

**Table S9. KEGG analyses of downregulated mRNAs in the ceRNA network**

id	term	p Value	Enrichment _score	Gene
hsa05414	Dilated cardiomyopathy (DCM)	2.76E-15	4.75	TGFB2; RYR2; SLC8A1; DES; DAG1; ADCY5; SGCB; ITGA1; PLN; ACTB; TPM2; ITGA8; CACNB2; ITGB1; CACNA1C; ITGA7; ACTC1; TPM1; ITGA3; SGCA; DMD
hsa05412	Arrhythmogenic right ventricular cardiomyopathy (ARVC)	1.12E-14	4.47	RYR2; SLC8A1; DES; DAG1; SGCB; ITGA1; ACTB; ITGA8; CACNB2; ITGB1; CTNNA3; CACNA1C; ITGA7; ITGA3; SGCA; DMD
hsa05410	Hypertrophic cardiomyopathy (HCM)	1.22E-14	5.21	PRKAA2; PRKAB2; TGFB2; RYR2; SLC8A1; DES; DAG1; SGCB; ITGA1; ACTB; PRKAG2; TPM2; ITGA8; CACNB2; ITGB1; CACNA1C; ITGA7; ACTC1; TPM1; ITGA3; SGCA; DMD
hsa05205	Proteoglycans in cancer	1.05E-11	2.64	PPP1R12B; TGFB2; AKT3; ROCK2; PPP1CB; ITPR1; MRAS; ANK2; FGF2; ACTB; EGFR; CAV1; FLNC; ITGB1; CAMK2G; HSPB2; PPP1R12A; PTPN11; THBS1; PRKCB; ROCK1; RRAS; PPP1R12C; SRC; SDC4; FLNA

hsa04921	Oxytocin signaling pathway	4.59E-11	3.84	PRKAA2; PRKAB2; PPP1R12B; RYR2; ROCK2; PPP1CB; KCNJ3; ITPR1; ADCY5; MYLK; ACTB; EGFR; GNAI1; PRKAG2; CACNB2; CAMK2G; GUCY1A2; CACNA1C; MYL6; PPP1R12A; CALM1; RYR3; PRKCB; GNAO1; ROCK1; PPP1R12C; PLCB4; MYL9; SRC
hsa04810	Regulation of actin cytoskeleton	2.08E-10	3.02	GNG12; PPP1R12B; ENAH; ROCK2; PPP1CB; NCKAP1; MYLK; MRAS; FGF2; ITGA1; PDGFA; GNA12; ACTB; EGFR; ITGA8; ITGB1; VCL; ITGA7; PIP4K2C; PPP1R12A; CFL2; ACTN1; MYH10; ITGA3; ROCK1; PIP5K1C; ACTN4; RRAS; PPP1R12C; MYL9; SRC; MYH9
hsa04728	Dopaminergic synapse	3.68E-09	2.92	GNG12; AKT3; PPP1CB; KCNJ3; ITPR1; ADCY5; PPP2R2C; PPP2R2B; GNAI1; KIF5B; CAMK2G; CACNA1C; CALM1; PRKCB; GNAO1; GNAL; GNG8; PLCB4; MAOB

hsa04713	Circadian entrainment	3.33E-08	3.98	PER3; GNG12; NOS1AP; RYR2; KCNJ3; ITPR1; ADCY5; GNAI1; PRKG1; CAMK2G; GUCY1A2; CACNA1C; CALM1; RYR3; CACNA1H; PRKCB; GNAO1; GNG8; PLCB4
hsa04670	Leukocyte transendothelial migration	4.96E-08	2.88	RAP1A; ROCK2; ACTB; GNAI1; ITGB1; CTNNA3; VCL; ESAM; JAM3; PTPN11; ACTN1; PRKCB; ROCK1; ACTN4; VASP; MYL9
hsa04611	Platelet activation	5.19E-08	3.44	RAP1A; AKT3; ROCK2; PPP1CB; ITPR1; ADCY5; MYLK; ACTB; GNAI1; TLN1; ITGB1; PRKG1; GUCY1A2; PPP1R12A; P2RX1; ROCK1; TBXA2R; VASP; PTGIR; PLCB4; SRC
hsa04540	Gap junction	1.24E-07	3.20	ITPR1; ADCY5; PDGFA; EGFR; GNAI1; PRKG1; GUCY1A2; HTR2A; TJP1; PRKCB; TUBB6; GNA11; PLCB4; SRC

