***animal* journal**

**Whole-transcriptome profiling of sheep fed with a high iodine-supplemented diet**

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**Short title:** Iodine effects on gene expression in sheep

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Supplementary table 1: Differentially Expressed genes (DEGs) in lactating ewes after - compared with before - 40-days iodine (I)-supplementation (T40 vs T0)** | | | | | | | |
| **#** | **Probe ID** | **Fold Change** | **FDR (%)** | **Ensembl Transcript ID** | **Ensembl Gene ID** | **Gene Name** | **Entrez ID** |
| 1 | CUST\_13972\_PI429979498 | 5.94 | 0.00 | ENSOART00000007125 | ENSOARG00000006551 | DSG1 | 101115499 |
| 2 | CUST\_45340\_PI429979498 | 3.77 | 0.88 | ENSOART00000023084 | ENSOARG00000021185 | PLEKHD1 | 101118957 |
| 3 | CUST\_39758\_PI429979498 | 3.45 | 0.70 | ENSOART00000020238 | ENSOARG00000018597 | ENSOARG00000018597 | 101105712 |
| 4 | CUST\_31485\_PI429979498 | 3.36 | 0.98 | ENSOART00000016037 | ENSOARG00000014737 | KCNC2 | N/A |
| 5 | CUST\_22502\_PI429979498 | 3.31 | 0.80 | ENSOART00000011449 | ENSOARG00000010524 | C6orf15 | 101106118 |
| 6 | CUST\_31646\_PI429979498 | 3.17 | 0.23 | ENSOART00000016129 | ENSOARG00000014812 | ENSOARG00000014812 | N/A |
| 7 | CUST\_6974\_PI429979498 | 3.11 | 2.83 | ENSOART00000003571 | ENSOARG00000003288 | MAOB | N/A |
| 8 | CUST\_42079\_PI429979498 | 3.11 | 0.70 | ENSOART00000021425 | ENSOARG00000019674 | TMEM253 | N/A |
| 9 | CUST\_32769\_PI429979498 | 3.09 | 0.00 | ENSOART00000016691 | ENSOARG00000015336 | BRINP2 | 101118716 |
| 10 | CUST\_12427\_PI429979498 | 3.01 | 1.32 | ENSOART00000006336 | ENSOARG00000005815 | BPIFB3 | 101107120 |
| 11 | CUST\_14080\_PI429979498 | 3.01 | 0.45 | ENSOART00000007170 | ENSOARG00000006599 | LY6G5C | N/A |
| 12 | CUST\_26938\_PI429979498 | 3.00 | 0.70 | ENSOART00000013720 | ENSOARG00000012619 | LMX1B | N/A |
| 13 | CUST\_36559\_PI429979498 | 2.99 | 0.00 | ENSOART00000018620 | ENSOARG00000017107 | ENSOARG00000017107 | N/A |
| 14 | CUST\_3766\_PI429979498 | 2.91 | 0.12 | ENSOART00000001938 | ENSOARG00000001804 | ENSOARG00000001804 | N/A |
| 15 | CUST\_26660\_PI429979498 | 2.80 | 0.36 | ENSOART00000013575 | ENSOARG00000012487 | ENSOARG00000012487 | N/A |
| 16 | CUST\_24636\_PI429979498 | 2.77 | 0.12 | ENSOART00000012541 | ENSOARG00000011535 | GHRL | N/A |
| 17 | CUST\_32441\_PI429979498 | 2.76 | 0.18 | ENSOART00000016523 | ENSOARG00000015183 | CXorf23 | 101110907 |
| 18 | CUST\_34685\_PI429979498 | 2.75 | 4.40 | ENSOART00000017658 | ENSOARG00000016219 | ENSOARG00000016219 | N/A |
| 19 | CUST\_43287\_PI429979498 | 2.74 | 0.80 | ENSOART00000022043 | ENSOARG00000020245 | ENSOARG00000020245 | N/A |
| 20 | CUST\_8430\_PI429979498 | 2.74 | 0.00 | ENSOART00000004303 | ENSOARG00000003960 | CDK18 | N/A |
| 21 | CUST\_41317\_PI429979498 | 2.73 | 0.00 | ENSOART00000021037 | ENSOARG00000019316 | OMYHCS | 442995 |
| 22 | CUST\_42621\_PI429979498 | 2.72 | 4.40 | ENSOART00000021706 | ENSOARG00000019937 | MUC19 | N/A |
| 23 | CUST\_16431\_PI429979498 | 2.71 | 3.68 | ENSOART00000008372 | ENSOARG00000007686 | ASAP1 | N/A |
| 24 | CUST\_9074\_PI429979498 | 2.70 | 1.18 | ENSOART00000004645 | ENSOARG00000004254 | TDRD12 | 101117011 |
| 25 | CUST\_28067\_PI429979498 | 2.70 | 3.21 | ENSOART00000014286 | ENSOARG00000013148 | ZSCAN2 | 101108082 |
| 26 | CUST\_284\_PI429979498 | 2.70 | 0.18 | ENSOART00000000166 | ENSOARG00000000164 | MYADML2 | 101112912 |
| 27 | CUST\_1715\_PI429979498 | 2.68 | 0.39 | ENSOART00000000895 | ENSOARG00000000837 | HHIPL1 | N/A |
| 28 | CUST\_25599\_PI429979498 | 2.65 | 0.20 | ENSOART00000013038 | ENSOARG00000011984 | PCSK4 | N/A |
