**A machine learning approach for the identification of population-informative markers from high throughput genotyping data: application to several pig breeds**

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**Supplementary Tables and Figures**

**Supplementary Table S1.** Pigs included in this study.

|  |  |  |  |
| --- | --- | --- | --- |
| **Breeds** | **N. of pigs** | **Years of birth** | **N. of farms** |
| Italian Large White | 1968 | 1993-2012 | NA |
| Italian Landrace | 46 | 2011-2012 | NA |
| Italian Duroc | 432 | 1997-2012 | NA |
| Apulo-Calabrese | 92 | 2009-2012 | 4 |
| Casertana | 96 | 2007-2012 | 6 |
| Cinta Senese | 38 | 2013 | 2 |
| Nero Siciliano | 48 | 2008-2013 | 5 |

NA = not applicable. These pigs were part of the national selection program.

**Supplementary Table S2.** Number of the single nucleotide polymorphisms used in this study distributed on the 18 porcine autosomes (SSC) and included in the two datasets [whole or untagged single nucleotide polymorphism (SNP) dataset and tag SNP dataset] and number of monomorphic SNPs in the investigated breeds among the total number of analysed SNPs of the tagged dataset.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SSC** | **N. of SNPs in the untagged dataset** | **N. of SNPs in the tagged dataset** | **Monom.1 SNPs in Italian Large White** | **Monom. SNPs in Italian Duroc** | **Monom. SNPs in Italian Landrace** | **Monom. SNPs in Apulo-Calabrese** | **Monom. SNPs in Casertana** | **Monom. SNPs in Cinta Senese** | **Monom. SNPs in Nero Siciliano** |
| 1 | 5222 | 741 | 14 | 117 | 72 | 74 | 129 | 119 | 61 |
| 2 | 2518 | 548 | 1 | 47 | 41 | 35 | 78 | 52 | 37 |
| 3 | 2068 | 555 | 1 | 57 | 42 | 32 | 82 | 79 | 27 |
| 4 | 2992 | 576 | 11 | 70 | 53 | 29 | 79 | 89 | 45 |
| 5 | 1847 | 498 | 11 | 70 | 47 | 40 | 78 | 69 | 32 |
| 6 | 2152 | 475 | 3 | 59 | 37 | 39 | 76 | 83 | 31 |
| 7 | 2815 | 791 | 10 | 70 | 61 | 37 | 109 | 83 | 43 |
| 8 | 2060 | 516 | 8 | 60 | 39 | 31 | 83 | 77 | 35 |
| 9 | 2426 | 598 | 8 | 78 | 38 | 40 | 79 | 92 | 32 |
| 10 | 1268 | 404 | 1 | 27 | 21 | 20 | 46 | 42 | 18 |
| 11 | 1548 | 484 | 2 | 39 | 32 | 29 | 61 | 74 | 29 |
| 12 | 1101 | 331 | 6 | 35 | 21 | 13 | 51 | 40 | 19 |
| 13 | 3143 | 566 | 6 | 71 | 45 | 32 | 82 | 75 | 34 |
| 14 | 3377 | 590 | 8 | 63 | 49 | 55 | 86 | 90 | 31 |
| 15 | 2275 | 461 | 7 | 61 | 36 | 32 | 66 | 73 | 32 |
| 16 | 1444 | 349 | 2 | 46 | 30 | 21 | 52 | 51 | 25 |
| 17 | 1389 | 394 | 3 | 39 | 31 | 33 | 53 | 54 | 28 |
| 18 | 1035 | 295 | 3 | 38 | 17 | 24 | 38 | 35 | 18 |
|  | 40680 | 1920 | 105 | 1047 | 712 | 616 | 1328 | 1277 | 577 |

1 Number of monomorphic SNPs.

**Supplementary Table S3.** Number of private alleles of the seven pig breeds distributed in the 18 porcine autosomes (SSC).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SSC** | **Italian Large White** | **Italian Landrace** | **Italian Duroc** | **Apulo-Calabrese** | **Casertana** | **Cinta Senese** | **Nero Siciliano** | **Private in at least one breed** |
| 1 | 8 | 0 | 2 | 1 | 2 | 1 | 2 | 16 |
| 2 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 5 |
| 3 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 5 |
| 4 | 2 | 0 | 0 | 2 | 1 | 0 | 2 | 7 |
| 5 | 3 | 1 | 3 | 1 | 0 | 1 | 2 | 11 |
| 6 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 5 |
| 7 | 3 | 1 | 2 | 0 | 1 | 2 | 1 | 10 |
| 8 | 5 | 0 | 0 | 1 | 0 | 0 | 1 | 7 |
| 9 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 4 |
| 10 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| 11 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 3 |
| 12 | 1 | 0 | 0 | 2 | 1 | 0 | 2 | 6 |
| 13 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 8 |
| 14 | 4 | 0 | 0 | 0 | 0 | 0 | 2 | 6 |
| 15 | 3 | 0 | 0 | 1 | 0 | 0 | 2 | 6 |
| 16 | 4 | 0 | 1 | 0 | 1 | 0 | 0 | 6 |
