

Table S4. Top 20 significantly enriched gene ontology (GO) terms in each category during peak and mid lactation.

Category	ID	Term	P-value	Gene Name	Number of Genes
biological process	GO:2000026	regulation of multicellular organismal development	< 0.001	HEYL, ADRB2, TMEM106B, MUSTN1, MMP9, TSPAN12, SYT1, MAPT, PI16, KITLG, TEK, TMEM100, CHI3L1, PPARG, DIO3, MEF2C, FKBP4, TNF, GPR4, IL34, MSX2, EGR1, THBS4, IL18, S1PR1, CXCL10, CTSK, ANGPT2, PPP1R16B, NFIB, CAV1, PIM1, C1QA, MT3, SCIN, ITM2C, TP53, GPR37L1, MYC, ZC3H12A, ADIPOQ, CITED2, TMEM98, SDC2, LTF, SEMA3C	46
biological process	GO:0072359	circulatory system development	< 0.001	HEYL, TSPAN12, PI16, TEK, TMEM100, CHI3L1, PPARG, GJA4, MEF2C, LOX, GPR4, MSX2, EGR1, THBS4, TGFBI, IL18, S1PR1, CXCL10, FAP, ANGPT2, CLIC4, ANGPTL4, ROM1, PPP1R16B, CAV1, PIM1, TP53, ACTA2, ZC3H12A, CITED2, CDH5, FHL2, B4GALT1, SEMA3C	34
biological process	GO:0051093	negative regulation of developmental process	< 0.001	ADRB2, MMP9, MAPT, PI16, SLC6A4, TEK, PPARG, DIO3, FKBP4, TNF, GPR4, MSX2, THBS4, IL18, CXCL10, CTSK, ANGPT2, NFIB, CAV1, MT3, ITM2C, TP53, GPR37L1, MYC, ZC3H12A, ADIPOQ, TMEM98, LTF	28
biological process	GO:0001944	vasculature development	< 0.001	TSPAN12, TEK, TMEM100, CHI3L1, PPARG, GJA4, MEF2C, LOX, GPR4, EGR1, THBS4, TGFBI, IL18, S1PR1, CXCL10, FAP, ANGPT2, CLIC4, ANGPTL4, ROM1, PPP1R16B, CAV1, ACTA2, ZC3H12A, CITED2, CDH5, B4GALT1, SEMA3C	28
biological process	GO:0072358	cardiovascular system development	< 0.001	TSPAN12, TEK, TMEM100, CHI3L1, PPARG, GJA4, MEF2C, LOX, GPR4, EGR1, THBS4, TGFBI, IL18, S1PR1, CXCL10, FAP, ANGPT2, CLIC4, ANGPTL4, ROM1, PPP1R16B, CAV1, ACTA2, ZC3H12A, CITED2, CDH5, B4GALT1, SEMA3C	28
biological process	GO:0042127	regulation of cell proliferation	< 0.001	PYCARD, MUSTN1, MMP9, CAV2, CORO1A, KITLG, CDCA7, PPARG, MEF2C, TNF, IL34, MSX2, EGR1, THBS4, IL18, S1PR1, CXCL10, FAP, DDAH1, RAC2, NDRG1, F2R, PPP1R16B, NFIB, PIM1, CCL5, SCIN, CNN1, CD320, TP53, GPR37L1, FABP4, MYC, CLU, ADIPOQ, CCL2, EPCAM, B4GALT1, LTF	39
biological process	GO:0050793	regulation of developmental process	< 0.001	HEYL, ADRB2, TMEM106B, MUSTN1, MMP9, TSPAN12, SYT1, CD44, MAPT, PI16, SLC6A4, CORO1A, KITLG, TEK, BSP5, TMEM100, CHI3L1, PPARG, DIO3, MEF2C, FKBP4, TNF, GPR4, IL34, MSX2, EGR1, THBS4, IL18, S1PR1, CXCL10, CTSK, ANGPT2, RSL1D1, PPP1R16B, NFIB, CAV1, PIM1, C1QA, MT3, SCIN, ITM2C, TP53, GPR37L1, MEDAG, MYC, ZC3H12A, ADIPOQ, CITED2, CCL2, TMEM98, SDC2, LTF, SEMA3C	53
