK1,DDIT4,EGFR,RPS6KB1,YWHAE,P RL,THBS4,ITGB5,PDGFRB,CSF1R,RELA,FGF14,ITGB1,COL5A1,PCK1,EFNA1,EFNA3,JAK1,PI K3R3,FGF5,FLT1,FGFR2,ANGPT2,CREB3L3,FGF1,MCL1,ITGA9,PIK3R1,ITGA1,ATF4,GNG7, FOXO3,IRS1,PKN1,FGF18,KDR,MAPK1,GNG5,COL4A3
KEGG:04390	Hippo signaling pathway	1.27E-04	AXIN2,PPP1CC,PARD6A,NF2,FBXW11,ID2,YWHAE,MPP5,TGFB3,LATS2,WNT7B,SNAI2,S MAD4,TRP53BP2,LEF1,RASSF6,TEAD4,SMAD3,FGF1,SERPINE1,TGFB2,FZD5,DLG2,YAP1, ACTG1,CRB1
KEGG:05215	Prostate cancer	2.14E-04	PDGFB,CDKN1B,IGF1R,PTEN,EGFR,NFKBIA,PDGFRB,RELA,LEF1,PIK3R3,FGFR2,CREB3L3,S RD5A2,PIK3R1,ATF4,FOXO1,AR,MAPK1
KEGG:04510	Focal adhesion	2.65E-04	PDGFB,PPP1CC,IGF1R,RHOA,MET,PTEN,PPP1R12A,EGFR,SHC2,ROCK2,THBS4,ITGB5,PD GFRB,ITGB1,XIAP,COL5A1,SRC,PIK3R3,FLT1,BCAR1,ITGA9,PAK7,PIK3R1,ITGA1,DOCK1,A CTG1,KDR,MAPK1,MYL9,FLNC,COL4A3
KEGG:04921	Oxytocin signaling pathway	2.78E-04	CALM1,PPP1CC,RHOA,PPP1R12A,EGFR,ROCK2,CACNA2D3,RCAN1,RGS2,GNAS,SRC,NPR 2,PIK3R3,ITPR2,GNAO1,KCNJ5,PTGS2,CACNA2D1,PIK3R1,PLCB1,PLA2G4A,GNAI1,CACNB 2,ACTG1,MAPK1,MYL9

REAC:6011232	GAB1 signalosome	3.43E-04	PDGFB,CDKN1B,KIT,PTEN,KITL,EGFR,FRS2,PDGFRB,SRC,FGF5,FGFR2,FGF1,MAPKAP1,IRS2,PIK3R1,FOXO1,FOXO3,IRS1,FGF18
REAC:6011323	PI3K/AKT activation	3.43E-04	PDGFB,CDKN1B,KIT,RHOA,PTEN,KITL,EGFR,FRS2,PDGFRB,FGF5,FGFR2,FGF1,MAPKAP1,IRS2,PIK3R1,FOXO1,FOXO3,IRS1,FGF18
REAC:6011316	Neurophilin interactions with VEGF and VEGFR	4.75E-04	NRP1,NRP2,FLT1,KDR

PgrKO

GO.ID	Description	FDR p.Val	Genes
REAC:6010617	Cell Cycle, Mitotic	1.73E-39	CDC45,RPA1,TUBGCP3,FOXM1,CCNE1,DBF4,KIF20A,CDC20,CDT1,POLA1,GMNN,POLE,NCAPH2,RPA3,NCAPG,TAOK1,CDC6,BIRC5,MYBL2,CTDNBP1,FBXO5,CDK1,SKA2,RRM2,CDK27,AURKB,TOP2A,PPP2R5E,CCNH,DHFR,ESCO2,PPP2R2A,BORA,AJUBA,MCM4,RFC2,SFI1,NDC80,CEP192,INCENP,FEN1,POLA2,SMC3,CDK2,PRIM1,TUBGCP2,TYMS,PRIM2,MCM6,AHCTF1,NEK2,MCM10,NUF2,MASTL,SSNA1,NUP35,KIF18A,HAUS2,CASC5,PCNA,BUB1,GINS1,AURKA,RAE1,E2F5,DSN1,CCNA2,CCNA1,LMNA,SMC2,ORC1,KIF2C,NUDC,CDCA8,ANAPC4,RFC1,CDC7,RFC5,USO1,KNTC1,MCM7,MAD2L1,POLD3,PLK1,WEE1,CENPI,PSMD10,GINS3,ORC6,CENPN,GINS2,CEP57,CCNB2,KIF23,ZW10,ZWILCH,CDC25A,CDC14A,RFC3,SMC4,NCAPH,NCAPD3,APEX1,CENPT,TUBB4B,CNEP1R1,DNA2,ANAPC10,STAG1,NCAPD2,CDC16,TFDP1,POLD1,NUP133,MCPH1,NUP43,ORC3,BUB1B,CCNB1,MCM3,NUP62,CENPE,CSNK2A2,SETD8,ERCC6L,NUP160,TUBGCP6,POM121,SKP2,LIG1,ESPL1,PPP2R5D,HIST1H4C,NUMA1,BUB3,HDAC8,NINL,CDK7,TUBA1A
REAC:6011992	Mitochondrial translation termination	5.95E-21	MRPL10,MRPL49,MRPS18C,MRPL24,MTRF1L,MRPL22,MRPL38,MRPL36,MRPS30,MRPS23,MRPL14,MRPS18A,MRPL28,MRPS18B,MRPL21,MRPL30,MRPS5,MRPL9,MRPL37,MRPS33,MRPL19,MRPL46,MRPL48,MRPL17,MRPS31,MRPL3,GADD45GIP1,MRPS17,MRPL34,MRPL54,MRPL41,MRPL55,MRPS34,MRPL12,MRPS28,MRPS7,MRPL18,MRPS9,MRPS36,MRPL42,PTCD3,AURKAIP1,DAP3
REAC:6011991	Mitochondrial translation elongation	1.08E-20	MRPL10,MRPL49,MRPS18C,MRPL24,MRPL22,MRPL38,MRPL36,MRPS30,MRPS23,MRPL14,MRPS18A,MRPL28,MRPS18B,MRPL21,MRPL30,MRPS5,MRPL9,MRPL37,MRPS33,MRPL19,MRPL46,MRPL48,MRPL17,MRPS31,MRPL3,GADD45GIP1,MRPS17,MRPL34,MRPL54,MRPL41,MRPL55,MRPS34,MRPL12,MRPS28,TSMF,MRPS7,MRPL18,MRPS9,MRPS36,MRPL42,PTCD3,AURKAIP1,DAP3