hsa04530	Tight junction	2.57E-07	2.84	PRKAA2; RAP1A; PRKAB2; ROCK2; AMOTL2; PPP2R2C; PPP2R2B; SYNPO; BVES; ACTB; PRKAG2; ITGB1; JAM3; MYL6; ACTN1; TJP1; MYH11; MYH10; ROCK1; ACTN4; VASP; MYL9; SRC; MYH9
hsa04510	Focal adhesion	8.57E-07	3.94	RAP1A; PPP1R12B; AKT3; ROCK2; PPP1CB; MYLK; ITGA1; PDGFA; ACTB; EGFR; CAV1; FLNC; ZYX; TLN1; TNC; ITGA8; ITGB1; VCL; ILK; PARVA; ITGA7; PPP1R12A; COL4A2; ACTN1; THBS1; SHC4; PRKCB; ITGA3; ROCK1; PIP5K1C; ACTN4; VASP; PPP1R12C; MYL9; SRC; LAMA5; COL4A6; COL4A5; FLNA
hsa04371	Apelin signaling pathway	1.42E-06	3.38	PRKAA2; GNG12; PRKAB2; MEF2D; RYR2; AKT3; SLC8A1; ITPR1; ADCY5; MYLK; MRAS; AGTR1; PPARGC1A; GNAI1; PRKAG2; TGFBR1; ACTA2; CALM1; RYR3; GNG8; SLC8A2; RRAS; PLCB4

hsa04270	Vascular smooth muscle contraction	2.07E-06	4.92	PPP1R12B; ROCK2; PPP1CB; ACTG2; RAMP1; ITPR1; PRKCD; ADCY5; MYLK; AGTR1; ADRA1B; KCNMB1; GNA12; CALD1; PRKG1; KCNMA1; ACTA2; MRV11; GUCY1A2; CACNA1C; MYL6; PPP1R12A; CALM1; MYH11; PRKCB; ROCK1; GNA11; PPP1R14A; PTGIR; PPP1R12C; PLCB4; MYL9
hsa04261	Adrenergic signaling in cardiomyocytes	6.12E-06	2.94	ATP1A2; ATP2B4; RYR2; AKT3; PPP1CB; SLC8A1; ADCY5; AGTR1; PPP2R2C; PPP2R2B; ADRA1B; PLN; GNAI1; TPM2; CACNB2; CAMK2G; CACNA1C; CALM1; ACTC1; TPM1; PLCB4
hsa04070	Phosphatidylinositol signaling system	1.54E-05	3.05	ITPR1; DGKG; INPP4B; IP6K3; IMPAD1; INPP5A; PIP4K2C; CALM1; ITPK1; PRKCB; IMPA2; PIP5K1C; CDS2; PLCB4; MTMR8

hsa04024	cAMP signaling pathway	2.38E-05	2.43	PTGER3; RAP1A; ATP1A2; ATP2B4; RYR2; AKT3; ROCK2; PPP1CB; ADCY5; NPY1R; PDE4D; HTR1B; PLN; GNAI1; VIPR2; CAMK2G; BDNF; CACNA1C; PDE3A; PPP1R12A; CALM1; ROCK1; RRAS; MYL9
hsa04022	cGMP-PKG signaling pathway	2.54E-05	4.32	MEF2D; ATP1A2; ATP2B4; AKT3; ROCK2; PPP1CB; SLC8A1; ADRA2B; ITPR1; ADCY5; MYLK; AGTR1; ADRA2C; SLC25A4; ADRA1B; KCNMB1; SRF; PLN; GNA12; GNAI1; PRKG1; KCNMA1; MRV11; GUCY1A2; CACNA1C; PDE3A; KCNJ8; PPP1R12A; CALM1; ROCK1; GNA11; VASP; SLC8A2; PLCB4; MYL9
hsa04020	Calcium signaling pathway	3.31E-05	2.88	PTGER3; ATP2B4; RYR2; SLC8A1; ITPR1; MYLK; AGTR1; SLC25A4; ADRA1B; PLN; PDE1C; EGFR; TACR2; CAMK2G; CACNA1C; HTR2A; CALM1; RYR3; CACNA1H; PRKCB; P2RX1; GNAL; GNA11; TBXA2R; SLC8A2; PLCB4