| 17 | 2 | 0 | 1 | 0 | 1 | 0 | 1 | 5 |
| 18 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 6 |
| Total | 64 | 2 | 11 | 11 | 8 | 5 | 18 | 119 |

**Supplementary Table S4.** All single nucleotide polymorphisms (SNPs) included in the six 96 SNP panels determined from the analysed pig breeds. All SNPs of the six panels were annotated with the closest gene, as reported in the Sscrofa11.1 genome version.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Panel1** | **SNP** | **Ranking position2** | **Ranking value3** | **Chromosome** | **Chr. Position4** | **Distance5** | **Ensembl ID6** | **Gene symbol** | **Reference7** |
| RF GI 1 | ALGA0085294 | 1 | 15.47257 | 15 | 48159190 | 0 | ENSSSCG00000015820 | *NSD3* |  |
| RF GI 1 | ALGA0037006 | 2 | 14.43947 | 6 | 140693657 | 0 | ENSSSCG00000032901 |  |  |
| RF GI 1 | ALGA0038590 | 3 | 11.80488 | 7 | 10812279 | 53040 | ENSSSCG00000039116 | *ssc-mir-9807* |  |
| RF GI 1 | H3GA0020692 | 4 | 9.948178 | 7 | 29338532 | 39361 | ENSSSCG00000001499 | *DST* |  |
| RF GI 1 | ALGA0065765 | 5 | 8.716023 | 12 | 26972131 | 0 | ENSSSCG00000017561 | *ABCC3* |  |
| RF GI 1 | ASGA0038190 | 6 | 8.306147 | 8 | 21908257 | 128198 | ENSSSCG00000008763 |  |  |
| RF GI 1 | H3GA0006435 | 7 | 8.25029 | 2 | 27326217 | 0 | ENSSSCG00000013311 | *KIAA1549L* |  |
| RF GI 1 | MARC0083600 | 8 | 7.817393 | 8 | 32824338 | 17058 | ENSSSCG00000038488 | *PHOX2B* |  |
| RF GI 1 | SIRI0000876 | 9 | 7.336099 | 2 | 52326292 | 0 | ENSSSCG00000025900 | *SH3BP5L* |  |
| RF GI 1 | ASGA0018728 | 10 | 7.254377 | 4 | 16468030 | 512 | ENSSSCG00000020166 | *RF00001* |  |
| RF GI 1 | INRA0013882 | 11 | 7.142149 | 4 | 40522682 | 33650 | ENSSSCG00000034943 | *GDF6* |  |
| RF GI 1 | ALGA0097306 | 12 | 7.128269 | 18 | 19909317 | 10556 | ENSSSCG00000016583 | *FAM71F2* |  |
| RF GI 1 | ALGA0047079 | 13 | 6.946581 | 8 | 26721175 | 69427 | ENSSSCG00000008767 |  |  |
| RF GI 1 | MARC0019146 | 14 | 6.760726 | 8 | 32279946 | 0 | ENSSSCG00000022168 | *APBB2* |  |
| RF GI 1 | H3GA0024821 | 15 | 6.760237 | 8 | 39730926 | 0 | ENSSSCG00000030621 |  |  |
| RF GI 1 | ALGA0047511 | 16 | 6.626499 | 8 | 33543822 | 0 | ENSSSCG00000008803 | *ATP8A1* |  |
| RF GI 1 | H3GA0006564 | 17 | 6.553534 | 2 | 39275035 | 0 | ENSSSCG00000013351 | *NAV2* |  |
| RF GI 1 | DIAS0002834 | 18 | 6.444782 | 6 | 71221170 | 0 | ENSSSCG00000023126 |  |  |
| RF GI 1 | ALGA0088966 | 19 | 6.332722 | 16 | 7227590 | 508138 | ENSSSCG00000016796 |  |  |
| RF GI 1 | ASGA0079412 | 20 | 6.199498 | 18 | 28009964 | 0 | ENSSSCG00000035981 |  |  |
| RF GI 1 | M1GA0007506 | 21 | 6.14144 | 5 | 10702671 | 0 | ENSSSCG00000026067 | *TMPRSS6* |  |
| RF GI 1 | MARC0024515 | 22 | 5.756856 | 11 | 13323140 | 0 | ENSSSCG00000009362 | *TRPC4* |  |
| RF GI 1 | CASI0004261 | 23 | 5.636377 | 15 | 115450142 | 62044 | ENSSSCG00000016164 | *IKZF2* |  |
| RF GI 1 | H3GA0031500 | 24 | 5.51842 | 11 | 19018315 | 22330 | ENSSSCG00000018211 | *RF00026* |  |
| RF GI 1 | ALGA0083196 | 25 | 5.476976 | 14 | 137654632 | 244824 | ENSSSCG00000019901 | *RF00001* |  |
| RF GI 1 | ASGA0035869 | 26 | 5.346968 | 7 | 106949801 | 71698 | ENSSSCG00000019910 | *RF00100* |  |
| RF GI 1 | H3GA0024318 | 27 | 5.322492 | 8 | 13010923 | 40929 | ENSSSCG00000008748 | *LCORL* | Rubin *et al.* (2012), Li *et al.* (2013) |
| RF GI 1 | ASGA0070239 | 28 | 5.140488 | 15 | 102260926 | 265690 | ENSSSCG00000040152 |  |  |
| RF GI 1 | MARC0038400 | 29 | 5.054974 | 12 | 38400096 | 51048 | ENSSSCG00000017692 | *LHX1* |  |
| RF GI 1 | INRA0039368 | 30 | 5.023489 | 13 | 1927404 | 0 | ENSSSCG00000037430 | *COL6A6* |  |
| RF GI 1 | ASGA0059607 | 31 | 4.983983 | 13 | 187083442 | 752698 | ENSSSCG00000018744 | *RF00026* |  |
| RF GI 1 | ALGA0047671 | 32 | 4.933506 | 8 | 37104224 | 0 | ENSSSCG00000035621 | *GABRB1* |  |