| 29 | CUST\_34615\_PI429979498 | 2.63 | 1.81 | ENSOART00000017630 | ENSOARG00000016188 | ENSOARG00000016188 | N/A |
| 30 | CUST\_20688\_PI429979498 | 2.63 | 0.80 | ENSOART00000010539 | ENSOARG00000009680 | ENSOARG00000009680 | 101105652 |
| 31 | CUST\_41325\_PI429979498 | 2.63 | 3.21 | ENSOART00000021038 | ENSOARG00000019319 | GSTM3 | 100037663 |
| 32 | CUST\_25301\_PI429979498 | 2.63 | 0.18 | ENSOART00000012880 | ENSOARG00000011844 | OR2W3 | 101117332 |
| 33 | CUST\_27254\_PI429979498 | 2.63 | 1.18 | ENSOART00000013883 | ENSOARG00000012772 | C8orf82 | N/A |
| 34 | CUST\_39752\_PI429979498 | 2.62 | 2.83 | ENSOART00000020236 | ENSOARG00000018594 | ENSOARG00000018594 | 101116294 |
| 35 | CUST\_26957\_PI429979498 | 2.61 | 3.21 | ENSOART00000013726 | ENSOARG00000012629 | OR5F1 | 101117362 |
| 36 | CUST\_44639\_PI429979498 | 2.61 | 0.12 | ENSOART00000022723 | ENSOARG00000020857 | DUSP16 | N/A |
| 37 | CUST\_31177\_PI429979498 | 2.59 | 0.12 | ENSOART00000015881 | ENSOARG00000014590 | CRYM | 101102280 |
| 38 | CUST\_39469\_PI429979498 | 2.59 | 1.57 | ENSOART00000020097 | ENSOARG00000018463 | KIF3C | N/A |
| 39 | CUST\_30069\_PI429979498 | 2.58 | 0.00 | ENSOART00000015313 | ENSOARG00000014065 | C11orf16 | 101106876 |
| 40 | CUST\_33685\_PI429979498 | 2.56 | 4.40 | ENSOART00000017153 | ENSOARG00000015755 | ENSOARG00000015755 | 101115091 |
| 41 | CUST\_4714\_PI429979498 | 2.56 | 0.39 | ENSOART00000002417 | ENSOARG00000002238 | ENSOARG00000002238 | N/A |
| 42 | CUST\_4100\_PI429979498 | 2.54 | 2.83 | ENSOART00000002110 | ENSOARG00000001961 | ENSOARG00000001961 | 105606106 |
| 43 | CUST\_43078\_PI429979498 | 2.53 | 2.83 | ENSOART00000021935 | ENSOARG00000020147 | MYCL | 101121392 |
| 44 | CUST\_614\_PI429979498 | 2.53 | 2.83 | ENSOART00000000337 | ENSOARG00000000317 | LOX | N/A |
| 45 | CUST\_34110\_PI429979498 | 2.53 | 1.18 | ENSOART00000017371 | ENSOARG00000015949 | ATRNL1 | N/A |
| 46 | CUST\_43460\_PI429979498 | 2.53 | 0.20 | ENSOART00000022130 | ENSOARG00000020323 | INO80 | 101112063 |
| 47 | CUST\_19153\_PI429979498 | 2.51 | 1.32 | ENSOART00000009747 | ENSOARG00000008947 | KCNN4 | N/A |
| 48 | CUST\_88\_PI429979498 | 2.51 | 0.88 | ENSOART00000000067 | ENSOARG00000000066 | PLEKHG3 | N/A |
| 49 | CUST\_27631\_PI429979498 | 2.51 | 0.36 | ENSOART00000014071 | ENSOARG00000012947 | ENSOARG00000012947 | N/A |
| 50 | CUST\_1037\_PI429979498 | 2.50 | 0.70 | ENSOART00000000553 | ENSOARG00000000515 | ST3GAL3 | 101112269 |
| 51 | CUST\_23233\_PI429979498 | 2.49 | 3.21 | ENSOART00000011823 | ENSOARG00000010872 | OR10W1 | N/A |
| 52 | CUST\_7552\_PI429979498 | 2.49 | 0.80 | ENSOART00000003857 | ENSOARG00000003552 | ENSOARG00000003552 | 101121367 |
| 53 | CUST\_13675\_PI429979498 | 2.48 | 0.20 | ENSOART00000006978 | ENSOARG00000006410 | COL12A1 | 101109808 |
| 54 | CUST\_29016\_PI429979498 | 2.48 | 1.32 | ENSOART00000014776 | ENSOARG00000013585 | MLANA | 101116206 |
| 55 | CUST\_21214\_PI429979498 | 2.47 | 0.98 | ENSOART00000010797 | ENSOARG00000009925 | ENSOARG00000009925 | N/A |
| 56 | CUST\_8618\_PI429979498 | 2.45 | 0.23 | ENSOART00000004403 | ENSOARG00000004049 | MFSD4 | 101114541 |
| 57 | CUST\_15168\_PI429979498 | 2.45 | 0.70 | ENSOART00000007734 | ENSOARG00000007102 | PHF8 | 101118668 |
| 58 | CUST\_5747\_PI429979498 | 2.44 | 2.03 | ENSOART00000002945 | ENSOARG00000002719 | TEX38 | 101104616 |
| 59 | CUST\_18666\_PI429979498 | 2.43 | 0.98 | ENSOART00000009503 | ENSOARG00000008724 | DUPD1 | N/A |
| 60 | CUST\_12820\_PI429979498 | 2.43 | 0.00 | ENSOART00000006528 | ENSOARG00000006007 | NGFR | N/A |
| 61 | CUST\_29821\_PI429979498 | 2.43 | 0.70 | ENSOART00000015190 | ENSOARG00000013948 | GABRA1 | 101117759 |