biological process	GO:0010942	positive regulation of cell death	< 0.001	PYCARD, MMP9, MAPT, PPARG, MEF2C, TNF, MSX2, FAP, F2R, CAV1, C1QA, MT3, CCL5, SCIN, KCNMA1, ITM2C, TP53, MYC, CLU, ZC3H12A, ADIPOQ, CCL2, S100A9, B4GALT1	24
biological process	GO:0009888	tissue development	< 0.001	HEYL, ADRB2, MUSTN1, MMP9, CAV2, ZNF750, SLC44A4, CD44, PI16, KITLG, TMEM100, PPARG, ACTG2, MEF2C, TNF, GPR4, MSX2, EGR1, CFL2, S1PR1, CXCL10, CTSK, ARRDC3, CLIC4, PPP1R16B, NFIB, CAV1, PIM1, SCIN, ANXA2, KCNMA1, TP53, ACTA2, ADIPOQ, CITED2, ASCL2, CLEC3B, SPP1, FHL2, B4GALT1, LTF, SEMA3C, C15H11orf34	43
biological process	GO:0001568	blood vessel development	< 0.001	TSPAN12, TEK, TMEM100, CHI3L1, PPARG, GJA4, MEF2C, LOX, GPR4, EGR1, THBS4, TGFBI, IL18, S1PR1, CXCL10, FAP, ANGPT2, ANGPTL4, PPP1R16B, CAV1, ACTA2, ZC3H12A, CITED2, CDH5, B4GALT1, SEMA3C	26
biological process	GO:0048646	anatomical structure formation involved in morphogenesis	< 0.001	HEYL, MMP9, TSPAN12, SLC44A4, TEK, TMEM100, CHI3L1, PPARG, MEF2C, TNF, GPR4, MSX2, CFL2, THBS4, TGFBI, IL18, S1PR1, CXCL10, FAP, ANGPT2, ANGPTL4, PPP1R16B, CAV1, PIM1, TP53, ACTA2, ZC3H12A, CITED2, FHL2, B4GALT1, SEMA3C	31

biological process	GO:0051241	negative regulation of multicellular organismal process	< 0.001	PYCARD, ADRB2, MMP9, PI16, SLC6A4, TEK, PPARG, DIO3, MEF2C, FKBP4, TNF, GPR4, MSX2, THBS4, CXCL10, CTSK, ARRDC3, ANGPT2, ADORA2B, F2R, NFIB, MT3, KCNMA1, ITM2C, TP53, GPR37L1, MYC, ZC3H12A, PROS1, ADIPOQ, TMEM98, LTF	32
biological process	GO:0048468	cell development	< 0.001	HEYL, NEFM, TMEM106B, CAV2, SYT1, SLC44A4, MAPT, PI16, KITLG, TEK, BSP5, PPARG, DIO3, MEF2C, FKBP4, TNF, GPR4, IL34, MSX2, CFL2, CLIC4, NDRG1, PPP1R16B, NFIB, C1QA, MT3, NRROS, KCNMA1, ITM2C, FERMT3, TP53, GPR37L1, ACTA2, ADIPOQ, CITED2, TMEM98, DEFB1, SDC2, FHL2, B4GALT1, LTF, SEMA3C	42
biological process	GO:0008283	cell proliferation	< 0.001	PYCARD, MUSTN1, MMP9, CAV2, TSPAN1, CORO1A, KITLG, TEK, CDCA7, PPARG, MEF2C, TNF, IL34, MSX2, EGR1, THBS4, TGFB1, IL18, S1PR1, CXCL10, FAP, CKS2, DDAH1, RAC2, NDRG1, F2R, PPP1R16B, NFIB, PIM1, CCL5, SCIN, CNN1, CD320, TP53, GPR37L1, FABP4, MYC, CLU, ADIPOQ, CCL2, EPCAM, B4GALT1, LTF	43