| RF GI 1 | MARC0006806 | 33 | 4.878215 | 15 | 24186234 | 217137 | ENSSSCG00000015715 | *EN1* | Zhang *et al.* (2018) |
| RF GI 1 | ALGA0046053 | 34 | 4.868637 | 8 | 2033476 | 0 | ENSSSCG00000008698 | *RGS12* |  |
| RF GI 1 | ASGA0054746 | 35 | 4.714013 | 12 | 42973537 | 0 | ENSSSCG00000017743 | *CRLF3* |  |
| RF GI 1 | ALGA0119129 | 36 | 4.70167 | 8 | 21163107 | 329232 | ENSSSCG00000018604 | *RF00100* |  |
| RF GI 1 | ALGA0023597 | 37 | 4.250948 | 4 | 15861394 | 5766 | ENSSSCG00000039048 | *RF00100* |  |
| RF GI 1 | ALGA0033636 | 38 | 4.152236 | 5 | 93710246 | 306741 | ENSSSCG00000035495 | *KITLG* | Wilkinson *et al.* (2013), Li *et al.* (2013) |
| RF GI 1 | H3GA0056051 | 39 | 4.064502 | 3 | 127101211 | 17596 | ENSSSCG00000008642 | *ASAP2* |  |
| RF GI 1 | H3GA0048198 | 40 | 4.05424 | 17 | 26337314 | 16124 | ENSSSCG00000007088 |  |  |
| RF GI 1 | MARC0015234 | 41 | 3.943481 | 11 | 11929849 | 0 | ENSSSCG00000033919 | *DCLK1* |  |
| RF GI 1 | ASGA0037865 | 42 | 3.931992 | 8 | 12703060 | 0 | ENSSSCG00000026232 | *FAM184B* | Yang *et al.* (2014) |
| RF GI 1 | ASGA0012625 | 43 | 3.914823 | 2 | 144428742 | 0 | ENSSSCG00000014399 | *ARHGAP26* |  |
| RF GI 1 | H3GA0032382 | 44 | 3.836952 | 11 | 68644922 | 0 | ENSSSCG00000009519 | *CLYBL* |  |
| RF GI 1 | ALGA0048895 | 45 | 3.835697 | 8 | 102209143 | 2197 | ENSSSCG00000009092 | *TRPC3* | Schiavo *et al.* (2016) |
| RF GI 1 | ALGA0060332 | 46 | 3.832621 | 11 | 4041094 | 0 | ENSSSCG00000037194 |  |  |
| RF GI 1 | ALGA0111963 | 47 | 3.765886 | 8 | 19865054 | 58717 | ENSSSCG00000031297 | *RF00026* |  |
| RF GI 1 | ALGA0083768 | 48 | 3.730683 | 15 | 1396192 | 278163 | ENSSSCG00000032103 |  |  |
| RF GI 1 | ALGA0049757 | 49 | 3.709222 | 8 | 129195375 | 21781 | ENSSSCG00000009202 | *MMRN1* |  |
| RF GI 1 | ALGA0061762 | 50 | 3.62941 | 11 | 29113328 | 476319 | ENSSSCG00000035135 |  |  |
| RF GI 1 | H3GA0043731 | 51 | 3.583424 | 15 | 2743894 | 47329 | ENSSSCG00000023627 | *LYPD6* |  |
| RF GI 1 | ASGA0038670 | 52 | 3.554226 | 8 | 36504871 | 2411 | ENSSSCG00000028922 | *GABRA2* |  |
| RF GI 1 | ALGA0093763 | 53 | 3.527911 | 17 | 21925210 | 20811 | ENSSSCG00000007072 | *SPTLC3* |  |
| RF GI 1 | ALGA0119566 | 54 | 3.485797 | 8 | 24112187 | 236392 | ENSSSCG00000035424 |  |  |
| RF GI 1 | ALGA0092770 | 55 | 3.42444 | 17 | 4018290 | 78676 | ENSSSCG00000006979 | *MSR1* |  |
| RF GI 1 | INRA0039430 | 56 | 3.388355 | 13 | 4711430 | 0 | ENSSSCG00000011199 | *TBC1D5* | Wang *et al.* (2018) |
| RF GI 1 | MARC0012191 | 57 | 3.366288 | 6 | 23436310 | 82551 | ENSSSCG00000040687 | *CDH8* |  |
| RF GI 1 | ALGA0061314 | 58 | 3.365506 | 11 | 21345119 | 0 | ENSSSCG00000009414 | *ZC3H13* |  |
| RF GI 1 | ALGA0062298 | 59 | 3.34071 | 11 | 48976099 | 0 | ENSSSCG00000009468 | *KCTD12* |  |
| RF GI 1 | ALGA0038216 | 60 | 3.293351 | 7 | 5492015 | 60478 | ENSSSCG00000038403 |  |  |
| RF GI 1 | DRGA0016582 | 61 | 3.276812 | 17 | 15949323 | 79377 | ENSSSCG00000025527 |  |  |
| RF GI 1 | ALGA0088377 | 62 | 3.255099 | 15 | 136899120 | 61052 | ENSSSCG00000016323 | *COP9* |  |
| RF GI 1 | ASGA0066512 | 63 | 3.239191 | 14 | 122722231 | 0 | ENSSSCG00000031896 |  |  |
| RF GI 1 | CASI0005117 | 64 | 3.220044 | 3 | 17642214 | 0 | ENSSSCG00000007788 | *PHKG2* |  |
| RF GI 1 | MARC0021719 | 65 | 3.191323 | 6 | 30396462 | 94209 | ENSSSCG00000018107 | *RF00026* |  |
| RF GI 1 | MARC0081387 | 66 | 3.187492 | 2 | 50110622 | 3620 | ENSSSCG00000033086 | *olfactory\_receptor\_4C46-like* |  |
| RF GI 1 | ALGA0083430 | 67 | 3.133477 | 15 | 4118207 | 0 | ENSSSCG00000015668 | *ORC4* |  |
| RF GI 1 | ALGA0063729 | 68 | 3.095241 | 11 | 71873698 | 524433 | ENSSSCG00000026317 | *SLC10A2* |  |
| RF GI 1 | ASGA0046127 | 69 | 3.091198 | 10 | 6690780 | 0 | ENSSSCG00000010814 | *ESRRG* |  |
