

Table 2

| E13.5BS-Sig | | WT/Ta |
|--------------------|--|--------------|
| Genes | | |
| SHH | | 8 |
| Dkk4 | | 5 |
| Eda | | 4.9 |
| Gli; | | 3.3 |
| Ltb | | 3 |
| Wnt10b | | 2.4 |
| Mcpt7 | | 2.3 |
| Relb; | | 2 |
| Ifitm3 | | 1.8 |
| AL627078 | | 1.7 |
| 6430527G18Rik | | 0.7 |
| E030022H21Rik | | 0.6 |
| Chd3 | | 0.6 |
| Lars | | 0.5 |

| E14.5BS-Sig | | WT/Ta |
|--------------------|--|--------------|
| Genes | | |
| SHH | | 10 |
| Dkk4 | | 6 |
| Eda | | 5.8 |
| Sox2 | | 4.1 |
| Krt1-17 | | 4.1 |
| Gli; | | 3 |
| Ltb | | 3 |
| Ptc | | 2.8 |
| Relb | | 2.5 |
| sostdc1 | | 2.3 |
| NIM172610 | | 2 |
| Dusp6 | | 2 |
| Bmp4 | | 2 |
| Fgf10 | | 2 |
| NIM026047 | | 2 |
| 2310014L17Rik | | 1.9 |
| Stfa3 | | 1.9 |
| Serpina4 | | 1.9 |
| Hck | | 1.9 |
| Rhpn2 | | 1.8 |
| NIM029341 | | 1.8 |
| Lfng | | 1.8 |
| Prdm1 | | 1.8 |
| Smoc1 | | 1.8 |
| 4931413A09Rik | | 1.7 |
| Oxtr | | 1.7 |
| Gal | | 1.6 |
| Arg2 | | 1.6 |
| Loxl4; | | 1.6 |
| 2610014H22Rik | | 0.6 |
| Olig1 | | 0.6 |
| Slc7a3 | | 0.6 |
| 9430056A22Rik | | 0.6 |
| Kdap | | 0.6 |

| E16.5BS-Sig | | WT/Ta |
|--------------------|--|--------------|
| Genes | | |
| Krt1-17 | | 11.4 |
| SHH | | 7.4 |
| Lhx2 | | 5.1 |
| DKK4 | | 4.9 |
| 1110056N09Rik | | 4.6 |
| Eda | | 4.6 |
| Ptc | | 3.3 |
| Sox2 | | 3 |
| Sostdc1 | | 2.9 |
| MGC36907 | | 2.8 |
| Ifna6 | | 2.8 |
| AK028917 | | 2.7 |
| Tparl | | 2.6 |
| 1100001H23Rik | | 2.6 |
| AK080961 | | 2.6 |
| Hes5 | | 2.5 |
| D830027H13Rik | | 2.5 |
| Ywhaz | | 2.5 |
| Slc21a12 | | 2.5 |
| Sox11 | | 2.5 |
| Cyp3a16 | | 2.4 |
| Mki67; | | 2.4 |
| Hist1h2ab | | 2.4 |
| Hist2h4 | | 2.3 |
| AI115454 | | 2.3 |
| Gli; | | 2.3 |
| Nmyc1 | | 2.3 |
| X04652 | | 2.3 |
| Calr4 | | 2.3 |
| Slc21a12 | | 2.2 |
| Foxd1 | | 2.2 |
| Hist2h4 | | 2.2 |
| LOC328732 | | 2.2 |
| Usp42 | | 2.2 |

