

Supplemental Table 4a. Differentially expressed probes from the Affymetrix core probe set.

| Probe ID | Gene Symbol | Chromosome | Start position | <i>Idd9</i> region | Fold change | Magnitude fold change | Adjusted P Value | Average Expression | Mean NOD | Mean <i>Idd9</i> |
|----------|-------------|------------|----------------|--------------------|-------------|-----------------------|------------------|--------------------|-------------|------------------|
| 6810717 | Akr1e1 | 13 | 4590767 | | 4.05 | 4.05 | 1.50E-06 | 166.7450357 | 6.372666667 | 8.390333333 |
| 6918533 | Rex2 | 4 | 146964351 | 9.2 | 0.45 | 2.24 | 0.00185219 | 97.59035504 | 7.192 | 6.025333333 |
| 6923411 | Jun | 4 | 95049053 | | 0.49 | 2.05 | 0.003658532 | 271.7871304 | 8.602666667 | 7.57 |
| 6980101 | Cd209d | 8 | 3871825 | | 1.77 | 1.77 | 0.005262629 | 117.0109715 | 6.458333333 | 7.282666667 |
| 6940358 | Plac8 | 5 | 100553733 | | 1.82 | 1.82 | 0.006733638 | 256.0591554 | 7.568 | 8.432666667 |
| 6899428 | Sprr2d | 3 | 92339140 | | 0.57 | 1.75 | 0.006801842 | 196.6745765 | 8.021333333 | 7.218 |
| 6904300 | Ccna2 | 3 | 36564872 | | 1.75 | 1.75 | 0.006801842 | 373.9841541 | 8.142333333 | 8.951333333 |
| 6925587 | Ccdc28b | 4 | 129619274 | 9.1 | 1.91 | 1.91 | 0.006801842 | 736.8191087 | 9.057333333 | 9.993 |
| 6791298 | Top2a | 11 | 98937383 | | 1.92 | 1.92 | 0.006801842 | 349.5447444 | 7.978666667 | 8.92 |
| 6998900 | Tdgf1 | 9 | 110931759 | | 2.09 | 2.09 | 0.008524053 | 165.7655039 | 6.84 | 7.906 |
| 6815558 | Ccnb1 | 13 | 100778670 | | 1.76 | 1.76 | 0.011304529 | 208.8755765 | 7.300666667 | 8.112333333 |
| 6957304 | Prmt8 | 6 | 127689011 | | 0.52 | 1.92 | 0.011771418 | 35.79865137 | 5.633666667 | 4.69 |
| 6913499 | Smc2 | 4 | 52369442 | | 1.62 | 1.62 | 0.012689761 | 282.9035885 | 7.798333333 | 8.49 |
| 6772417 | Tnfaip3 | 10 | 18860936 | | 0.55 | 1.82 | 0.016027113 | 243.2562957 | 8.358 | 7.494666667 |
| 6786044 | Figl1 | 11 | 11776658 | | 1.54 | 1.54 | 0.016027113 | 268.9138033 | 7.759666667 | 8.382333333 |
| 6790475 | Brip1 | 11 | 86058136 | | 1.61 | 1.61 | 0.016027113 | 109.0238528 | 6.425333333 | 7.111666667 |
| 6791978 | Kpna2 | 11 | 106988649 | | 1.67 | 1.67 | 0.016027113 | 206.4525842 | 7.318333333 | 8.061 |
| 6758663 | Asnsd1 | 1 | 53325517 | | 1.65 | 1.65 | 0.016985449 | 243.0596607 | 7.566 | 8.284333333 |
| 6879938 | Ccdc34 | 2 | 110017837 | | 1.69 | 1.69 | 0.016985449 | 178.6922597 | 7.101666667 | 7.861 |
| 6910611 | Dnajb4 | 3 | 152165501 | | 0.58 | 1.72 | 0.020581596 | 365.7379866 | 8.905666667 | 8.123666667 |
| 6926082 | Rcan3 | 4 | 135412312 | 9.1 | 0.59 | 1.7 | 0.020581596 | 179.4369674 | 7.868 | 7.106666667 |