| RF GI 1 | H3GA0024312 | 70 | 3.060947 | 8 | 12664341 | 0 | ENSSSCG00000026232 | *FAM184B* | Yang *et al.* (2014) |
| RF GI 1 | H3GA0013086 | 71 | 3.013695 | 4 | 75531190 | 0 | ENSSSCG00000006243 | *PENK* | Li *et al.* (2013) |
| RF GI 1 | ALGA0066661 | 72 | 2.982422 | 12 | 44502978 | 0 | ENSSSCG00000017756 | *NLK* |  |
| RF GI 1 | ASGA0054824 | 73 | 2.897023 | 12 | 45235512 | 0 | ENSSSCG00000017781 | *PIPOX* |  |
| RF GI 1 | M1GA0021082 | 74 | 2.865645 | 16 | 55114100 | 0 | ENSSSCG00000017012 |  |  |
| RF GI 1 | MARC0025311 | 75 | 2.846348 | 4 | 115921374 | 80668 | ENSSSCG00000006857 | *COL11A1* | Wang *et al.* (2018) |
| RF GI 1 | H3GA0024339 | 76 | 2.830461 | 8 | 15102410 | 0 | ENSSSCG00000008749 | *SLIT2* | Wang *et al.* (2018) |
| RF GI 1 | DRGA0008467 | 77 | 2.827441 | 8 | 26738157 | 52445 | ENSSSCG00000008767 |  |  |
| RF GI 1 | ALGA0001328 | 78 | 2.819732 | 1 | 15517117 | 73768 | ENSSSCG00000032778 | *PLEKHG1* |  |
| RF GI 1 | ASGA0073319 | 79 | 2.806068 | 16 | 46607119 | 83496 | ENSSSCG00000016958 | *PIK3R1* |  |
| RF GI 1 | ALGA0066613 | 80 | 2.802264 | 12 | 43167714 | 69720 | ENSSSCG00000017745 | *UTP6* |  |
| RF GI 1 | ASGA0103220 | 81 | 2.800798 | 2 | 146116533 | 134765 | ENSSSCG00000032826 | *KCTD16* |  |
| RF GI 1 | DIAS0002950 | 82 | 2.795879 | 15 | 128798562 | 0 | ENSSSCG00000031572 | *MFF* |  |
| RF GI 1 | ALGA0010683 | 83 | 2.777901 | 1 | 269504715 | 49405 | ENSSSCG00000005673 | *IER5L* |  |
| RF GI 1 | ASGA0028870 | 84 | 2.773998 | 6 | 93958186 | 0 | ENSSSCG00000003643 | *SF3A3* |  |
| RF GI 1 | DRGA0011340 | 85 | 2.76674 | 11 | 57370606 | 57936 | ENSSSCG00000033995 |  |  |
| RF GI 1 | ALGA0047010 | 86 | 2.76509 | 8 | 25084597 | 1208802 | ENSSSCG00000035424 |  |  |
| RF GI 1 | INRA0052266 | 87 | 2.75904 | 17 | 904345 | 0 | ENSSSCG00000006968 | *LONRF1* |  |
| RF GI 1 | ALGA0105829 | 88 | 2.737998 | 8 | 76829903 | 130499 | ENSSSCG00000020879 | *FBXW7* |  |
| RF GI 1 | ALGA0055609 | 89 | 2.705896 | 9 | 131580890 | 19429 | ENSSSCG00000015604 | *NEK2* |  |
| RF GI 1 | H3GA0046254 | 90 | 2.693251 | 16 | 22953009 | 0 | ENSSSCG00000038727 | *GDNF* |  |
| RF GI 1 | DBUN0001582 | 91 | 2.652641 | 2 | 15033652 | 0 | ENSSSCG00000032081 | *NDUFS3* |  |
| RF GI 1 | ASGA0095713 | 92 | 2.650575 | 6 | 7624068 | 19119 | ENSSSCG00000038128 | *CDYL2* |  |
| RF GI 1 | ALGA0096892 | 93 | 2.648956 | 18 | 8348758 | 0 | ENSSSCG00000016492 | *AGK* | Wang *et al.* (2018) |
| RF GI 1 | ALGA0062301 | 94 | 2.604326 | 11 | 49061964 | 15528 | ENSSSCG00000009469 | *ACOD1* |  |
| RF GI 1 | ALGA0026433 | 95 | 2.586025 | 4 | 86297336 | 131370 | ENSSSCG00000029231 |  |  |
| RF GI 1 | MARC0004055 | 96 | 2.55338 | 1 | 250737499 | 0 | ENSSSCG00000033120 | *PALM2* |  |
| RF GI 2 | ALGA0085294 | 1 | 100 | 15 | 48159190 | 0 | ENSSSCG00000015820 | *NSD3* |  |
| RF GI 2 | ALGA0037006 | 2 | 100 | 6 | 140693657 | 0 | ENSSSCG00000032901 |  |  |
| RF GI 2 | ALGA0038590 | 3 | 100 | 7 | 10812279 | 53040 | ENSSSCG00000039116 | *ssc-mir-9807* |  |
| RF GI 2 | H3GA0020692 | 4 | 100 | 7 | 29338532 | 39361 | ENSSSCG00000001499 | *DST* |  |
| RF GI 2 | ALGA0065765 | 5 | 100 | 12 | 26972131 | 0 | ENSSSCG00000017561 | *ABCC3* |  |
| RF GI 2 | ALGA0047079 | 6 | 100 | 8 | 26721175 | 69427 | ENSSSCG00000008767 |  |  |
| RF GI 2 | ASGA0038190 | 7 | 99 | 8 | 21908257 | 128198 | ENSSSCG00000008763 |  |  |
| RF GI 2 | H3GA0006435 | 8 | 99 | 2 | 27326217 | 0 | ENSSSCG00000013311 | *KIAA1549L* |  |
| RF GI 2 | ASGA0018728 | 9 | 99 | 4 | 16468030 | 512 | ENSSSCG00000020166 | *RF00001* |  |
| RF GI 2 | INRA0013882 | 10 | 99 | 4 | 40522682 | 33650 | ENSSSCG00000034943 | *GDF6* |  |
| RF GI 2 | SIRI0000876 | 11 | 98 | 2 | 52326292 | 0 | ENSSSCG00000025900 | *SH3BP5L* |  |
| RF GI 2 | ALGA0097306 | 12 | 98 | 18 | 19909317 | 10556 | ENSSSCG00000016583 | *FAM71F2* |  |