| 62 | CUST\_44916\_PI429979498 | 2.42 | 2.37 | ENSOART00000022867 | ENSOARG00000020989 | ENSOARG00000020989 | N/A |
| 63 | CUST\_24242\_PI429979498 | 2.41 | 0.98 | ENSOART00000012341 | ENSOARG00000011352 | MST1R | N/A |
| 64 | CUST\_19997\_PI429979498 | 2.41 | 0.20 | ENSOART00000010176 | ENSOARG00000009350 | ENSOARG00000009350 | 101108727 |
| 65 | CUST\_641\_PI429979498 | 2.40 | 3.68 | ENSOART00000000346 | ENSOARG00000000329 | SRFBP1 | N/A |
| 66 | CUST\_21498\_PI429979498 | 2.40 | 4.40 | ENSOART00000010946 | ENSOARG00000010058 | ENSOARG00000010058 | N/A |
| 67 | CUST\_26764\_PI429979498 | 2.40 | 0.45 | ENSOART00000013632 | ENSOARG00000012535 | TNS3 | 101113323 |
| 68 | CUST\_15863\_PI429979498 | 2.39 | 0.39 | ENSOART00000008073 | ENSOARG00000007421 | TMEM91 | N/A |
| 69 | CUST\_36262\_PI429979498 | 2.39 | 2.83 | ENSOART00000018467 | ENSOARG00000016955 | ENSOARG00000016955 | N/A |
| 70 | CUST\_22909\_PI429979498 | 2.39 | 4.40 | ENSOART00000011662 | ENSOARG00000010713 | XRRA1 | 101107131 |
| 71 | CUST\_42056\_PI429979498 | 2.39 | 0.23 | ENSOART00000021414 | ENSOARG00000019662 | IL17REL | N/A |
| 72 | CUST\_27943\_PI429979498 | 2.38 | 0.12 | ENSOART00000014225 | ENSOARG00000013092 | ENSOARG00000013092 | N/A |
| 73 | CUST\_43148\_PI429979498 | 2.38 | 1.57 | ENSOART00000021970 | ENSOARG00000020178 | ST8SIA1 | 101117321 |
| 74 | CUST\_35575\_PI429979498 | 2.38 | 0.00 | ENSOART00000018114 | ENSOARG00000016631 | HRH2 | N/A |
| 75 | CUST\_27554\_PI429979498 | 2.37 | 3.21 | ENSOART00000014033 | ENSOARG00000012912 | MAML3 | N/A |
| 76 | CUST\_35472\_PI429979498 | 2.37 | 0.98 | ENSOART00000018061 | ENSOARG00000016581 | ZFP57 | 101109748 |
| 77 | CUST\_18562\_PI429979498 | 2.36 | 0.61 | ENSOART00000009447 | ENSOARG00000008679 | TEX22 | N/A |
| 78 | CUST\_37276\_PI429979498 | 2.36 | 3.68 | ENSOART00000018978 | ENSOARG00000017437 | ENSOARG00000017437 | 101103352 |
| 79 | CUST\_28234\_PI429979498 | 2.36 | 1.81 | ENSOART00000014376 | ENSOARG00000013224 | DMRT1 | N/A |
| 80 | CUST\_6360\_PI429979498 | 2.34 | 0.70 | ENSOART00000003253 | ENSOARG00000003003 | ENSOARG00000003003 | 101105610 |
| 81 | CUST\_43786\_PI429979498 | 2.34 | 0.80 | ENSOART00000022296 | ENSOARG00000020473 | IRS1 | 101102293 |
| 82 | CUST\_23550\_PI429979498 | 2.34 | 0.98 | ENSOART00000011989 | ENSOARG00000011023 | ENSOARG00000011023 | 101107771 |
| 83 | CUST\_12649\_PI429979498 | 2.33 | 0.61 | ENSOART00000006445 | ENSOARG00000005924 | LY6G6C | 101118646 |
| 84 | CUST\_33594\_PI429979498 | 2.33 | 0.39 | ENSOART00000017105 | ENSOARG00000015715 | KERA | 101112715 |
| 85 | CUST\_24180\_PI429979498 | 2.33 | 0.98 | ENSOART00000012310 | ENSOARG00000011323 | NMRK2 | 101114607 |
| 86 | CUST\_41533\_PI429979498 | 2.33 | 2.83 | ENSOART00000021146 | ENSOARG00000019417 | IGFBP2 | N/A |
| 87 | CUST\_37766\_PI429979498 | 2.32 | 3.21 | ENSOART00000019230 | ENSOARG00000017671 | RAB26 | N/A |
| 88 | CUST\_24715\_PI429979498 | 2.31 | 0.52 | ENSOART00000012579 | ENSOARG00000011570 | TRAIP | 101116685 |
| 89 | CUST\_2775\_PI429979498 | 2.31 | 1.57 | ENSOART00000001431 | ENSOARG00000001336 | OR6B1 | 101117157 |
| 90 | CUST\_41500\_PI429979498 | 2.31 | 1.81 | ENSOART00000021127 | ENSOARG00000019400 | RAPGEF3 | 101109786 |
| 91 | CUST\_34287\_PI429979498 | 2.31 | 3.68 | ENSOART00000017456 | ENSOARG00000016029 | NETO2 | 101114803 |
| 92 | CUST\_8275\_PI429979498 | 2.31 | 4.40 | ENSOART00000004227 | ENSOARG00000003887 | MAPK10 | 101120665 |
| 93 | CUST\_22242\_PI429979498 | 2.31 | 3.68 | ENSOART00000011317 | ENSOARG00000010402 | ENSOARG00000010402 | N/A |