| 6757634 | Ptp4a1 | 1 | 30940306 | | 0.64 | 1.57 | 0.020581596 | 507.4657577 | 9.313666667 | 8.660666667 |
| 7017550 | Xlr3a | X | 73086296 | | 1.59 | 1.59 | 0.020581596 | 109.4402788 | 6.439666667 | 7.108333333 |
| 6811530 | Hist1h1b | 13 | 21779887 | | 1.6 | 1.6 | 0.020581596 | 109.7314553 | 6.438 | 7.117666667 |
| 6780933 | Vdac1 | 11 | 52332877 | | 1.61 | 1.61 | 0.020581596 | 318.1727932 | 7.968333333 | 8.659 |
| 7018897 | Nsbp1 | X | 109004430 | | 1.61 | 1.61 | 0.020581596 | 333.2589937 | 8.038666667 | 8.722333333 |
| 6880497 | Rad51 | 2 | 119112627 | | 1.65 | 1.65 | 0.020581596 | 137.1870032 | 6.74 | 7.46 |
| 6857078 | Ndc80 | 17 | 71496105 | | 1.57 | 1.57 | 0.020632235 | 190.9211781 | 7.251 | 7.902666667 |
| 6919748 | Fam92a | 4 | 12100669 | 9.1 | 1.61 | 1.61 | 0.022478566 | 296.2832656 | 7.868333333 | 8.553333333 |
| 6897002 | Plk4 | 3 | 40800038 | | 1.52 | 1.52 | 0.02251174 | 206.5480076 | 7.386 | 7.994666667 |
| 6959568 | Polr2i | 7 | 30231779 | | 1.56 | 1.56 | 0.02251174 | 172.4458978 | 7.11 | 7.75 |
| 6960178 | Klk8 | 7 | 43797413 | | 1.6 | 1.6 | 0.02251174 | 294.7470029 | 7.864333333 | 8.542333333 |

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|---------|---------------|----|-----------|-----|------|------|-------------|-------------|-------------|-------------|
| 6895672 | Fabp5 | 3 | 9932449 | | 1.59 | 1.59 | 0.02498998 | 252.5922678 | 7.645333333 | 8.316 |
| 6936981 | Tyms | 5 | 30044475 | | 1.62 | 1.62 | 0.02498998 | 215.3192259 | 7.401 | 8.099666667 |
| 6807022 | Cks2 | 13 | 51600235 | | 1.65 | 1.65 | 0.02498998 | 358.915396 | 8.127666667 | 8.847333333 |
| 6925559 | Zbtb8a | 4 | 129353633 | 9.1 | 0.64 | 1.56 | 0.025648563 | 92.95754096 | 6.858333333 | 6.218666667 |
| 6989974 | 2810417H13Rik | 9 | 65890333 | | 1.58 | 1.58 | 0.025648563 | 282.7728895 | 7.813666667 | 8.473333333 |
| 6971227 | Nsmce1 | 7 | 125467646 | | 1.51 | 1.51 | 0.026596871 | 373.2072839 | 8.246333333 | 8.841333333 |
| 6936082 | Dbf4 | 5 | 8396899 | | 1.66 | 1.66 | 0.026596871 | 167.4592974 | 7.023333333 | 7.752 |
| 6980158 | Shcbp1 | 8 | 4735986 | | 1.82 | 1.82 | 0.026612717 | 127.8079115 | 6.566666667 | 7.429 |
| 6819629 | Kcng | 14 | 61607457 | | 1.98 | 1.98 | 0.026612717 | 256.6811129 | 7.511 | 8.496666667 |
| 6929813 | | 5 | 33653358 | | 1.49 | 1.49 | 0.02719704 | 197.243416 | 7.336666667 | 7.911 |
| 6981683 | Thex1 | 8 | 35405141 | | 1.53 | 1.53 | 0.029258196 | 413.2392081 | 8.385666667 | 8.996 |
| 6805273 | Hist1h2bj | 13 | 22043230 | | 1.71 | 1.71 | 0.029469826 | 440.907844 | 8.398666667 | 9.17 |