biological process	GO:0009653	anatomical structure morphogenesis	< 0.001	HEYL, TMEM106B, MMP9, TSPAN12, SYT1, SLC44A4, CD44, MAPT, SLC6A4, CORO1A, TEK, TMEM100, CHI3L1, PPARG, ACTG2, DIO3, MEF2C, LOX, TNF, GPR4, MSX2, CFL2, THBS4, TGFB1, IL18, S1PR1, CXCL10, ATP6V1B1, FAP, ANGPT2, CLIC4, ANGPTL4, ROM1, PPP1R16B, NFIB, CAV1, PIM1, MT3, FERMT3, TP53, ACTA2, ZC3H12A, ADIPOQ, CITED2, CCL2, SDC2, FHL2, B4GALT1, LTF, SEMA3C, C15H11orf34	51
biological process	GO:0008284	positive regulation of cell proliferation	< 0.001	PYCARD, MUSTN1, MMP9, CAV2, CORO1A, KITLG, MEF2C, TNF, IL34, EGR1, THBS4, IL18, S1PR1, RAC2, F2R, PPP1R16B, PIM1, CCL5, CD320, GPR37L1, FABP4, MYC, EPCAM, B4GALT1, LTF	25
biological process	GO:0043065	positive regulation of apoptotic process	< 0.001	PYCARD, MMP9, PPARG, MEF2C, TNF, MSX2, FAP, F2R, CAV1, CCL5, SCIN, KCNMA1, ITM2C, TP53, MYC, CLU, ZC3H12A, ADIPOQ, CCL2, S100A9, B4GALT1	21
biological process	GO:0043068	positive regulation of programmed cell death	< 0.001	PYCARD, MMP9, PPARG, MEF2C, TNF, MSX2, FAP, F2R, CAV1, CCL5, SCIN, KCNMA1, ITM2C, TP53, MYC, CLU, ZC3H12A, ADIPOQ, CCL2, S100A9, B4GALT1	21
biological process	GO:0051240	positive regulation of multicellular organismal process	< 0.001	PYCARD, HEYL, ADRB2, TMEM106B, MUSTN1, MMP9, SYT1, MAPT, KITLG, TEK, BSP5, TMEM100, CHI3L1, DIO3, MEF2C, TNF, IL34, MSX2, EGR1, IL18, ADORA2B, F2R, PPP1R16B, CAV1, PIM1, C1QA, SCIN, CYBA, GPR37L1, ZC3H12A, FABP5, ADIPOQ, CITED2, AGPAT1, UCP2, TLR3, LTF, SEMA3C	38
biological process	GO:0072593	reactive oxygen species metabolic process	< 0.001	NOS3, MAPT, TNF, VAV1, SOD2, DDAH1, TMEM106A, CAV1, MT3, NRROS, CYBA, TP53, NCF1, ZC3H12A	14
cellular component	GO:0045177	apical part of cell	< 0.001	ADRB2, CLIC5, SLC1A1, SLC44A4, CD44, SLC6A4, TEK, ATP6V0D2, SCNN1A, ATP6V1B1, FAP, CLIC4, SLC2A5, REEP6, KCNMA1, CD300LG, S100G, SCNN1G, C15H11orf34	19
cellular component	GO:0016324	apical plasma membrane	< 0.001	ADRB2, CLIC5, SLC1A1, SLC44A4, CD44, SLC6A4, TEK, ATP6V0D2, SCNN1A, ATP6V1B1, SLC2A5, KCNMA1, CD300LG, S100G, SCNN1G, C15H11orf34	16
cellular component	GO:0044459	plasma membrane part	< 0.001	NOS3, ADRB2, CLIC5, CAV2, SLC1A1, TSPAN12, SYT1, SLC44A4, KCNJ2, CD44, MAPT, LIPE, SLC6A4, CORO1A, GJB1, TEK, ATP6V0D2, GJA4, TNF, RHBG, S1PR1, CXCL10, SCNN1A, ATP6V1B1, FAP, SLC8A1, SLC16A1, SLC2A5, ROM1, F2R, CAV1, KCNMA1, CD300LG, CD320, CYBA, GPR37L1, NCF1, S100G, FABP5, SCNN1G, LRRC8C, EPCAM, CLDN4, B4GALT1, RAB26, C15H11orf34	46