| 94 | CUST\_25262\_PI429979498 | 2.31 | 2.03 | ENSOART00000012867 | ENSOARG00000011827 | SLC6A13 | 101119630 |
| 95 | CUST\_16867\_PI429979498 | 2.30 | 0.45 | ENSOART00000008590 | ENSOARG00000007888 | PKP3 | N/A |
| 96 | CUST\_26050\_PI429979498 | 2.30 | 1.57 | ENSOART00000013266 | ENSOARG00000012195 | CCDC93 | 101110305 |
| 97 | CUST\_41557\_PI429979498 | 2.30 | 1.32 | ENSOART00000021158 | ENSOARG00000019428 | KCNC4 | N/A |
| 98 | CUST\_14810\_PI429979498 | 2.30 | 3.68 | ENSOART00000007542 | ENSOARG00000006941 | C17orf67 | N/A |
| 99 | CUST\_35990\_PI429979498 | 2.29 | 0.23 | ENSOART00000018326 | ENSOARG00000016828 | PLVAP | 101111878 |
| 100 | CUST\_12428\_PI429979498 | 2.29 | 2.03 | ENSOART00000006331 | ENSOARG00000005816 | ENSOARG00000005816 | N/A |
| 101 | CUST\_18645\_PI429979498 | 2.28 | 0.52 | ENSOART00000009488 | ENSOARG00000008715 | MTSS1 | N/A |
| 102 | CUST\_19788\_PI429979498 | 2.28 | 0.70 | ENSOART00000010081 | ENSOARG00000009252 | ALOX12 | 101113685 |
| 103 | CUST\_11615\_PI429979498 | 2.27 | 0.18 | ENSOART00000005923 | ENSOARG00000005433 | AGAP2 | 101116895 |
| 104 | CUST\_4465\_PI429979498 | 2.27 | 1.57 | ENSOART00000002299 | ENSOARG00000002127 | TTC21A | 101112092 |
| 105 | CUST\_25362\_PI429979498 | 2.27 | 0.98 | ENSOART00000012916 | ENSOARG00000011876 | FADS6 | N/A |
| 106 | CUST\_44527\_PI429979498 | 2.27 | 0.00 | ENSOART00000022667 | ENSOARG00000020803 | TLN2 | 101112735 |
| 107 | CUST\_9089\_PI429979498 | 2.26 | 1.57 | ENSOART00000004637 | ENSOARG00000004260 | ZNF232 | N/A |
| 108 | CUST\_16237\_PI429979498 | 2.26 | 0.80 | ENSOART00000008279 | ENSOARG00000007594 | MCF2L | N/A |
| 109 | CUST\_20851\_PI429979498 | 2.26 | 3.68 | ENSOART00000010619 | ENSOARG00000009758 | HOXA6 | 105606599 |
| 110 | CUST\_24828\_PI429979498 | 2.26 | 3.68 | ENSOART00000012641 | ENSOARG00000011624 | FAM78B | 101113028 |
| 111 | CUST\_5421\_PI429979498 | 2.26 | 0.52 | ENSOART00000002777 | ENSOARG00000002564 | CCM2L | N/A |
| 112 | CUST\_7490\_PI429979498 | 2.25 | 0.20 | ENSOART00000003830 | ENSOARG00000003522 | FGFR4 | 101120660 |
| 113 | CUST\_27817\_PI429979498 | 2.25 | 2.37 | ENSOART00000014168 | ENSOARG00000013033 | MFSD9 | N/A |
| 114 | CUST\_29189\_PI429979498 | 2.24 | 1.81 | ENSOART00000014869 | ENSOARG00000013662 | ITIH2 | 101114796 |
| 115 | CUST\_17655\_PI429979498 | 2.24 | 2.37 | ENSOART00000008987 | ENSOARG00000008262 | SCN2B | N/A |
| 116 | CUST\_43100\_PI429979498 | 2.24 | 2.37 | ENSOART00000021949 | ENSOARG00000020158 | PTPRB | 101121760 |
| 117 | CUST\_21439\_PI429979498 | 2.24 | 0.45 | ENSOART00000010918 | ENSOARG00000010032 | SLC38A8 | 101123487 |
| 118 | CUST\_37353\_PI429979498 | 2.23 | 1.57 | ENSOART00000019026 | ENSOARG00000017474 | JUP | 101119486 |
| 119 | CUST\_14438\_PI429979498 | 2.23 | 1.32 | ENSOART00000007353 | ENSOARG00000006767 | ENSOARG00000006767 | N/A |
| 120 | CUST\_35735\_PI429979498 | 2.23 | 1.18 | ENSOART00000018199 | ENSOARG00000016706 | MEGF6 | N/A |
| 121 | CUST\_20006\_PI429979498 | 2.22 | 2.37 | ENSOART00000010181 | ENSOARG00000009356 | ENSOARG00000009356 | N/A |
| 122 | CUST\_17006\_PI429979498 | 2.22 | 0.61 | ENSOART00000008659 | ENSOARG00000007952 | ENSOARG00000007952 | N/A |
| 123 | CUST\_12192\_PI429979498 | 2.22 | 0.80 | ENSOART00000006242 | ENSOARG00000005704 | RYR1 | N/A |
| 124 | CUST\_11299\_PI429979498 | 2.22 | 1.32 | ENSOART00000005767 | ENSOARG00000005283 | CDC42BPB | N/A |
| 125 | CUST\_3211\_PI429979498 | 2.22 | 3.21 | ENSOART00000001660 | ENSOARG00000001545 | PGF | 443245 |
| 126 | CUST\_40359\_PI429979498 | 2.20 | 1.18 | ENSOART00000020548 | ENSOARG00000018870 | RIPPLY1 | N/A |
| 127 | CUST\_2849\_PI429979498 | 2.20 | 3.21 | ENSOART00000001472 | ENSOARG00000001371 | DHCR7 | N/A |
