

Table S1. Temporal expression profiles of genes that differ between control and BMP4-treated AHF cells

| Cluster | Cluster 2 | Cluster 3 | Cluster 4 | Cluster 5 | Cluster 6 | Cluster 7 |
|---|--------------|---------------|-----------|---------------|---------------|---------------|
| ATP5C1 | NR2F2 | CAMK2A | LOC421552 | GPC3 | MIB1 | LOC424271 |
| SLC10A4 | C1QL3 | ALPI | HKDC1 | AHNAK2 | AMN1 | BAPX1 |
| STMN2 | TFAP2B | KIF9 | TATDN1 | LOC417741 | PTPN14 | P20K |
| NOG | SIX3 | UNC93A | TAP1 | LOC417741 | RCJMB04_1a24 | FANCA |
| FZD6 | GSTO1 | EVPL | ARHGAP1 | NR0B1 | LOC769727 | BLNK |
| PADI1 | LOC772356 | AGR2 | ZNF232 | LOC418200 | LIN54 | LOC425213 |
| WNT16 | FCGBP | FAM3B | DMBT1 | MSX2 | XYLB | LOC426312 |
| LOC422672 | SLC39A8 | PDGFC | LOC769120 | CSRP2 | RCJMB04_21a21 | SOCS2 |
| LOC422672 | CCDC84 | ALPK3 | DPYS | UPK1B | RCJMB04_23i8 | COL14A1 |
| TOR1AIP1 | ARSJ | ADCY8 | PRRX1 | LOC418200 | SIL1 | XRCC3 |
| ANXA1 | DLL1 | HOXB3 | MAP3K8 | VLDLR | TXNDC10 | ASTL |
| PAK1 | CGNRH-I | KLHL31 | | WISP1 | UNG | UPP1 |
| B3GALNT2 | ARSJ | SGMS1 | | BMPER | KIAA0319L | CXCL14 |
| LOC421075 | PAX6 | FGFR3 | | SOX14 | LOC424668 | SOSTDC1 |
| LOC417056 /// LOC417083 /// LOC768350 /// YFV /// YFVI | IQCE | NAT1 | | SGK | EPB41L3 | CRABP1 |
| MRPS25 | FGF12 | ADCY8 | | UPK1B | RCJMB04_2c16 | DLX1 |
| LOC422968 | RCJMB04_30k7 | EMP1 | | BLB1 | LOC425840 | CHGA |
| AKR1D1 | GSTA1 | RBM20 | | AQP5 | LOC419755 | GSTA3 |
| | PDLIM4 | RCJMB04_7i20 | | BTG2 | MYO1B | COL14A1 |
| | TMTC4 | ALDH1A2 | | PENK | TMTC2 | STOM |
| | LOC416235 | BMP2 | | KRT15 | OSBPL1A | NXP1 |
| | ITGB3 | LOC420209 | | PLD5 | SLC25A1 | LPL |
| | DKK1 | PEX16 | | PSCA | RCJMB04_25a7 | ISLET-2 |
| | LOC427336 | TNNT2 | | TIMP3 | CDC5L | RSPO3 |
| | KIAA0430 | MYL4 | | HTR1E | B3GNTL1 | LOC423224 |
| | LOC395159 | MAPK12 | | LOC423451 | LOC428753 | PTPRZ1 |
| | TRIM2 | SNAP25 | | GSC | LOC395452 | IL15 |
| | CTTNBP2 | NINJ2 | | FZ-8 | KCNB1 | PPP1R14C |
| | SFRS12 | ALDH1A2 | | HS3ST2 | CADM2 | LOC769486 |
| | HMGA2 | CHODL | | KRT14 | EGFL7 | ZPLD1 |
| | MICAL3 | ASB2 | | LOC769149 | SLC35F5 | NPY |
| | CEPU-SE | GSN | | FIBIN | RCJMB04_19i23 | LOC417756 |
| | GPBP1L1 | KRT19 | | RCJMB04_17o8 | ASRGL1 | HPSE2 |
| | NKTR | SOD3 | | BETA3 | KLHDC2 | SPRY1 |
| | LOC771055 | RCJMB04_32a22 | | LOC772254 | PRKACB | TMEM16A |
| | CREB3L2 | RCJMB04_2f9 | | LOC769860 | LOC423782 | MMP9 |
| | CCDC88C | ST6GALNAC1 | | LOC395378 | LOC417372 | CHD1 |
| | CAMSAP1L1 | TNNI1 | | RCJMB04_21i11 | SEC24D | CYP27C1 |
| | THSD7A | SNTB1 | | ERC1 | LOC421307 | RCJMB04_24e23 |
| | TMTC4 | RCJMB04_2f9 | | SMAD7 | NBEAL1 | |
| | ROCK2 | LOC772080 | | | LOC426312 | |
| | EPRS | PRPS2 | | | PLOD1 | |
| | SRC | PNOC | | | FABP7 | |
| | GCHFR | BLB2 | | | LOC770209 | |
| | TOP2A | PLSCR1 | | | | |
| | CDCA3 | RCJMB04_1a13 | | | | |
| | BCLAF1 | SNAP25 | | | | |
| | PHLDA2 | MYOM2 | | | | |
| | LOC770004 | SCTR | | | | |
| | ASPM | PTN | | | | |