cellular component	GO:0098590	plasma membrane region	< 0.001	NOS3, ADRB2, CLIC5, CAV2, SLC1A1, SYT1, SLC44A4, CD44, MAPT, LIPE, SLC6A4, TEK, ATP6V0D2, RHBG, SCNN1A, ATP6V1B1, FAP, SLC8A1, SLC2A5, ROM1, F2R, CAV1, KCNMA1, CD300LG, GPR37L1, S100G, FABP5, SCNN1G, CLDN4, B4GALT1, C15H11orf34	31
cellular component	GO:0005901	caveola	< 0.001	NOS3, CAV2, LIPE, SLC8A1, F2R, CAV1, KCNMA1	7

cellular component	GO:0044421	extracellular region part	< 0.001	<i>PRSS2, MMP9, RNASE6, KITLG, BSP5, CHI3L1, TNF, IL34, THBS4, IL18, ELN, SCNN1A, SERPINA5, FAP, ANGPT2, SERPINA3-1, ANGPTL4, CSN1S2, PTGDS, ANXA2, KCNMA1, APOE, CLU, FABP5, ADIPOQ, CMTM8, TMEM98, DEFB1, CLEC3B, COL12A1, B4GALT1, LTF, LTBP2</i>	33
cellular component	GO:0005615	extracellular space	< 0.001	<i>PRSS2, MMP9, RNASE6, KITLG, BSP5, CHI3L1, TNF, IL34, THBS4, IL18, SCNN1A, SERPINA5, FAP, ANGPT2, SERPINA3-1, ANGPTL4, CSN1S2, PTGDS, KCNMA1, APOE, CLU, FABP5, ADIPOQ, CMTM8, TMEM98, CLEC3B, B4GALT1, LTF</i>	28
cellular component	GO:0044853	plasma membrane raft	< 0.001	<i>NOS3, CAV2, LIPE, SLC8A1, F2R, CAV1, KCNMA1</i>	7
cellular component	GO:0098858	actin-based cell projection	0.001	<i>CD44, KITLG, TEK, ACTG2, USH1C, ATP6V1B1, CLIC4, ACTA2, B4GALT1</i>	9
cellular component	GO:0045121	membrane raft	0.001	<i>NOS3, CAV2, MAPT, LIPE, SLC6A4, TEK, TNF, S1PR1, SLC8A1, F2R, CAV1, KCNMA1</i>	12
cellular component	GO:0098857	membrane microdomain	0.001	<i>NOS3, CAV2, MAPT, LIPE, SLC6A4, TEK, TNF, S1PR1, SLC8A1, F2R, CAV1, KCNMA1</i>	12
cellular component	GO:0009986	cell surface	0.002	<i>TYROBP, TEK, TNF, S1PR1, CXCL10, FAP, CLIC4, TNS1, NRROS, KCNMA1, ADRA2B, ADIPOQ, B4GALT1, LTF</i>	14
cellular component	GO:0098589	membrane region	0.002	<i>NOS3, CAV2, MAPT, LIPE, SLC6A4, TEK, TNF, S1PR1, SLC8A1, F2R, CAV1, KCNMA1</i>	12
cellular component	GO:0005581	collagen trimer	0.003	<i>C1QA, COLEC12, C1QTNF9, C1QB, ADIPOQ, COL12A1</i>	6
cellular component	GO:0031226	intrinsic component of plasma membrane	0.004	<i>SLC1A1, TSPAN12, KCNJ2, SLC6A4, TNF, RHBG, S1PR1, SCNN1A, SLC8A1, SLC16A1, SLC2A5, KCNMA1, CD320, CYBA, NCF1, LRRC8C, CLDN4, RAB26</i>	18