REAC:6011989	Mitochondrial translation	3.56E-20	MRPL10,MRPL49,MRPS18C,MRPL24,MTRF1L,MRPL22,MRPL38,MRPL36,MRPS30,MRPS23,MRPL14,MRPS18A,MRPL28,MRPS18B,MRPL21,MRPL30,MRPS5,MRPL9,MRPL37,MRPS33,MRPL19,MRPL46,MRPL48,MRPL17,MRPS31,MRPL3,GADD45GIP1,MRPS17,MRPL34,MRPL54,MRPL41,MRPL55,MRPS34,MRPL12,MRPS28,TSFM,MRPS7,MRPL18,MRPS9,MRPS36,MRPL42,PTCD3,AURKAIP1,DAP3
REAC:6011988	Mitochondrial translation initiation	5.75E-20	MRPL10,MRPL49,MRPS18C,MRPL24,MRPL22,MRPL38,MRPL36,MRPS30,MRPS23,MRPL14,MRPS18A,MRPL28,MRPS18B,MRPL21,MRPL30,MRPS5,MRPL9,MRPL37,MRPS33,MRPL19,MRPL46,MRPL48,MRPL17,MRPS31,MRPL3,GADD45GIP1,MRPS17,MRPL34,MRPL54,MRPL41,MRPL55,MRPS34,MRPL12,MRPS28,MRPS7,MRPL18,MRPS9,MRPS36,MRPL42,PTCD3,AURKAIP1,DAP3
KEGG:03030	DNA replication	4.47E-18	RPA1,POLA1,POLE,RPA3,RNASEH1,RNASEH2B,MCM4,RFC2,FEN1,POLA2,PRIM1,PRIM2,MCM6,PCNA,POLE3,RFC1,RFC5,MCM7,POLD3,RFC3,DNA2,POLD1,MCM3,RNASEH2A,LIG1
KEGG:04110	Cell cycle	8.30E-18	CDC45,CCNE1,DBF4,CDC20,CDC6,CDK1,CDC27,CCNH,MCM4,CDC23,SMAD2,SMC3,ANAPC11,CDK2,MCM6,PCNA,BUB1,E2F5,CCNA2,CCNA1,ORC1,ANAPC4,CDC7,CHEK2,MCM7,MAD2L1,PLK1,WEE1,ORC6,CHEK1,CCNB2,CDC25A,CDC14A,ANAPC10,STAG1,TTK,CDC16,TFDP1,ORC3,BUB1B,CCNB1,MCM3,SKP2,ESPL1,BUB3,CDK7
REAC:6010636	DNA strand elongation	1.90E-17	CDC45,RPA1,POLA1,RPA3,MCM4,RFC2,FEN1,POLA2,PRIM1,PRIM2,MCM6,PCNA,GINS1,RFC1,RFC5,MCM7,POLD3,GINS3,GINS2,RFC3,APEX1,DNA2,POLD1,MCM3,LIG1
REAC:6011470	Mitotic Prometaphase	1.46E-16	CDC20,NCAPG,TAOK1,BIRC5,CDK1,SKA2,AURKB,PPP2R5E,NDC80,INCENP,SMC3,AHCTF1,NUF2,KIF18A,CASC5,BUB1,DSN1,SMC2,KIF2C,NUDC,CDCA8,KNTC1,MAD2L1,PLK1,CENPI,CENPN,CCNB2,ZW10,ZWILCH,SMC4,NCAPH,CENPT,STAG1,NCAPD2,NUP133,NUP43,BUB1B,CCNB1,CENPE,CSNK2A2,ERCC6L,NUP160,PPP2R5D,BUB3,HDAC8
REAC:6010627	Activation of the pre-replicative complex	6.36E-15	CDC45,RPA1,DBF4,CDT1,POLA1,POLE,RPA3,CDC6,MCM4,POLA2,CDK2,PRIM1,PRIM2,MCM6,MCM10,ORC1,CDC7,MCM7,ORC6,ORC3,MCM3
REAC:6010654	Activation of ATR in response to replication stress	7.11E-15	CDC45,RPA1,DBF4,RPA3,CDC6,RAD17,RAD1,MCM4,RFC2,CDK2,ATRIP,MCM6,MCM10,ORC1,CDC7,RFC5,MCM7,ORC6,CHEK1,CDC25A,RFC3,ORC3,MCM3,CLSPN