| E18.5BS-Sig | | WT/Ta |
|--------------------|--|--------------|
| Genes | | |
| 4631426H08Rik | | 15 |
| Krt2-6g | | 15 |
| A030004J04Rik | | 6 |
| Krt1-c29 | | 5.4 |
| Kb36 | | 5.3 |
| Eda | | 5.1 |
| Tbx1 | | 4.5 |
| Elovl3 | | 4.5 |
| Shh | | 4.3 |
| Vdr | | 4.1 |
| Camp | | 3.8 |
| 1810005K13Rik | | 3.3 |
| K-17 | | 3.2 |
| Krt1-24 | | 3 |
| Dkk1 | | 3 |
| Cidec | | 2.7 |
| Lhx2 | | 2.5 |
| Lrrc15 | | 2.5 |
| Coch | | 2.5 |
| Krtcap1 | | 2.4 |
| Hoxb8 | | 2.4 |
| Akp2 | | 2.4 |
| Cyp2g1 | | 2.3 |
| Alcam | | 2.2 |
| Padi3 | | 2.2 |
| Mcoln3 | | 2.2 |
| Slco4a1 | | 2.1 |
| Mt4 | | 2.1 |
| Sostdc1 | | 2 |
| Gm973 | | 2 |
| Rassf6 | | 2 |
| Krt2-7 | | 2 |
| E030004N02Rik | | 1.9 |
| Gclc | | 1.9 |

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|---------------|-----|
| A030005L19Rik | 0.6 |
| Ins1 | 0.6 |
| B930011H20Rik | 0.6 |
| 6030498E09Rik | 0.6 |
| Siat7b | 0.6 |
| S100a3 | 0.6 |
| MOR33-3P | 0.6 |
| A230057D06Rik | 0.6 |
| Igfbp2 | 0.6 |
| 6330559I19Rik | 0.5 |
| Mslin; | 0.5 |
| Bcl2l14 | 0.5 |
| Gnat2 | 0.5 |
| Cplx1 | 0.5 |
| Igf1r | 0.5 |
| 2810439K08Rik | 0.5 |
| U003760 | 0.5 |
| BC010786 | 0.5 |
| Zfp260 | 0.5 |
| AK034350 | 0.5 |
| Ncstn; | 0.5 |
| LOC327927 | 0.5 |
| U043138 | 0.5 |
| 5730596B20Rik | 0.5 |
| NM_177129 | 0.5 |
| Trim3 | 0.5 |
| Ppp1r14c | 0.5 |
| AK043195 | 0.5 |
| Zfp297b | 0.5 |
| Ptprz1 | 0.5 |
| Cxcl13 | 0.5 |
| MGC7793 | 0.4 |
| Kpna4 | 0.4 |
| Ifna7 | 0.4 |
| Prkcabp | 0.4 |
| Abcd2 | 0.4 |
| Glycam1 | 0.4 |

| | |
|---------------|-----|
| 2410140K03Rik | 2.2 |
| Tbx1 | 2.1 |
| Rpl22 | 2.1 |
| 9430020E02Rik | 2.1 |
| Dkk1 | 2.1 |
| Kif5b | 2.1 |
| 9030612M13Rik | 2.1 |
| Bcl11b | 2.1 |
| Camk4 | 2 |
| Tor1b | 2 |
| 9030612M13Rik | 2 |
| Tebp-pending | 2 |
| A330080J22Rik | 2 |
| BC035291 | 2 |
| Bike-pending | 2 |
| 2610009E16Rik | 2 |
| Tpbp | 2 |
| Sgol2 | 1.9 |
| Nudt3 | 1.9 |
| Bicd2 | 1.9 |
| Actb | 1.9 |
| 1700081L11Rik | 1.9 |
| Smarca4 | 1.9 |
| Bcl11b | 1.9 |
| Klf13 | 1.9 |
| Cald1 | 1.9 |
| Csnk1a1 | 1.9 |
| Hist1h2bk | 1.9 |
| A930021H16Rik | 1.9 |
| Dusp6 | 1.9 |
| Ogfr | 1.9 |
| Gpc3 | 1.9 |
| U039129 | 1.9 |
| Gdm1 | 1.9 |
| 3010021M21Rik | 1.9 |
| LOC231861 | 1.9 |
| C86324 | 1.9 |