| RF GI 2 | MARC0019146 | 13 | 98 | 8 | 32279946 | 0 | ENSSSCG00000022168 | *APBB2* |  |
| RF GI 2 | H3GA0024821 | 14 | 98 | 8 | 39730926 | 0 | ENSSSCG00000030621 |  |  |
| RF GI 2 | H3GA0006564 | 15 | 98 | 2 | 39275035 | 0 | ENSSSCG00000013351 | *NAV2* |  |
| RF GI 2 | MARC0083600 | 16 | 97 | 8 | 32824338 | 17058 | ENSSSCG00000038488 | *PHOX2B* |  |
| RF GI 2 | CASI0004261 | 17 | 97 | 15 | 115450142 | 62044 | ENSSSCG00000016164 | *IKZF2* |  |
| RF GI 2 | M1GA0007506 | 18 | 96 | 5 | 10702671 | 0 | ENSSSCG00000026067 | *TMPRSS6* |  |
| RF GI 2 | ALGA0047511 | 19 | 95 | 8 | 33543822 | 0 | ENSSSCG00000008803 | *ATP8A1* |  |
| RF GI 2 | MARC0024515 | 20 | 95 | 11 | 13323140 | 0 | ENSSSCG00000009362 | *TRPC4* |  |
| RF GI 2 | DIAS0002834 | 21 | 94 | 6 | 71221170 | 0 | ENSSSCG00000023126 |  |  |
| RF GI 2 | ASGA0035869 | 22 | 94 | 7 | 106949801 | 71698 | ENSSSCG00000019910 | *RF00100* |  |
| RF GI 2 | ALGA0088966 | 23 | 93 | 16 | 7227590 | 508138 | ENSSSCG00000016796 |  |  |
| RF GI 2 | ASGA0079412 | 24 | 93 | 18 | 28009964 | 0 | ENSSSCG00000035981 |  |  |
| RF GI 2 | INRA0039368 | 25 | 93 | 13 | 1927404 | 0 | ENSSSCG00000037430 | *COL6A6* |  |
| RF GI 2 | ALGA0083196 | 26 | 92 | 14 | 137654632 | 244824 | ENSSSCG00000019901 | *RF00001* |  |
| RF GI 2 | H3GA0024318 | 27 | 92 | 8 | 13010923 | 40929 | ENSSSCG00000008748 | *LCORL* | Rubin *et al.* (2012), Li *et al.* (2013) |
| RF GI 2 | H3GA0031500 | 28 | 91 | 11 | 19018315 | 22330 | ENSSSCG00000018211 | *RF00026* |  |
| RF GI 2 | ASGA0059607 | 29 | 91 | 13 | 187083442 | 752698 | ENSSSCG00000018744 | *RF00026* |  |
| RF GI 2 | MARC0038400 | 30 | 90 | 12 | 38400096 | 51048 | ENSSSCG00000017692 | *LHX1* |  |
| RF GI 2 | ALGA0047671 | 31 | 90 | 8 | 37104224 | 0 | ENSSSCG00000035621 | *GABRB1* |  |
| RF GI 2 | ALGA0119129 | 32 | 87 | 8 | 21163107 | 329232 | ENSSSCG00000018604 | *RF00100* |  |
| RF GI 2 | ALGA0046053 | 33 | 86 | 8 | 2033476 | 0 | ENSSSCG00000008698 | *RGS12* |  |
| RF GI 2 | ASGA0070239 | 34 | 85 | 15 | 102260926 | 265690 | ENSSSCG00000040152 |  |  |
| RF GI 2 | MARC0006806 | 35 | 85 | 15 | 24186234 | 217137 | ENSSSCG00000015715 | *EN1* | Zhang *et al.* (2018) |
| RF GI 2 | ASGA0054746 | 36 | 83 | 12 | 42973537 | 0 | ENSSSCG00000017743 | *CRLF3* |  |
| RF GI 2 | ALGA0023597 | 37 | 82 | 4 | 15861394 | 5766 | ENSSSCG00000039048 | *RF00100* |  |
| RF GI 2 | ALGA0033636 | 38 | 77 | 5 | 93710246 | 306741 | ENSSSCG00000035495 | *KITLG* | Wilkinson *et al.* (2013), Li *et al.* (2013) |
| RF GI 2 | H3GA0048198 | 39 | 77 | 17 | 26337314 | 16124 | ENSSSCG00000007088 |  |  |
| RF GI 2 | ASGA0012625 | 40 | 77 | 2 | 144428742 | 0 | ENSSSCG00000014399 | *ARHGAP26* |  |
| RF GI 2 | H3GA0056051 | 41 | 75 | 3 | 127101211 | 17596 | ENSSSCG00000008642 | *ASAP2* |  |
| RF GI 2 | ASGA0037865 | 42 | 75 | 8 | 12703060 | 0 | ENSSSCG00000026232 | *FAM184B* | Yang *et al.* (2014) |
| RF GI 2 | ALGA0048895 | 43 | 75 | 8 | 102209143 | 2197 | ENSSSCG00000009092 | *TRPC3* | Schiavo *et al.* (2016) |
| RF GI 2 | H3GA0032382 | 44 | 74 | 11 | 68644922 | 0 | ENSSSCG00000009519 | *CLYBL* |  |
| RF GI 2 | ALGA0083768 | 45 | 74 | 15 | 1396192 | 278163 | ENSSSCG00000032103 |  |  |
| RF GI 2 | ALGA0111963 | 46 | 73 | 8 | 19865054 | 58717 | ENSSSCG00000031297 | *RF00026* |  |
| RF GI 2 | ALGA0049757 | 47 | 69 | 8 | 129195375 | 21781 | ENSSSCG00000009202 | *MMRN1* |  |
| RF GI 2 | ALGA0119566 | 48 | 69 | 8 | 24112187 | 236392 | ENSSSCG00000035424 |  |  |
| RF GI 2 | ALGA0061762 | 49 | 68 | 11 | 29113328 | 476319 | ENSSSCG00000035135 |  |  |
| RF GI 2 | ALGA0092770 | 50 | 68 | 17 | 4018290 | 78676 | ENSSSCG00000006979 | *MSR1* |  |
| RF GI 2 | H3GA0043731 | 51 | 67 | 15 | 2743894 | 47329 | ENSSSCG00000023627 | *LYPD6* |  |
| RF GI 2 | ASGA0038670 | 52 | 67 | 8 | 36504871 | 2411 | ENSSSCG00000028922 | *GABRA2* |  |