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|---------------|-----------------|
| GET | PGC |
| KCNAB1 | CHODL |
| BIRC5 | SRL |
| LOC417909 | MAT1A |
| LOC395632 | NEXN |
| JMJD1C | BVES /// POPDC3 |
| SFRS12 | ATP6V1C2 |
| PITX1 | RCJMB04_5p23 |
| LOC424393 | MB |
| IPO9 | LOC421019 |
| RCJMB04_1g20 | PRPS2 |
| AKAP8L | FGFBP1 |
| | CDH13 /// |
| FST | LOC776611 |
| SNRPG | KRT15 |
| HIST1H1C | KREMEN1 |
| ZFR | NEXN |
| LOC426827 /// | |
| LOC770038 /// | |
| LOC770065 /// | |
| LOC776772 | LOC421889 |
| MYH10 | FKBP1B |
| SFRS2IP | LOC772190 |
| EIF3A | LOC772190 |
| LOC424393 | PRPS2 |
| LOC427941 | DUSP26 |
| AKAP12 | NEXN |
| GATA3 | SMYD1 |
| LIN28B | TPM1 |
| KIF4A | RPL9 |
| LOC422838 | TH |
| AQR | TTN |
| LOC431601 | CPM |
| LIN28 | LOC425711 |
| SMC2 | VGLL1 |
| LOC416348 | PTN |
| LOC418421 | MATN2 |
| CCDC88C | ACTN2 |
| CENPH | ANXA8L2 |
| FGB | SSPN |
| MIA3 | SLC25A4 |
| RPS25 | POPDC2 |
| LOC427846 | HHEX |
| MLLT1 | NEBL |
| LOC423325 | ATP2A2 |
| SLBP | BIN1 |
| SOX3 | EPAS1 |
| GIN51 | APOBEC2 |
| CCND1 | TPM1 |
| NEDD9 | ADPRHL1 |
| LOC419240 | AHNAK2 |
| DACT2 | KBTBD10 |
| DACT2 | BAMBI |
| BMPR1B | TTN |
| CYP26C1 | NEBL |
| CCND1 | MATN2 |

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|---------------|---------------|
| MCM2 | TTC8 |
| HES5 | IRX4 |
| VEGFA | EEF1A2 |
| MYCN | MYL3 |
| LOC419390 | ANXA8L2 |
| CYP26C1 | HTATIP2 |
| FGF3 | RG54 |
| PRR5 | LOC423610 |
| FGF3 | ADC |
| AADA4L4 | PROX1 |
| PDGFA | IRX4 |
| RCJMB04_35a17 | AHNAK2 |
| NPM3 | CD44 |
| PDGFA | LAD1 |
| RCJMB04_1d13 | POPDC2 |
| IL17RD | MYH7B |
| EYA2 | LOC416033 |
| FGF18 | KERA |
| MYCN | ADD3 |
| FGF8 | UNC45B |
| FSTL4 | CAP2 |
| FGF19 | SMYD1 |
| LGMN | RG518 |
| RARB | LOC429077 |
| RCJMB04_1f15 | ASB12 |
| FIGF | OXCT1 |
| NPM3 | LECT1 |
| FOXC2 | MYBPC3 |
| CCDC109B | LOC427259 |
| RELN | LOC426853 |
| LOC769609 | LOC424460 |
| CA10 | CALD1 |
| LOC421390 | WNT3A |
| PDLIM4 | RCJMB04_1c1 |
| CYTL1 | TRIM55 |
| LRIG3 | LOC770869 |
| WSCD2 | RCJMB04_7f20 |
| HOMER2 | RCJMB04_12d15 |
| GBX2 | BMP5 |
| DUSP4 | RCJMB04_2i21 |
| LOC418948 | HMGCLL1 |
| FZD8 | VCAM1 |
| SLITRK4 | LOC419204 |
| LOC422929 | LOC424271 |
| SLITRK4 | PTP4A1 |
| LOC770922 | WNT3A |
| LOC426585 | LOC395524 |
| EPHB1 | SMPX |
| RIF1 | SLC18A2 |
| RCJMB04_1i4 | WDR22 |
| HEY1 | PLA2G4A |
| SLC18A3 | RCJMB04_37h11 |
| ETV4 | RCJMB04_2i21 |
| LOC771069 | LOC420768 |

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|--------------|-----------|
| RPL10A | ZDHHC16 |
| CPNE4 | CCDC125 |
| RCJMB04_28f9 | LRRC6 |
| BCAT1 | IVD |
| LOC423952 | SLC25A1 |
| LOC772356 | TUBA1A |
| RLX3 | LOC428141 |
| RCJMB04_4k14 | PRICKLE1 |
| SLC1A4 | |
| IRF1 | |