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|---------------|-----|
| Gpr48 | 1.9 |
| Sox9 | 1.9 |
| Gpr56 | 1.8 |
| Ptc | 1.8 |
| Hes5 | 1.8 |
| Mlana | 1.8 |
| Bnc1 | 1.8 |
| Clspn | 1.8 |
| Hey2 | 1.7 |
| Msx1 | 1.7 |
| Sox2 | 1.7 |
| Inhba | 1.7 |
| Prlr,AI987712 | 1.7 |
| Ptprv | 1.7 |
| Gpr125 | 1.7 |
| St14 | 1.7 |
| Hoxc13 | 1.7 |
| Moxd1 | 1.7 |
| Igsf4a | 1.6 |
| 4930590L20Rik | 1.6 |
| Rbbp4 | 1.6 |
| Adamts18 | 1.6 |
| U166171 | 1.6 |
| Sema3e | 1.6 |
| Rbp4 | 1.6 |
| Zfp265 | 1.6 |
| Usp26 | 1.6 |
| A930009N24 | 1.6 |
| Gtbbp4 | 1.6 |
| D630004K10Rik | 1.6 |
| Hhip | 1.6 |
| Gli | 1.5 |
| Smoc1 | 1.5 |
| Map4k5 | 1.5 |
| Lrrc4 | 1.5 |
| F11r | 1.5 |
| Sox21 | 1.5 |

MGC47262 0.4
 Rps13 0.4
 BC038167 0.4
 BC027088 0.4
 Vrn1; 0.3
 Tmc2 0.3
 1700018B24Rik 0.3
 Ryr3 0.3
 Mapkapk2 0.3
 Sin3b 0.3
 Cav3 0.3
 4933433C11Rik; 0.3
 A730098A19Rik 0.2
 B230113C15Rik 0.2

Slc6a6 1.8
 Edg2; 1.8
 1700081L11Rik 1.8
 Dctn1 1.8
 Ifi202b 1.8
 Tfap4 1.8
 1110007A14Rik 1.8
 Hist1h1b 1.8
 Cai 1.8
 Sox4 1.8
 Wif1 1.8
 Ltap 1.8
 Zfp36l2 1.8
 Lmna 1.8
 Rhpn2 1.8
 AA409446 1.8
 Tgfb2 1.8
 Ches1 1.8
 Col12a1 1.8
 U038103 1.8
 Iqgap1 1.8
 Inhba 1.8
 8430423A01Rik 1.8
 NM_133949 1.7
 Aldo2 1.7
 Nedd4 1.7
 Smoc1 1.7
 Pfn1 1.7
 Midn 1.7
 Lmnb1 1.7
 Mrfap1 1.7
 MGC37551 1.7
 6530403D07Rik 1.7
 Csrp1 1.7
 Q99L28 1.7
 6820443O06Rik 1.7
 G7e 1.7

Bmp8a 1.5
 Tnni2 1.5
 4833414E09Rik 1.5
 Foxd1 1.5
 Akap6 0.6
 BC026585 0.6
 1500017E21Rik 0.6
 U004947 0.6
 Glt25d2 0.6
 Angptl2 0.6
 Agtr1 0.6
 Col8a1 0.6
 Hrasl 0.6
 Mimp3 0.6
 A1317395 0.6
 Kcnn2 0.5
 Serpinb2 0.5
 U047613 0.5
 4930527J03Rik 0.5
 U103262 0.5
 Igfbp2 0.5
 Cpsf5 0.5
 Rpl29 0.4
 6430704M03Rik 0.4
 Atg2 0.01
 Serpinb3c, 4b 0.004