| RF GI 2 | MARC0015234 | 53 | 66 | 11 | 11929849 | 0 | ENSSSCG00000033919 | *DCLK1* |  |
| RF GI 2 | ALGA0060332 | 54 | 66 | 11 | 4041094 | 0 | ENSSSCG00000037194 |  |  |
| RF GI 2 | ALGA0093763 | 55 | 63 | 17 | 21925210 | 20811 | ENSSSCG00000007072 | *SPTLC3* |  |
| RF GI 2 | INRA0039430 | 56 | 63 | 13 | 4711430 | 0 | ENSSSCG00000011199 | *TBC1D5* | Wang *et al.* (2018) |
| RF GI 2 | MARC0081387 | 57 | 63 | 2 | 50110622 | 3620 | ENSSSCG00000033086 |  |  |
| RF GI 2 | ALGA0061314 | 58 | 62 | 11 | 21345119 | 0 | ENSSSCG00000009414 | *ZC3H13* |  |
| RF GI 2 | ALGA0088377 | 59 | 61 | 15 | 136899120 | 61052 | ENSSSCG00000016323 |  |  |
| RF GI 2 | ALGA0062298 | 60 | 60 | 11 | 48976099 | 0 | ENSSSCG00000009468 | *KCTD12* |  |
| RF GI 2 | ALGA0038216 | 61 | 60 | 7 | 5492015 | 60478 | ENSSSCG00000038403 |  |  |
| RF GI 2 | ASGA0066512 | 62 | 60 | 14 | 122722231 | 0 | ENSSSCG00000031896 |  |  |
| RF GI 2 | MARC0012191 | 63 | 58 | 6 | 23436310 | 82551 | ENSSSCG00000040687 | *CDH8* |  |
| RF GI 2 | DRGA0016582 | 64 | 57 | 17 | 15949323 | 79377 | ENSSSCG00000025527 |  |  |
| RF GI 2 | ALGA0083430 | 65 | 57 | 15 | 4118207 | 0 | ENSSSCG00000015668 | *ORC4* |  |
| RF GI 2 | CASI0005117 | 66 | 56 | 3 | 17642214 | 0 | ENSSSCG00000007788 | *PHKG2* |  |
| RF GI 2 | MARC0021719 | 67 | 56 | 6 | 30396462 | 94209 | ENSSSCG00000018107 | *RF00026* |  |
| RF GI 2 | ASGA0046127 | 68 | 56 | 10 | 6690780 | 0 | ENSSSCG00000010814 | *ESRRG* |  |
| RF GI 2 | ALGA0063729 | 69 | 55 | 11 | 71873698 | 524433 | ENSSSCG00000026317 | *SLC10A2* |  |
| RF GI 2 | H3GA0024312 | 70 | 53 | 8 | 12664341 | 0 | ENSSSCG00000026232 | *FAM184B* | Yang *et al.* (2014) |
| RF GI 2 | H3GA0013086 | 71 | 52 | 4 | 75531190 | 0 | ENSSSCG00000006243 | *PENK* | Li *et al.* (2013) |
| RF GI 2 | ASGA0028870 | 72 | 51 | 6 | 93958186 | 0 | ENSSSCG00000003643 | *SF3A3* |  |
| RF GI 2 | ALGA0066661 | 73 | 50 | 12 | 44502978 | 0 | ENSSSCG00000017756 | *NLK* |  |
| RF GI 2 | ASGA0054824 | 74 | 50 | 12 | 45235512 | 0 | ENSSSCG00000017781 | *PIPOX* |  |
| RF GI 2 | ASGA0073319 | 75 | 48 | 16 | 46607119 | 83496 | ENSSSCG00000016958 | *PIK3R1* |  |
| RF GI 2 | ALGA0066613 | 76 | 48 | 12 | 43167714 | 69720 | ENSSSCG00000017745 | *UTP6* |  |
| RF GI 2 | INRA0052266 | 77 | 48 | 17 | 904345 | 0 | ENSSSCG00000006968 | *LONRF1* |  |
| RF GI 2 | ASGA0103220 | 78 | 47 | 2 | 146116533 | 134765 | ENSSSCG00000032826 | *KCTD16* |  |
| RF GI 2 | M1GA0021082 | 79 | 46 | 16 | 55114100 | 0 | ENSSSCG00000017012 |  |  |
| RF GI 2 | DRGA0008467 | 80 | 45 | 8 | 26738157 | 52445 | ENSSSCG00000008767 |  |  |
| RF GI 2 | H3GA0024339 | 81 | 44 | 8 | 15102410 | 0 | ENSSSCG00000008749 | *SLIT2* | Wang *et al.* (2018) |
| RF GI 2 | ALGA0001328 | 82 | 44 | 1 | 15517117 | 73768 | ENSSSCG00000032778 | *PLEKHG1* |  |
| RF GI 2 | ALGA0105829 | 83 | 44 | 8 | 76829903 | 130499 | ENSSSCG00000020879 | *FBXW7* |  |
| RF GI 2 | MARC0025311 | 84 | 43 | 4 | 115921374 | 80668 | ENSSSCG00000006857 | *COL11A1* | Wang *et al.* (2018) |
| RF GI 2 | ALGA0047010 | 85 | 43 | 8 | 25084597 | 1208802 | ENSSSCG00000035424 |  |  |
| RF GI 2 | ASGA0095713 | 86 | 43 | 6 | 7624068 | 19119 | ENSSSCG00000038128 | *CDYL2* |  |
| RF GI 2 | ALGA0010683 | 87 | 42 | 1 | 269504715 | 49405 | ENSSSCG00000005673 | *IER5L* |  |
| RF GI 2 | ALGA0055609 | 88 | 42 | 9 | 131580890 | 19429 | ENSSSCG00000015604 | *NEK2* |  |
| RF GI 2 | ALGA0096892 | 89 | 42 | 18 | 8348758 | 0 | ENSSSCG00000016492 | *AGK* | Wang *et al.* (2018) |
| RF GI 2 | MARC0004055 | 90 | 41 | 1 | 250737499 | 0 | ENSSSCG00000033120 | *PALM2* |  |
| RF GI 2 | DIAS0002950 | 91 | 40 | 15 | 128798562 | 0 | ENSSSCG00000031572 | *MFF* |  |
| RF GI 2 | DBUN0001582 | 92 | 40 | 2 | 15033652 | 0 | ENSSSCG00000032081 | *NDUFS3* |  |