| 128 | CUST\_38818\_PI429979498 | 2.20 | 0.88 | ENSOART00000019765 | ENSOARG00000018159 | TSPAN16 | N/A |
| 129 | CUST\_20891\_PI429979498 | 2.20 | 0.88 | ENSOART00000010638 | ENSOARG00000009778 | ENSOARG00000009778 | N/A |
| 130 | CUST\_2132\_PI429979498 | 2.20 | 0.45 | ENSOART00000001114 | ENSOARG00000001034 | GCFC2 | 101117834 |
| 131 | CUST\_39385\_PI429979498 | 2.20 | 0.28 | ENSOART00000020054 | ENSOARG00000018424 | CCNF | N/A |
| 132 | CUST\_26170\_PI429979498 | 2.20 | 2.37 | ENSOART00000013322 | ENSOARG00000012254 | ENSOARG00000012254 | N/A |
| 133 | CUST\_35137\_PI429979498 | 2.19 | 1.57 | ENSOART00000017890 | ENSOARG00000016428 | COX10 | N/A |
| 134 | CUST\_22984\_PI429979498 | 2.19 | 0.28 | ENSOART00000011695 | ENSOARG00000010751 | SPDEF | N/A |
| 135 | CUST\_41593\_PI429979498 | 2.19 | 0.36 | ENSOART00000021177 | ENSOARG00000019446 | TNS1 | N/A |
| 136 | CUST\_1666\_PI429979498 | 2.19 | 0.36 | ENSOART00000000873 | ENSOARG00000000813 | ENSOARG00000000813 | N/A |
| 137 | CUST\_23834\_PI429979498 | 2.18 | 0.88 | ENSOART00000012133 | ENSOARG00000011157 | TFE3 | 101106403 |
| 138 | CUST\_41152\_PI429979498 | 2.18 | 2.03 | ENSOART00000020950 | ENSOARG00000019239 | SLC30A3 | N/A |
| 139 | CUST\_17739\_PI429979498 | 2.18 | 0.61 | ENSOART00000009037 | ENSOARG00000008299 | NOL8 | 101109416 |
| 140 | CUST\_25161\_PI429979498 | 2.18 | 2.83 | ENSOART00000012812 | ENSOARG00000011782 | SLC17A9 | 101110694 |
| 141 | CUST\_33564\_PI429979498 | 2.17 | 3.21 | ENSOART00000017091 | ENSOARG00000015701 | ENSOARG00000015701 | N/A |
| 142 | CUST\_1007\_PI429979498 | 2.17 | 2.83 | ENSOART00000000536 | ENSOARG00000000500 | RNF24 | 101119578 |
| 143 | CUST\_45638\_PI429979498 | 2.16 | 1.57 | ENSOART00000009748 | ENSOARG00000008949 | ENSOARG00000008949 | N/A |
| 144 | CUST\_32911\_PI429979498 | 2.16 | 1.81 | ENSOART00000016761 | ENSOARG00000015404 | MAP2K4 | N/A |
| 145 | CUST\_31890\_PI429979498 | 2.16 | 1.18 | ENSOART00000016243 | ENSOARG00000014924 | OSBPL10 | N/A |
| 146 | CUST\_41369\_PI429979498 | 2.16 | 1.81 | ENSOART00000021063 | ENSOARG00000019338 | IFT172 | 101118681 |
| 147 | CUST\_8445\_PI429979498 | 2.16 | 0.12 | ENSOART00000004330 | ENSOARG00000003966 | NOTCH3 | N/A |
| 148 | CUST\_35388\_PI429979498 | 2.16 | 0.70 | ENSOART00000018018 | ENSOARG00000016546 | TNFAIP8L1 | 101111278 |
| 149 | CUST\_30851\_PI429979498 | 2.16 | 0.61 | ENSOART00000015716 | ENSOARG00000014432 | ENSOARG00000014432 | N/A |
| 150 | CUST\_15001\_PI429979498 | 2.15 | 2.37 | ENSOART00000007643 | ENSOARG00000007027 | FXYD2 | N/A |
| 151 | CUST\_706\_PI429979498 | 2.15 | 0.12 | ENSOART00000000387 | ENSOARG00000000363 | LLGL1 | N/A |
| 152 | CUST\_39314\_PI429979498 | 2.15 | 3.21 | ENSOART00000020014 | ENSOARG00000018391 | GRAPL | 101110605 |
| 153 | CUST\_35392\_PI429979498 | 2.15 | 2.03 | ENSOART00000018021 | ENSOARG00000016548 | KCNK5 | N/A |
| 154 | CUST\_8042\_PI429979498 | 2.15 | 2.03 | ENSOART00000004103 | ENSOARG00000003780 | ENSOARG00000003780 | N/A |
| 155 | CUST\_24820\_PI429979498 | 2.15 | 0.39 | ENSOART00000012637 | ENSOARG00000011620 | ENSOARG00000011620 | N/A |
| 156 | CUST\_13079\_PI429979498 | 2.15 | 2.83 | ENSOART00000006663 | ENSOARG00000006129 | ZNF652 | 101112073 |
| 157 | CUST\_12044\_PI429979498 | 2.14 | 0.39 | ENSOART00000006133 | ENSOARG00000005632 | ENSOARG00000005632 | N/A |
| 158 | CUST\_31444\_PI429979498 | 2.14 | 3.21 | ENSOART00000016016 | ENSOARG00000014717 | KIAA1462 | 101116590 |
| 159 | CUST\_3720\_PI429979498 | 2.14 | 0.70 | ENSOART00000001914 | ENSOARG00000001781 | ENSOARG00000001781 | N/A |