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|---------------|-----|
| Sdccag28 | 1.7 |
| Klf3 | 1.7 |
| Brd1 | 1.7 |
| 4833416I09Rik | 1.7 |
| Ahnak | 1.7 |
| Hck | 1.7 |
| Mll3 | 1.7 |
| Rap2b | 1.7 |
| Sps2 | 1.7 |
| Snf1lk | 1.7 |
| 1500034E06Rik | 1.7 |
| Fst | 1.7 |
| Atxn7l3 | 1.7 |
| Gpm6b | 1.7 |
| Cdk2 | 1.7 |
| 8430423A01Rik | 1.7 |
| Mnab | 1.7 |
| Amotl1 | 1.7 |
| 1110013J05Rik | 1.7 |
| Plec1 | 1.7 |
| Sh3bp1 | 1.7 |
| Stat2 | 1.7 |
| Vapa | 1.7 |
| Chd3 | 1.7 |
| Mgat1 | 1.7 |
| Gem | 1.7 |
| Cirbp | 1.7 |
| Casp3 | 1.7 |
| 9930116O05Rik | 1.7 |
| Tagln2 | 1.7 |
| 3010021M21Rik | 1.7 |
| Robo1 | 1.7 |
| NM_177054 | 1.7 |
| NM_153489 | 1.7 |
| 4930420O11Rik | 1.7 |
| 6430514H16 | 1.7 |
| 8030486F04Rik | 1.6 |

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|---------------|-----|
| Cbr2 | 1.6 |
| Dusp6 | 1.6 |
| Il2ra | 1.6 |
| LOC330878 | 1.6 |
| Eif3s5 | 1.6 |
| Centd2 | 1.6 |
| Rps7 | 1.6 |
| Ywhaz | 1.6 |
| 2010005116Rik | 1.6 |
| NRG2 | 1.6 |
| Ptch2; | 1.6 |
| Tcof1 | 1.6 |
| Hist1h4d | 1.6 |
| Chd3 | 1.6 |
| Sdc4 | 1.6 |
| C330012F17Rik | 1.6 |
| Top2a | 1.6 |
| Elavl1 | 1.6 |
| Rgl2; | 1.6 |
| Col9a3 | 1.6 |
| Prrx1 | 1.6 |
| Refbp2 | 1.6 |
| 2700050F09Rik | 1.6 |
| Trem2c | 1.6 |
| NM_022012 | 1.6 |
| Rab34 | 1.6 |
| Igsf3 | 1.6 |
| LOC327932 | 1.6 |
| Pnn | 1.6 |
| Gpc1 | 1.6 |
| Sin3b | 1.6 |
| Calm3 | 1.6 |
| BC019977 | 1.6 |
| Igsf4 | 1.6 |
| Zfx1b | 1.6 |
| Crsp2 | 1.6 |
| Fbx29 | 1.6 |

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|---------------|-----|
| Cxcr6 | 1.6 |
| Abcg5 | 1.6 |
| U046604 | 1.6 |
| Q8VFX4 | 1.6 |
| Ptpn11 | 1.6 |
| 2610028H07Rik | 1.6 |
| Lama5 | 1.6 |
| A930014C21Rik | 1.6 |
| Lrpap1 | 1.6 |
| Psmc3 | 1.6 |
| 1500015L24Rik | 1.6 |
| Refbp1 | 1.6 |
| Map3k1 | 1.6 |
| Eif4a1 | 1.6 |
| 2410018C20Rik | 1.6 |
| Sox13 | 1.6 |
| Fin16 | 1.6 |
| 4932442K20Rik | 1.6 |
| Mip | 1.6 |
| Glul | 1.6 |
| Myh9 | 1.6 |
| 9030217H17Rik | 1.6 |
| U173205 | 1.6 |
| 5730502D15Rik | 1.6 |
| 1700020J09Rik | 1.6 |
| Lbr | 1.6 |
| U069311 | 1.5 |
| LOC268496 | 1.5 |
| 2310043D08Rik | 1.5 |
| Pdgfra | 1.5 |
| 4833406P10Rik | 1.5 |
| Rgl2 | 1.5 |
| Gsr | 1.5 |
| Hadhsc | 1.5 |
| Lypla2 | 1.5 |
| Mafb | 1.5 |
| 4930535B03Rik | 1.5 |