| 6971848 | Mki67 | 7 | 135689791 | | 1.64 | 1.64 | 0.030835518 | 737.6708074 | 9.169666667 | 9.884 |
| 6854487 | Dusp1 | 17 | 26505604 | | 0.55 | 1.81 | 0.030893942 | 451.0051196 | 9.246 | 8.388 |
| 6946778 | Mad2l1 | 6 | 66535317 | | 1.56 | 1.56 | 0.032509875 | 372.7763869 | 8.221333333 | 8.863 |
| 6994624 | Hyls1 | 9 | 35560820 | | 1.57 | 1.57 | 0.033036547 | 178.3416673 | 7.155 | 7.802 |
| 6832153 | Xrcc6 | 15 | 81987857 | | 1.46 | 1.46 | 0.033213681 | 198.5924088 | 7.362 | 7.905333333 |
| 6937254 | Slbp | 5 | 33630473 | | 1.45 | 1.45 | 0.03502091 | 321.7210819 | 8.063 | 8.596333333 |
| 6869577 | Hells | 19 | 38930944 | | 1.61 | 1.61 | 0.035087935 | 241.2134706 | 7.57 | 8.258333333 |
| 6976320 | Hmgb2 | 8 | 57511596 | | 1.68 | 1.68 | 0.035454566 | 702.9768322 | 9.081 | 9.833666667 |
| 6950125 | Clec2d | 6 | 129112941 | | 1.71 | 1.71 | 0.037698183 | 671.0764564 | 9.001333333 | 9.779333333 |
| 6999549 | Higd1a | 9 | 121848563 | | 1.55 | 1.55 | 0.039931951 | 414.5301806 | 8.377666667 | 9.013 |
| 6925254 | Cdca8 | 4 | 124917678 | 9.1 | 1.77 | 1.77 | 0.039931951 | 193.8548921 | 7.185 | 8.012666667 |
| 6798795 | Rhob | 12 | 8497673 | | 0.68 | 1.47 | 0.041397763 | 134.7834921 | 7.351 | 6.798 |
| 6977151 | Klf2 | 8 | 72319043 | | 0.71 | 1.41 | 0.041397763 | 391.4904578 | 8.861333333 | 8.364333333 |
| 6835973 | Tmem65 | 15 | 58820402 | | 1.41 | 1.41 | 0.041397763 | 152.9412047 | 7.008333333 | 7.505333333 |
| 6844362 | Mrpl40 | 16 | 18872037 | | 1.42 | 1.42 | 0.041397763 | 250.0662705 | 7.711 | 8.221333333 |
| 6887520 | Spc25 | 2 | 69193907 | | 1.44 | 1.44 | 0.041397763 | 161.6989686 | 7.072666667 | 7.601666667 |
| 6830165 | Ebag9 | 15 | 44619164 | | 1.45 | 1.45 | 0.041397763 | 299.9683892 | 7.958333333 | 8.499 |
| 6878053 | Cdca7 | 2 | 72476203 | | 1.46 | 1.46 | 0.041397763 | 203.0230892 | 7.394666667 | 7.936333333 |
| 6755378 | Kmo | 1 | 175620401 | | 1.5 | 1.5 | 0.041397763 | 133.7288257 | 6.772 | 7.354333333 |
| 6927456 | Cnga1 | 5 | 72603716 | | 1.51 | 1.51 | 0.041397763 | 160.6191389 | 7.029333333 | 7.625666667 |
| 6869503 | Kif11 | 19 | 37376124 | | 1.54 | 1.54 | 0.041397763 | 156.5883784 | 6.981666667 | 7.6 |
| 6880468 | D2Ertd750e | 2 | 118813988 | | 1.56 | 1.56 | 0.041397763 | 168.3904682 | 7.075666667 | 7.715666667 |
| 6960834 | Siglech | 7 | 55732854 | | 1.65 | 1.65 | 0.041397763 | 172.226898 | 7.068333333 | 7.788 |
| 6815870 | Ndufaf2 | 13 | 108002725 | | 1.45 | 1.45 | 0.042439102 | 476.8857951 | 8.627333333 | 9.167666667 |

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|---------|---------------|----|-----------|-----|------|------|-------------|-------------|-------------|-------------|