| 160 | CUST\_24029\_PI429979498 | 2.14 | 0.88 | ENSOART00000012234 | ENSOARG00000011253 | HAPLN3 | 101102761 |
| 161 | CUST\_6971\_PI429979498 | 2.14 | 3.21 | ENSOART00000003561 | ENSOARG00000003286 | ENSOARG00000003286 | N/A |
| 162 | CUST\_45776\_PI429979498 | 2.14 | 3.21 | ENSOART00000014649 | ENSOARG00000013470 | ENSOARG00000013470 | N/A |
| 163 | CUST\_21746\_PI429979498 | 2.14 | 2.03 | ENSOART00000011072 | ENSOARG00000010174 | RHOBTB2 | N/A |
| 164 | CUST\_13808\_PI429979498 | 2.14 | 3.68 | ENSOART00000007038 | ENSOARG00000006475 | ENSOARG00000006475 | 101118816 |
| 165 | CUST\_25458\_PI429979498 | 2.13 | 2.83 | ENSOART00000012963 | ENSOARG00000011918 | ARHGEF39 | 101115939 |
| 166 | CUST\_38571\_PI429979498 | 2.13 | 1.81 | ENSOART00000019645 | ENSOARG00000018042 | KNDC1 | N/A |
| 167 | CUST\_41755\_PI429979498 | 2.13 | 0.88 | ENSOART00000021262 | ENSOARG00000019522 | ENSOARG00000019522 | N/A |
| 168 | CUST\_38407\_PI429979498 | 2.13 | 1.32 | ENSOART00000019553 | ENSOARG00000017966 | ENSOARG00000017966 | 101115952 |
| 169 | CUST\_4433\_PI429979498 | 2.13 | 4.40 | ENSOART00000002277 | ENSOARG00000002113 | ENSOARG00000002113 | N/A |
| 170 | CUST\_12668\_PI429979498 | 2.12 | 0.70 | ENSOART00000006458 | ENSOARG00000005935 | ENSOARG00000005935 | N/A |
| 171 | CUST\_31008\_PI429979498 | 2.12 | 2.03 | ENSOART00000015795 | ENSOARG00000014508 | ENSOARG00000014508 | N/A |
| 172 | CUST\_19182\_PI429979498 | 2.12 | 1.32 | ENSOART00000009761 | ENSOARG00000008961 | DKK2 | 101123633 |
| 173 | CUST\_1277\_PI429979498 | 2.12 | 0.18 | ENSOART00000000695 | ENSOARG00000000627 | CIT | 101107309 |
| 174 | CUST\_40163\_PI429979498 | 2.12 | 0.20 | ENSOART00000020451 | ENSOARG00000018779 | TRAF3IP1 | 101108537 |
| 175 | CUST\_4355\_PI429979498 | 2.11 | 0.45 | ENSOART00000002238 | ENSOARG00000002079 | SOX13 | N/A |
| 176 | CUST\_36835\_PI429979498 | 2.11 | 1.81 | ENSOART00000018758 | ENSOARG00000017232 | ACVR1B | 101113836 |
| 177 | CUST\_42920\_PI429979498 | 2.11 | 0.23 | ENSOART00000021857 | ENSOARG00000020074 | CPNE8 | 101120909 |
| 178 | CUST\_21158\_PI429979498 | 2.11 | 1.18 | ENSOART00000010778 | ENSOARG00000009902 | LAMP5 | 101107458 |
| 179 | CUST\_11544\_PI429979498 | 2.10 | 1.57 | ENSOART00000005893 | ENSOARG00000005399 | NEDD4L | 101122748 |
| 180 | CUST\_12958\_PI429979498 | 2.10 | 2.83 | ENSOART00000006602 | ENSOARG00000006071 | MYLPF | 100270715 |
| 181 | CUST\_28443\_PI429979498 | 2.10 | 1.81 | ENSOART00000014483 | ENSOARG00000013318 | CHST10 | 101110832 |
| 182 | CUST\_39452\_PI429979498 | 2.10 | 0.80 | ENSOART00000020085 | ENSOARG00000018454 | ABTB2 | 101103837 |
| 183 | CUST\_38959\_PI429979498 | 2.10 | 3.21 | ENSOART00000019837 | ENSOARG00000018228 | ZC3H7B | 101110667 |
| 184 | CUST\_39217\_PI429979498 | 2.10 | 0.70 | ENSOART00000019978 | ENSOARG00000018345 | ZZEF1 | 101111468 |
| 185 | CUST\_21111\_PI429979498 | 2.09 | 1.18 | ENSOART00000010751 | ENSOARG00000009879 | HPDL | 101119084 |
| 186 | CUST\_34587\_PI429979498 | 2.09 | 2.03 | ENSOART00000017614 | ENSOARG00000016174 | DSN1 | N/A |
| 187 | CUST\_20473\_PI429979498 | 2.09 | 1.18 | ENSOART00000010424 | ENSOARG00000009577 | USP26 | 101119540 |
| 188 | CUST\_40173\_PI429979498 | 2.09 | 0.20 | ENSOART00000020459 | ENSOARG00000018782 | ALOXE3 | 101121693 |
| 189 | CUST\_26164\_PI429979498 | 2.09 | 0.28 | ENSOART00000013323 | ENSOARG00000012251 | CAPN15 | N/A |
| 190 | CUST\_9236\_PI429979498 | 2.08 | 0.39 | ENSOART00000004721 | ENSOARG00000004331 | SERAC1 | 101108234 |
| 191 | CUST\_35823\_PI429979498 | 2.08 | 1.81 | ENSOART00000018240 | ENSOARG00000016750 | C1orf106 | N/A |
| 192 | CUST\_10428\_PI429979498 | 2.08 | 2.37 | ENSOART00000005318 | ENSOARG00000004882 | ENSOARG00000004882 | N/A |