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|---------------|-----|
| Nrip1 | 1.5 |
| 2700043D08Rik | 1.5 |
| MOR171-1 | 1.5 |
| Fbln1 | 1.5 |
| 2310045K21Rik | 1.5 |
| BC034054 | 1.5 |
| Gnb2 | 1.5 |
| D15Erttd785e | 1.5 |
| ORF6 | 1.5 |
| Med25 | 1.5 |
| Dusp7 | 1.5 |
| 2210403K04Rik | 0.6 |
| Ankrd29 | 0.6 |
| Lgi3 | 0.6 |
| Sang | 0.6 |
| Acox2 | 0.6 |
| Mfng; | 0.6 |
| Otx1 | 0.6 |
| A930003A15Rik | 0.6 |
| Usmg4 | 0.6 |
| Tmprss3 | 0.6 |
| 4832416K17Rik | 0.6 |
| MGC30456 | 0.6 |
| Rhced | 0.6 |
| 1110067D22Rik | 0.6 |
| Znfn1a4 | 0.6 |
| LOC381251 | 0.6 |
| 2310079N15Rik | 0.6 |
| V1rf3 | 0.6 |
| LOC328246 | 0.6 |
| Txn1 | 0.6 |
| Sqrdl | 0.6 |
| Pdim5 | 0.6 |
| 2610100K07Rik | 0.6 |
| 1700108M19Rik | 0.6 |
| 2310004K20Rik | 0.6 |
| U004572 | 0.6 |

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|---------------|-----|
| NM_139302 | 0.6 |
| Htf9c | 0.6 |
| Mect1 | 0.6 |
| D16Erttd480e | 0.6 |
| Al413235 | 0.6 |
| Chst4 | 0.6 |
| Il1f6 | 0.6 |
| Cplx1 | 0.6 |
| Sparcl1 | 0.6 |
| Gjc1 | 0.6 |
| LOC270103 | 0.6 |
| Wdr7 | 0.6 |
| Spo11 | 0.6 |
| 6330411F23Rik | 0.6 |
| LOC224552 | 0.6 |
| Olig1 | 0.6 |
| U036754 | 0.6 |
| Elf4 | 0.6 |
| Slc14a2 | 0.6 |
| Tpm1 | 0.6 |
| Cdrap | 0.6 |
| Ccr8 | 0.6 |
| 1600014E20Rik | 0.6 |
| Cgref1 | 0.6 |
| Spi8 | 0.6 |
| 1620401E04Rik | 0.6 |
| 4631416L12Rik | 0.6 |
| MOR267-7 | 0.6 |
| D730046L02Rik | 0.5 |
| 2310057N15Rik | 0.5 |
| Gabraq | 0.5 |
| Dm9 | 0.5 |
| Q8VFG8 | 0.5 |
| 2310031A18Rik | 0.5 |
| 1110012D08Rik | 0.5 |
| Smt3h1 | 0.5 |
| Ins1 | 0.5 |

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|----------------|-----|
| Brf2 | 0.5 |
| U212558 | 0.5 |
| LOC329333 | 0.5 |
| 310001N19Rik | 0.5 |
| 2610025P08Rik | 0.5 |
| 2700046G09Rik | 0.5 |
| MOR258-4P | 0.5 |
| U039716 | 0.5 |
| BC033596 | 0.5 |
| Myoc | 0.5 |
| 4930535E21Rik | 0.5 |
| F5 | 0.5 |
| Elys | 0.5 |
| 2310046A06Rik | 0.5 |
| 1110020A21Rik | 0.5 |
| Cxcl13, Scyb13 | 0.5 |
| 2810439K08Rik | 0.5 |
| D930038M13Rik | 0.5 |
| S100a3 | 0.5 |
| Slc7a3 | 0.5 |
| Fkbp10 | 0.5 |
| G6pc | 0.5 |
| 4933433D23Rik | 0.5 |
| H2-Dma | 0.5 |
| Cnm3 | 0.5 |
| 8430430B14Rik | 0.5 |
| Cnksr1 | 0.5 |
| C430041M20 | 0.5 |
| 4933409D10Rik | 0.5 |
| 9130207N01 | 0.5 |
| 4930599N23Rik | 0.4 |
| Ncstn | 0.4 |
| 6030498E09Rik | 0.4 |
| Gnat2 | 0.4 |
| 2610014H22Rik | 0.4 |
| Prkcb | 0.4 |
| 6330559I19Rik | 0.4 |