| 6922528 | Stmn1 | 4 | 69925210 | | 1.43 | 1.43 | 0.042851694 | 880.7975628 | 9.527 | 10.03833333 |
| 6805245 | Hist1h2bn | 13 | 21754123 | | 1.47 | 1.47 | 0.042851694 | 453.5653647 | 8.545 | 9.105333333 |
| 6901592 | Cenpe | 3 | 135212557 | | 1.51 | 1.51 | 0.043934082 | 140.7346079 | 6.839666667 | 7.434 |
| 6941344 | Cit | 5 | 116006776 | | 1.46 | 1.46 | 0.044080768 | 241.2134706 | 7.639666667 | 8.188666667 |
| 6811762 | Gmn | 13 | 24751848 | | 1.45 | 1.45 | 0.044479327 | 258.6456887 | 7.749 | 8.280666667 |
| 6953443 | Igf2bp3 | 6 | 49085223 | | 1.41 | 1.41 | 0.045705669 | 118.425285 | 6.639333333 | 7.136333333 |
| 6894180 | Cables2 | 2 | 180258549 | | 1.46 | 1.46 | 0.045705669 | 143.3435653 | 6.89 | 7.436666667 |
| 6917045 | Inpp5b | 4 | 124741870 | 9.1 | 1.51 | 1.51 | 0.045705669 | 395.1253689 | 8.328333333 | 8.924 |
| 6873282 | Ndufb8 | 19 | 44548582 | | 1.53 | 1.53 | 0.048657011 | 455.0874528 | 8.525333333 | 9.134666667 |
| 6957731 | E330021D16Rik | 6 | 136400315 | | 1.4 | 1.4 | 0.04978776 | 53.62498126 | 5.501 | 5.988666667 |
| 6861880 | Stard6 | 18 | 70472474 | | 1.4 | 1.4 | 0.04978776 | 92.05983808 | 6.282 | 6.767 |
| 6970635 | Rras2 | 7 | 114044676 | | 1.48 | 1.48 | 0.04978776 | 275.3901853 | 7.820666667 | 8.39 |

Supplemental Table 4b: Differentially expressed probes from the Affymetrix extended probe set.

| Probe ID | Gene Symbol | Chromosome/Probe location | <i>Idd9</i> region | Fold change | Magnitude Fold Change | Adjusted P value | Average Expression | Mean NOD | Mean <i>Idd9</i> |
|----------|--------------------|---------------------------|--------------------|-------------|-----------------------|------------------|--------------------|----------|------------------|
| 6918433 | | chr4:144423416-144423701 | | 0.122116778 | 8.188882951 | 1.05E-08 | 238.9944546 | 9.418 | 6.384 |
| 6867232 | | chr18:85140066-85140672 | | 0.173860246 | 5.751746131 | 1.37E-08 | 181.6477896 | 8.767 | 6.243 |
| 6926806 | 1700029101Rik | chr4:147625873-147676053 | 9.2 | 0.154534408 | 6.471050787 | 1.37E-08 | 151.4467351 | 8.589 | 6.080 |
| 6808990 | | chr13:93198975-93199718 | | 5.718618511 | 5.718618511 | 5.42E-07 | 132.28448 | 5.789 | 8.305 |
| 7007305 | | chr4:145796614-145796815 | 9.2 | 3.951316288 | 3.951316288 | 5.48E-07 | 295.2582034 | 7.215 | 9.197 |
| 6810717 | Akr1e1 | chr13:4590767-4609179 | | 3.73126976 | 3.73126976 | 1.35E-06 | 157.7139722 | 6.351 | 8.251 |
| 7008719 | OTTMUSG00000011027 | chr4:145538644-145539242 | 9.2 | 0.283024726 | 3.533260206 | 2.02E-06 | 95.88057572 | 7.493 | 5.672 |
| 6918564 | | chr4:147167701-147168321 | 9.2 | 3.248258992 | 3.248258992 | 8.20E-06 | 273.0144182 | 7.243 | 8.943 |