| RF GI 2 | M1GA0020746 | 93 | 40 | 15 | 136943779 | 46312 | ENSSSCG00000032204 | *ssc-mir-7141* |  |
| RF GI 2 | ALGA0062301 | 94 | 39 | 11 | 49061964 | 15528 | ENSSSCG00000009469 | *ACOD1* |  |
| RF GI 2 | DRGA0011340 | 95 | 38 | 11 | 57370606 | 57936 | ENSSSCG00000033995 |  |  |
| RF GI 2 | ASGA0038543 | 96 | 38 | 8 | 32086489 | 0 | ENSSSCG00000022168 | *APBB2* |  |
| RF AMD 1 | INRA0039368 | 1 | 0.328071 | 13 | 1927404 | 0 | ENSSSCG00000037430 | *COL6A6* |  |
| RF AMD 1 | ASGA0018107 | 2 | 0.307412 | 4 | 9676649 | 0 | ENSSSCG00000031717 | *ADCY8* |  |
| RF AMD 1 | H3GA0056764 | 3 | 0.250417 | 6 | 3055344 | 0 | ENSSSCG00000034980 | *IRF8* |  |
| RF AMD 1 | M1GA0026730 | 4 | 0.226911 | 5 | 1063347 | 255335 | ENSSSCG00000032820 | *BRD1* |  |
| RF AMD 1 | ALGA0012230 | 5 | 0.224481 | 2 | 17109174 | 11383 | ENSSSCG00000031590 | *SYT13* |  |
| RF AMD 1 | ALGA0031253 | 6 | 0.224184 | 5 | 21534750 | 287 | ENSSSCG00000000379 | *ESYT1* |  |
| RF AMD 1 | ALGA0009192 | 7 | 0.20867 | 1 | 251437923 | 0 | ENSSSCG00000005455 | *SVEP1* | Li *et al.* (2013), Wang *et al.* (2018) |
| RF AMD 1 | M1GA0024473 | 8 | 0.207635 | 6 | 2873515 | 167902 | ENSSSCG00000034980 | *IRF8* |  |
| RF AMD 1 | ALGA0085294 | 9 | 0.204411 | 15 | 48159190 | 0 | ENSSSCG00000015820 | *NSD3* |  |
| RF AMD 1 | ASGA0041840 | 10 | 0.203947 | 9 | 14520594 | 182874 | ENSSSCG00000024327 | *RF00026* |  |
| RF AMD 1 | MARC0019347 | 11 | 0.201282 | 6 | 4970323 | 0 | ENSSSCG00000002684 | *CDH13* |  |
| RF AMD 1 | H3GA0017190 | 12 | 0.197912 | 5 | 94340474 | 0 | ENSSSCG00000000927 | *TMTC3* |  |
| RF AMD 1 | ALGA0067729 | 13 | 0.197358 | 13 | 6825056 | 1679 | ENSSSCG00000011205 | *EFHB* |  |
| RF AMD 1 | H3GA0054927 | 14 | 0.190495 | 8 | 77179007 | 43424 | ENSSSCG00000009015 | *GATB* |  |
| RF AMD 1 | H3GA0014860 | 15 | 0.189939 | 4 | 127492397 | 0 | ENSSSCG00000006925 | *KYAT3* |  |
| RF AMD 1 | ALGA0060299 | 16 | 0.189675 | 11 | 3399721 | 0 | ENSSSCG00000035421 | *ATP8A2* |  |
| RF AMD 1 | ASGA0059607 | 17 | 0.177697 | 13 | 187083442 | 1408927 | ENSSSCG00000012020 |  |  |
| RF AMD 1 | ASGA0031237 | 18 | 0.168636 | 7 | 11429838 | 0 | ENSSSCG00000001061 | *JARID2* |  |
| RF AMD 1 | H3GA0047667 | 19 | 0.167392 | 17 | 5249754 | 0 | ENSSSCG00000006987 | *SLC7A2* |  |
| RF AMD 1 | M1GA0010653 | 20 | 0.164521 | 7 | 97795647 | 0 | ENSSSCG00000002368 | *LTBP2* |  |
| RF AMD 1 | ASGA0024910 | 21 | 0.162994 | 5 | 18170949 | 0 | ENSSSCG00000000252 | *KRT8* |  |
| RF AMD 1 | MARC0040061 | 22 | 0.161247 | 5 | 90587030 | 20854 | ENSSSCG00000031633 |  |  |
| RF AMD 1 | ALGA0002123 | 23 | 0.160893 | 1 | 28949254 | 19590 | ENSSSCG00000004169 | *HBS1L* |  |
| RF AMD 1 | MARC0074172 | 24 | 0.160375 | 17 | 15768175 | 6981 | ENSSSCG00000039442 | *BMP2* |  |
| RF AMD 1 | ALGA0090354 | 25 | 0.159586 | 16 | 36326662 | 27033 | ENSSSCG00000016922 | *GPBP1* |  |
| RF AMD 1 | H3GA0014895 | 26 | 0.158973 | 4 | 128511140 | 382994 | ENSSSCG00000006928 | *LMO4* |  |
| RF AMD 1 | DRGA0008986 | 27 | 0.157923 | 8 | 134933342 | 0 | ENSSSCG00000009233 | *GPAT3* |  |
| RF AMD 1 | ALGA0038519 | 28 | 0.154329 | 7 | 9685704 | 0 | ENSSSCG00000001053 | *TBC1D7* |  |
| RF AMD 1 | MARC0069433 | 29 | 0.153727 | 7 | 109719307 | 30305 | ENSSSCG00000037928 |  |  |
| RF AMD 1 | ALGA0038590 | 30 | 0.143003 | 7 | 10812279 | 53040 | ENSSSCG00000039116 | *ssc-mir-9807* |  |
| RF AMD 1 | DIAS0002950 | 31 | 0.141905 | 15 | 128798562 | 0 | ENSSSCG00000031572 | *MFF* |  |
| RF AMD 1 | ALGA0021535 | 32 | 0.141231 | 3 | 124303840 | 107568 | ENSSSCG00000039080 | *TRIB2* |  |
| RF AMD 1 | ASGA0060423 | 33 | 0.140927 | 14 | 1284288 | 81441 | ENSSSCG00000031962 |  |  |
| RF AMD 1 | ASGA0082366 | 34 | 0.139166 | 9 | 47037744 | 146175 | ENSSSCG00000015125 | *NECTIN1* |  |
| RF AMD 1 | ASGA0077668 | 35 | 0.13157 | 17 | 53124572 | 12273 | ENSSSCG00000019814 | *RF00614* |  |