REAC:6011043	M Phase	8.88E-15	KIF20A,CDC20,NCAPH2,NCAPG,TAOK1,BIRC5,CTDNEP1,FBXO5,CDK1,SKA2,CDC27,AURKB,PPP2R5E,PPP2R2A,NDC80,INCENP,SMC3,AHCTF1,NUF2,MASTL,NUP35,KIF18A,CASC5,BUB1,RAE1,DSN1,LMNA,SMC2,KIF2C,NUDC,CDCA8,ANAPC4,USO1,KNTC1,MAD2L1,PLK1,CENPI,PSMD10,CENPN,CCNB2,KIF23,ZW10,ZWILCH,SMC4,NCAPH,NCAPD3,CENPT,CN EP1R1,ANAPC10,STAG1,NCAPD2,CDC16,NUP133,MCPH1,NUP43,BUB1B,CCNB1,NUP62,CENPE,CSNK2A2,SETD8,ERCC6L,NUP160,POM121,ESPL1,PPP2R5D,HIST1H4C,BUB3,HDA C8
REAC:6011842	Resolution of Sister Chromatid Cohesion	1.05E-13	CDC20,TAOK1,BIRC5,CDK1,SKA2,AURKB,PPP2R5E,NDC80,INCENP,SMC3,AHCTF1,NUF2,KIF18A,CASC5,BUB1,DSN1,KIF2C,NUDC,CDCA8,KNTC1,MAD2L1,PLK1,CENPI,CENPN,CCNB2,ZW10,ZWILCH,CENPT,STAG1,NUP133,NUP43,BUB1B,CCNB1,CENPE,ERCC6L,NUP160,PPP2R5D,BUB3,HDAC8
REAC:6011093	Extension of Telomeres	3.55E-13	RPA1,POLA1,POLE,RPA3,RFC2,FEN1,POLA2,PRIM1,PRIM2,PCNA,RFC1,RFC5,POLD3,DKC1,RFC3,APEX1,DNA2,POLD1,LIG1
REAC:6010981	E2F mediated regulation of DNA replication	3.58E-13	CDC45,CCNE1,CDT1,POLA1,CDC6,FBXO5,CDK1,RRM2,DHFR,POLA2,PRIM1,TYMS,PRIM2,PCNA,CCNA1,ORC1,ORC6,CDC25A,TFDP1,ORC3,CCNB1
KEGG:03008	Ribosome biogenesis in eukaryotes	9.85E-13	NHP2,RPP40,DROSHA,LSG1,RPP30,WDR75,NOP58,IMP4,NAT10,XRN2,SPATA5,NOL6,POP4,MPHOSPH10,DKC1,REXO2,PWP2,WDR3,UTP6,RPP25L,WDR36,WDR43,CIRH1A,UTP15,NXT2,CSNK2A2,FBL,REXO1,POP5,NHP2L1,AK6
KEGG:03430	Mismatch repair	1.04E-08	RPA1,MSH6,RPA3,RFC2,MSH2,PCNA,RFC1,RFC5,POLD3,MLH1,RFC3,POLD1,EXO1,LIG1
KEGG:03420	Nucleotide excision repair	7.38E-08	RPA1,GTF2H4,DDB2,POLE,RPA3,CCNH,ERCC4,RFC2,PCNA,POLE3,RFC1,RFC5,ERCC2,POLD3,RFC3,POLD1,LIG1,CDK7
KEGG:03013	RNA transport	1.37E-07	PHAX,SUMO3,RPP40,SMN1,PABPC1,NCBP2,PRMT5,RPP21,RPP30,CLNS1A,THOC3,NUP35,RAE1,EIF4E,TGS1,NCBP1,NDC1,EIF2B3,POP4,RPP25L,GEMIN5,TACC3,EEF1A1,NUP133,NUP43,GEMIN8,THOC6,NXT2,NUP62,GEMIN7,NUP160,POM121,THOC7,SNUPN,EIF4B,POP5,EIF1AX,EIF4EBP3
KEGG:03018	RNA degradation	2.53E-07	C1D,SKIV2L2,EXOSC10,CNOT6,PABPC1,PARN,BTG3,EXOSC7,HSPD1,XRN2,EXOSC9,EXOSC8,CNOT7,BTG4,DIS3,TTC37,LSM3,EXOSC4,PAPD7,CNOT3,PAPD5,LSM1,CNOT10,ENO3