| 193 | CUST\_36028\_PI429979498 | 2.08 | 0.61 | ENSOART00000018351 | ENSOARG00000016846 | SV2C | 101110415 |
| 194 | CUST\_31323\_PI429979498 | 2.08 | 1.81 | ENSOART00000015959 | ENSOARG00000014659 | CLCA1 | 101115328 |
| 195 | CUST\_22417\_PI429979498 | 2.08 | 1.32 | ENSOART00000011413 | ENSOARG00000010480 | CASKIN2 | N/A |
| 196 | CUST\_10023\_PI429979498 | 2.08 | 2.03 | ENSOART00000005118 | ENSOARG00000004698 | TECPR2 | N/A |
| 197 | CUST\_34602\_PI429979498 | 2.07 | 3.68 | ENSOART00000017623 | ENSOARG00000016181 | ITGA5 | 443140 |
| 198 | CUST\_39294\_PI429979498 | 2.07 | 3.68 | ENSOART00000020001 | ENSOARG00000018381 | PARD3B | 101113827 |
| 199 | CUST\_4024\_PI429979498 | 2.07 | 3.21 | ENSOART00000002067 | ENSOARG00000001924 | DUSP15 | N/A |
| 200 | CUST\_36889\_PI429979498 | 2.07 | 0.45 | ENSOART00000018813 | ENSOARG00000017257 | COL7A1 | N/A |
| 201 | CUST\_44537\_PI429979498 | 2.07 | 3.21 | ENSOART00000022671 | ENSOARG00000020808 | EMP1 | 101109432 |
| 202 | CUST\_21525\_PI429979498 | 2.06 | 2.83 | ENSOART00000010957 | ENSOARG00000010071 | NKX3-1 | 101113199 |
| 203 | CUST\_43560\_PI429979498 | 2.06 | 3.21 | ENSOART00000022180 | ENSOARG00000020371 | PIGZ | 106990119 |
| 204 | CUST\_12930\_PI429979498 | 2.06 | 0.61 | ENSOART00000006587 | ENSOARG00000006059 | BEND7 | N/A |
| 205 | CUST\_13096\_PI429979498 | 2.06 | 2.37 | ENSOART00000006677 | ENSOARG00000006138 | WFDC8 | 101111824 |
| 206 | CUST\_27087\_PI429979498 | 2.06 | 0.98 | ENSOART00000013792 | ENSOARG00000012690 | ENSOARG00000012690 | 101109268 |
| 207 | CUST\_29260\_PI429979498 | 2.06 | 0.23 | ENSOART00000014904 | ENSOARG00000013697 | ENSOARG00000013697 | N/A |
| 208 | CUST\_1803\_PI429979498 | 2.06 | 1.57 | ENSOART00000000941 | ENSOARG00000000878 | KIFC3 | 101103342 |
| 209 | CUST\_15691\_PI429979498 | 2.06 | 0.88 | ENSOART00000007996 | ENSOARG00000007346 | CEP70 | 101111770 |
| 210 | CUST\_40694\_PI429979498 | 2.06 | 1.57 | ENSOART00000020716 | ENSOARG00000019031 | A4GALT | N/A |
| 211 | CUST\_23436\_PI429979498 | 2.05 | 0.00 | ENSOART00000011940 | ENSOARG00000010969 | GPAM | 101120972 |
| 212 | CUST\_33165\_PI429979498 | 2.05 | 3.68 | ENSOART00000016888 | ENSOARG00000015524 | ENSOARG00000015524 | N/A |
| 213 | CUST\_1028\_PI429979498 | 2.05 | 0.00 | ENSOART00000000547 | ENSOARG00000000511 | LRFN2 | N/A |
| 214 | CUST\_9229\_PI429979498 | 2.05 | 0.36 | ENSOART00000004711 | ENSOARG00000004328 | ELOVL6 | 101118274 |
| 215 | CUST\_37771\_PI429979498 | 2.05 | 1.81 | ENSOART00000019233 | ENSOARG00000017674 | ENSOARG00000017674 | 101103134 |
| 216 | CUST\_6978\_PI429979498 | 2.05 | 0.80 | ENSOART00000003568 | ENSOARG00000003290 | RNF121 | 101118472 |
| 217 | CUST\_31598\_PI429979498 | 2.05 | 4.40 | ENSOART00000016099 | ENSOARG00000014790 | ENSOARG00000014790 | 101113728 |
| 218 | CUST\_17156\_PI429979498 | 2.05 | 0.70 | ENSOART00000008731 | ENSOARG00000008020 | ERF | 101102508 |
| 219 | CUST\_27765\_PI429979498 | 2.04 | 4.40 | ENSOART00000014163 | ENSOARG00000013009 | ATP8A2 | N/A |
| 220 | CUST\_45808\_PI429979498 | 2.04 | 2.03 | ENSOART00000016751 | ENSOARG00000015396 | ENSOARG00000015396 | N/A |
| 221 | CUST\_43585\_PI429979498 | 2.04 | 2.37 | ENSOART00000022195 | ENSOARG00000020383 | BDH1 | 101104112 |
| 222 | CUST\_24794\_PI429979498 | 2.04 | 0.12 | ENSOART00000012623 | ENSOARG00000011607 | EXOC6B | 101111176 |
| 223 | CUST\_12004\_PI429979498 | 2.03 | 1.18 | ENSOART00000006118 | ENSOARG00000005614 | ACP2 | 101117016 |
| 224 | CUST\_38048\_PI429979498 | 2.03 | 0.18 | ENSOART00000019369 | ENSOARG00000017803 | ENSOARG00000017803 | N/A |