| 6918571 | | chr4:147186533-147187245 | 9.2 | 3.750284386 | 3.750284386 | 1.80E-05 | 194.6627908 | 6.651 | 8.558 |
| 6758507 | | chr1:48731997-48796216 | | 4.007400407 | 4.007400407 | 2.25E-05 | 139.8109293 | 6.126 | 8.129 |
| 6918458 | | chr4:145817102-145817724 | 9.2 | 2.928171392 | 2.928171392 | 4.41E-05 | 278.4613589 | 7.346 | 8.896 |
| 7001443 | | chr13:68436661-68437226 | | 0.356506429 | 2.804998501 | 4.41E-05 | 159.4175517 | 8.060 | 6.572 |
| 6867440 | | chr18:6147086-6147327 | | 5.258555916 | 5.258555916 | 4.81E-05 | 139.7463379 | 5.929 | 8.324 |
| 6895778 | OTTMUSG00000010173 | chr3:12744194-12873679 | | 0.363073448 | 2.754263649 | 5.86E-05 | 129.0840257 | 7.743 | 6.281 |
| 6925576 | | chr4:129563018-129563645 | 9.1 | 3.400310911 | 3.400310911 | 5.86E-05 | 422.6051876 | 7.840 | 9.606 |
| 6926693 | 1700095A21Rik | chr4:145681984-145711927 | 9.2 | 0.368652471 | 2.712581843 | 5.97E-05 | 97.96310976 | 7.334 | 5.894 |
| 7020895 | G530011O06Rik | chrX:169974421-169975877 | | 0.37310838 | 2.680186388 | 7.54E-05 | 227.9910425 | 8.544 | 7.122 |
| 6777345 | | chr10:117683535-117684293 | | 2.964249054 | 2.964249054 | 9.16E-05 | 192.2491399 | 6.803 | 8.371 |
| 6910291 | Rpl11 | chr3:146838811-146844392 | | 0.374663325 | 2.669062953 | 9.51E-05 | 1629.07051 | 11.378 | 9.961 |
| 6918408 | OTTMUSG00000011027 | chr4:145538644-145539242 | 9.2 | 0.342854097 | 2.916692579 | 9.51E-05 | 89.58384393 | 7.257 | 5.713 |
| 7008721 | OTTMUSG00000010173 | chr19:9273804-9273855 | 9.2 | 0.342616531 | 2.918714977 | 9.51E-05 | 120.1200636 | 7.681 | 6.136 |
| 6973711 | | chr8:3871834-3872208 | | 2.531513188 | 2.531513188 | 9.51E-05 | 116.2429975 | 6.191 | 7.531 |
| 7017793 | | chrX:78047563-78048459 | | 0.388413881 | 2.574573279 | 9.51E-05 | 135.0016597 | 7.759 | 6.395 |
| 6918463 | | chr4:145831995-145832501 | 9.2 | 2.936301272 | 2.936301272 | 0.000118855 | 127.2039799 | 6.214 | 7.768 |
| 6847427 | | chr16:82207684-82210722 | | 2.624422509 | 2.624422509 | 0.000118855 | 272.9828802 | 7.397 | 8.789 |
| 6918537 | | chr4:146976318-146976901 | 9.2 | 0.353880294 | 2.825814311 | 0.000174575 | 121.1513497 | 7.67 | 6.171 |
| 6918568 | | chr4:146976318-146976901 | 9.2 | 2.511704368 | 2.511704368 | 0.000174575 | 128.3553838 | 6.340 | 7.668 |
| 6918447 | | chr4:145743883-145744434 | 9.2 | 0.397033689 | 2.518677954 | 0.000198463 | 82.46252126 | 5.699 | 6.618 |
| 6926070 | | chr4:135180700-135181264 | | 0.375964062 | 2.659828696 | 0.000198463 | 188.2274638 | 8.262 | 6.851 |
| 6799279 | | chr12:17547157-17547735 | | 0.405376211 | 2.466844312 | 0.000212928 | 347.1302625 | 9.091 | 7.788 |