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| Yars | 0.4 |
| Nfya | 0.4 |
| 4921517D21Rik | 0.4 |
| Mid1 | 0.4 |
| Epqn-pending | 0.4 |
| Igfbp2 | 0.4 |
| Ptprz1 | 0.4 |
| NM_022007 | 0.4 |
| LOC269211 | 0.4 |
| 2410044K02Rik | 0.4 |
| LOC327927 | 0.4 |
| Igf1r | 0.4 |
| U018284 | 0.4 |
| Siat7b | 0.4 |
| 4930481A15Rik | 0.4 |
| D330045A20Rik | 0.4 |
| A230106N23 | 0.4 |
| Ccl19 | 0.4 |
| 2810011M08Rik | 0.4 |
| 5830472F04Rik | 0.4 |
| 2310061A22Rik | 0.4 |
| Trpv2 | 0.4 |
| Bcl2l14 | 0.4 |
| Gpnat1 | 0.4 |
| 0710001O03Rik | 0.4 |
| Upa | 0.4 |
| H2-DMb1 | 0.4 |
| Mylpc | 0.4 |
| U004947 | 0.4 |
| Zfp260 | 0.4 |
| U003760 | 0.4 |
| Gnb5 | 0.4 |
| 0710001B24Rik | 0.4 |
| Olf1360 | 0.4 |
| 4931407K02Rik | 0.4 |
| 5730405M13Rik | 0.4 |
| NM_177129 | 0.4 |

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| 5730596B20Rik | 0.4 |
| Lrrc3 | 0.4 |
| U043138 | 0.4 |
| Add2 | 0.4 |
| BC010786 | 0.4 |
| 4832412O06Rik | 0.4 |
| Neurod2 | 0.4 |
| Trim3 | 0.4 |
| 4930500E24Rik | 0.3 |
| Rho | 0.3 |
| F7 | 0.3 |
| Slc17a7 | 0.3 |
| Ppp1r14c | 0.3 |
| 2810453K03Rik | 0.3 |
| MGC7793 | 0.3 |
| 4632401C08Rik | 0.3 |
| U130061 | 0.3 |
| 2310067G05Rik | 0.3 |
| Abcd2 | 0.3 |
| Ifna7 | 0.3 |
| Ii | 0.3 |
| Agmat | 0.3 |
| Prkcbp | 0.3 |
| U062765 | 0.3 |
| Adamts4 | 0.3 |
| Vr11 | 0.3 |
| Ltap | 0.3 |
| Ptprz1 | 0.3 |
| Zfp297b | 0.3 |
| Trim68 | 0.3 |
| 2810409K11Rik | 0.3 |
| 4933432P15Rik | 0.3 |
| BC027088 | 0.3 |
| Mrps17 | 0.3 |
| U031828 | 0.3 |
| Paip1-pending | 0.3 |
| 5330435L01Rik | 0.3 |

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| Rbm12 | 0.3 |
| 1700018B24Rik | 0.3 |
| Tmc2 | 0.3 |
| MGC47262 | 0.3 |
| LOC329519 | 0.3 |
| 9230102O04Rik | 0.3 |
| U097269 | 0.3 |
| Tcp11 | 0.3 |
| Fkh10 | 0.3 |
| Coro2a | 0.3 |
| Sin3b | 0.3 |
| BC038167 | 0.3 |
| Rps13 | 0.3 |
| 1700013B03Rik | 0.3 |
| Siat7e | 0.3 |
| Ryr3 | 0.2 |
| Cav3 | 0.2 |
| Glycam1 | 0.2 |
| U007351 | 0.2 |
| 4933433C11Rik | 0.2 |
| 4933401E19Rik | 0.2 |
| A730098A19Rik | 0.2 |
| Syt6 | 0.2 |
| Slc9a4 | 0.2 |
| B230113C15Rik | 0.2 |
| Pgk2 | 0.2 |
| Mapkapk2 | 0.2 |
| NM_172629 | 0.2 |