| 225 | CUST\_21073\_PI429979498 | 2.03 | 0.88 | ENSOART00000010732 | ENSOARG00000009861 | IFRD2 | N/A |
| 226 | CUST\_19803\_PI429979498 | 2.03 | 0.20 | ENSOART00000010086 | ENSOARG00000009259 | ZNF512B | 101108330 |
| 227 | CUST\_4303\_PI429979498 | 2.03 | 0.61 | ENSOART00000002213 | ENSOARG00000002056 | PTPN9 | 101105855 |
| 228 | CUST\_3827\_PI429979498 | 2.03 | 0.00 | ENSOART00000001970 | ENSOARG00000001833 | PANX1 | 101118394 |
| 229 | CUST\_35283\_PI429979498 | 2.03 | 3.21 | ENSOART00000017967 | ENSOARG00000016500 | ENSOARG00000016500 | N/A |
| 230 | CUST\_1790\_PI429979498 | 2.02 | 0.61 | ENSOART00000000936 | ENSOARG00000000873 | PRKCG | N/A |
| 231 | CUST\_22610\_PI429979498 | 2.02 | 0.12 | ENSOART00000011509 | ENSOARG00000010574 | WFDC1 | 101102920 |
| 232 | CUST\_31206\_PI429979498 | 2.02 | 4.40 | ENSOART00000015894 | ENSOARG00000014604 | IGFBP4 | N/A |
| 233 | CUST\_4075\_PI429979498 | 2.02 | 1.57 | ENSOART00000002096 | ENSOARG00000001947 | C10orf71 | 101117301 |
| 234 | CUST\_2766\_PI429979498 | 2.02 | 1.57 | ENSOART00000001437 | ENSOARG00000001333 | MDM1 | 101106759 |
| 235 | CUST\_16235\_PI429979498 | 2.02 | 0.20 | ENSOART00000008266 | ENSOARG00000007593 | C6orf58 | 101121610 |
| 236 | CUST\_7117\_PI429979498 | 2.01 | 2.37 | ENSOART00000003637 | ENSOARG00000003350 | DKK4 | 101118586 |
| 237 | CUST\_20805\_PI429979498 | 2.01 | 0.61 | ENSOART00000010599 | ENSOARG00000009736 | PHF1 | 101113630 |
| 238 | CUST\_3677\_PI429979498 | 2.01 | 3.68 | ENSOART00000001893 | ENSOARG00000001761 | SLURP1 | 101116842 |
| 239 | CUST\_1535\_PI429979498 | 2.01 | 0.80 | ENSOART00000000803 | ENSOARG00000000751 | C3 | 101113831 |
| 240 | CUST\_25961\_PI429979498 | 2.01 | 4.40 | ENSOART00000013217 | ENSOARG00000012153 | CCDC160 | 101108991 |
| 241 | CUST\_6536\_PI429979498 | 2.01 | 4.40 | ENSOART00000003341 | ENSOARG00000003083 | ENSOARG00000003083 | N/A |
| 242 | CUST\_32766\_PI429979498 | 2.01 | 0.70 | ENSOART00000016694 | ENSOARG00000015334 | OPLAH | N/A |
| 243 | CUST\_10417\_PI429979498 | 2.01 | 0.61 | ENSOART00000005314 | ENSOARG00000004876 | NKX2-2 | N/A |
| 244 | CUST\_21247\_PI429979498 | 2.00 | 1.81 | ENSOART00000010827 | ENSOARG00000009939 | SYNGAP1 | 101117886 |
| 245 | CUST\_3599\_PI429979498 | 2.00 | 3.21 | ENSOART00000001853 | ENSOARG00000001724 | ZNF174 | 101119780 |
| 246 | CUST\_14523\_PI429979498 | 2.00 | 0.98 | ENSOART00000007411 | ENSOARG00000006805 | WDR96 | 101114833 |
| 247 | CUST\_6641\_PI429979498 | 2.00 | 1.18 | ENSOART00000003396 | ENSOARG00000003131 | ENSOARG00000003131 | 101104263 |
| 248 | CUST\_24741\_PI429979498 | 2.00 | 1.81 | ENSOART00000012593 | ENSOARG00000011581 | C19orf68 | N/A |
| 249 | CUST\_27450\_PI429979498 | 2.00 | 3.21 | ENSOART00000013982 | ENSOARG00000012862 | IGFBP3 | N/A |
| 250 | CUST\_31521\_PI429979498 | 2.00 | 3.21 | ENSOART00000016057 | ENSOARG00000014754 | CAPS2 | 101123367 |
| 251 | CUST\_23921\_PI429979498 | 0.50 | 0.61 | ENSOART00000012179 | ENSOARG00000011200 | CAPSL | 101110872 |
| 252 | CUST\_16664\_PI429979498 | 0.49 | 0.88 | ENSOART00000008495 | ENSOARG00000007794 | WDR64 | 101120508 |
| 253 | CUST\_9720\_PI429979498 | 0.45 | 0.24 | ENSOART00000004962 | ENSOARG00000004558 | ENSOARG00000004558 | N/A |
| 254 | CUST\_10379\_PI429979498 | 0.41 | 0.00 | ENSOART00000005293 | ENSOARG00000004857 | ENSOARG00000004857 | N/A |
| *FDR: False discovery rate* | | | |  |  |  |  |
| *N/A: Not available or not applicable* | | | |  |  |  |  |

**Supplementary figure 1.** Milk parameters comparison between control and I supplementation groups in lactating ewes. Data are shown as mean ± SD and differences have been analyzed using 2-way ANOVA, \*\*\*P<0.001