| 6808991 | | chr13:93201706-93202701 | | 2.982798801 | 2.982798801 | 0.00021527 | 180.643308 | 6.709 | 8.285 |
| 6926836 | | chr4:147755991-147756235 | 9.2 | 0.360982299 | 2.770218936 | 0.000265943 | 704.765748 | 10.196 | 8.726 |
| 6981791 | | chr8:37384292-37390042 | | 2.726405215 | 2.726405215 | 0.000276561 | 247.8230669 | 8.677 | 7.938 |

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|---------|------|---------------------------|-----|-------------|-------------|-------------|-------------|-------|-------|
| 6918436 | | chr4:145687617-145688045 | 9.2 | 0.423372656 | 2.361985323 | 0.000367484 | 77.15387258 | 5.650 | 6.939 |
| 6917875 | | chr4:137014517-137015129 | | 2.323554257 | 2.323554257 | 0.000481516 | 199.7197691 | 7.033 | 8.25 |
| 6855140 | | chr17:35870814-35871298 | | 2.30910429 | 2.30910429 | 0.00096833 | 182.4469639 | 6.908 | 8.115 |
| 6771025 | | chr10:117657170-117657495 | | 2.225814454 | 2.225814454 | 0.001086578 | 93.10800687 | 7.118 | 5.964 |
| 6918533 | Rex2 | chr4:146964351-147423406 | 9.2 | 0.426022048 | 2.347296357 | 0.001253138 | 119.0562873 | 6.28 | 7.511 |
| 6918519 | | chr4:146164014-146164514 | 9.2 | 0.450417046 | 2.220164641 | 0.001284496 | 116.7274452 | 7.442 | 6.292 |
| 6749408 | | chr1:52177473-52178087 | | 0.469218998 | 2.131201003 | 0.001592389 | 255.3796929 | 8.542 | 7.451 |
| 7000988 | Mid1 | chr16:36364212-36364313 | | 0.247929183 | 4.03340982 | 0.001856703 | 85.52850001 | 7.424 | 5.412 |
| 6918455 | | chr4:145794038-145794531 | 9.2 | 2.570412675 | 2.570412675 | 0.001856921 | 130.6291746 | 6.348 | 7.710 |
| 6771024 | Cpm | chr10:117655572-117687352 | | 2.133664486 | 2.133664486 | 0.001885809 | 125.51071 | 6.425 | 7.518 |
| 6754684 | | chr1:164083959-164084166 | | 0.424155939 | 2.357623479 | 0.001885809 | 99.2962044 | 7.252 | 6.015 |
| 6749585 | | chr1:55523081-55523236 | | 0.410750243 | 2.434569467 | 0.001998059 | 73.93403091 | 6.85 | 5.566 |
| 6802804 | | chr12:93541831-93542000 | | 2.229417273 | 2.229417273 | 0.002364338 | 116.7813972 | 6.289 | 7.446 |
| 6760745 | | chr1:92925334-92925735 | | 0.486439852 | 2.055752619 | 0.003585444 | 250.4131764 | 8.488 | 7.448 |
| 6918644 | | chr4:147480240-147480736 | 9.2 | 0.463294031 | 2.158456473 | 0.003971405 | 229.9750168 | 8.400 | 7.290 |
| 6926027 | | chr4:134741574-134742232 | 9.1 | 0.469869925 | 2.128248578 | 0.003971405 | 105.5049346 | 7.266 | 6.176 |
| 6923411 | Jun | chr4:95049053-95055499 | | 0.490162946 | 2.040137892 | 0.004222109 | 272.2270592 | 8.603 | 7.574 |
| 6871550 | | chr19:11448114-11448659 | | 2.278366754 | 2.278366754 | 0.004600774 | 554.3551253 | 8.521 | 9.709 |