| RF AMD 1 | H3GA0017431 | 36 | 0.130641 | 6 | 5559838 | 0 | ENSSSCG00000002684 | *CDH13* |  |
| RF AMD 1 | H3GA0022612 | 37 | 0.129959 | 7 | 95276843 | 105726 | ENSSSCG00000002332 | *SIPA1L1* |  |
| RF AMD 1 | INRA0013882 | 38 | 0.127745 | 4 | 40522682 | 33650 | ENSSSCG00000034943 | *GDF6* |  |
| RF AMD 1 | MARC0088620 | 39 | 0.127177 | 6 | 2732746 | 135087 | ENSSSCG00000038460 | *FOXF1* |  |
| RF AMD 1 | H3GA0001444 | 40 | 0.123836 | 1 | 35058376 | 0 | ENSSSCG00000004209 | *PTPRK* | Wang *et al.* (2018) |
| RF AMD 1 | M1GA0024147 | 41 | 0.123659 | 3 | 125072571 | 0 | ENSSSCG00000008624 | *LPIN1* |  |
| RF AMD 1 | ALGA0071689 | 42 | 0.123418 | 13 | 110159400 | 0 | ENSSSCG00000011750 | *PLD1* |  |
| RF AMD 1 | MARC0015751 | 43 | 0.122858 | 13 | 200576767 | 0 | ENSSSCG00000012059 | *HLCS* | Schiavo *et al.* (2016) |
| RF AMD 1 | ALGA0048895 | 44 | 0.121019 | 8 | 102209143 | 2197 | ENSSSCG00000009092 | *TRPC3* | Schiavo *et al.* (2016) |
| RF AMD 1 | MARC0002965 | 45 | 0.120857 | 10 | 56249158 | 0 | ENSSSCG00000011102 | *NRP1* |  |
| RF AMD 1 | H3GA0028486 | 46 | 0.120773 | 9 | 131142226 | 65665 | ENSSSCG00000015599 | *PPP2R5A* |  |
| RF AMD 1 | MARC0027201 | 47 | 0.12074 | 10 | 15331939 | 0 | ENSSSCG00000010865 | *EXO1* |  |
| RF AMD 1 | MARC0101447 | 48 | 0.119833 | 6 | 40963330 | 56671 | ENSSSCG00000035009 | *RF00001* |  |
| RF AMD 1 | H3GA0053137 | 49 | 0.11911 | 2 | 9252507 | 0 | ENSSSCG00000036669 |  |  |
| RF AMD 1 | ALGA0033799 | 50 | 0.118489 | 5 | 96197534 | 6159 | ENSSSCG00000032321 | *MGAT4C* |  |
| RF AMD 1 | ASGA0088991 | 51 | 0.116472 | 10 | 45838774 | 9009 | ENSSSCG00000020561 | *RF00322* |  |
| RF AMD 1 | ALGA0102818 | 52 | 0.114962 | 13 | 2712414 | 0 | ENSSSCG00000028911 | *COLQ* |  |
| RF AMD 1 | MARC0016585 | 53 | 0.114899 | 1 | 28299172 | 0 | ENSSSCG00000004165 | *PDE7B* |  |
| RF AMD 1 | MARC0021090 | 54 | 0.113752 | 15 | 16708105 | 0 | ENSSSCG00000015694 | *ZRANB3* |  |
| RF AMD 1 | MARC0024515 | 55 | 0.113224 | 11 | 13323140 | 0 | ENSSSCG00000009362 | *TRPC4* |  |
| RF AMD 1 | ASGA0046309 | 56 | 0.113212 | 10 | 8819660 | 0 | ENSSSCG00000038539 |  |  |
| RF AMD 1 | ALGA0037006 | 57 | 0.109722 | 6 | 140693657 | 0 | ENSSSCG00000032901 |  |  |
| RF AMD 1 | DIAS0002834 | 58 | 0.10914 | 6 | 71221170 | 0 | ENSSSCG00000023126 |  |  |
| RF AMD 1 | DRGA0010562 | 59 | 0.108748 | 10 | 54936339 | 0 | ENSSSCG00000040615 | *MALRD1* |  |
| RF AMD 1 | H3GA0021877 | 60 | 0.106551 | 7 | 54941913 | 6534 | ENSSSCG00000019173 | *ssc-mir-9-3* |  |
| RF AMD 1 | M1GA0021645 | 61 | 0.10452 | 17 | 9234377 | 0 | ENSSSCG00000007008 | *ADAM18* |  |
| RF AMD 1 | H3GA0055680 | 62 | 0.10394 | 5 | 80745316 | 0 | ENSSSCG00000000854 | *STAB2* |  |
| RF AMD 1 | M1GA0021255 | 63 | 0.103504 | 16 | 74705136 | 180841 | ENSSSCG00000017101 | *ADCY2* |  |
| RF AMD 1 | MARC0016290 | 64 | 0.103303 | 6 | 169185577 | 31026 | ENSSSCG00000003970 | *GUCA2B* |  |
| RF AMD 1 | MARC0066315 | 65 | 0.099488 | 11 | 21536725 | 0 | ENSSSCG00000038733 | *SIAH3* |  |
| RF AMD 1 | ASGA0095253 | 66 | 0.099058 | 18 | 7941226 | 0 | ENSSSCG00000034639 |  |  |
| RF AMD 1 | H3GA0036906 | 67 | 0.09805 | 13 | 78280947 | 56551 | ENSSSCG00000011655 |  |  |
| RF AMD 1 | ALGA0041246 | 68 | 0.096541 | 7 | 43524915 | 72236 | ENSSSCG00000001732 | *MUT* |  |
| RF AMD 1 | ALGA0065765 | 69 | 0.095968 | 12 | 26972131 | 0 | ENSSSCG00000017561 | *ABCC3* |  |
| RF AMD 1 | ASGA0016156 | 70 | 0.095652 | 3 | 112385083 | 22024 | ENSSSCG00000008564 | *CIB4* |  |
| RF AMD 1 | H3GA0030446 | 71 | 0.094697 | 10 | 56726017 | 295206 | ENSSSCG00000011102 | *NRP1* |  |
| RF AMD 1 | MARC0005038 | 72 | 0.094092 | 8 | 125999733 | 0 | ENSSSCG00000009197 | *GRID2* |  |
| RF AMD 1 | ALGA0122843 | 73 | 0.094016 | 3 | 123049851 | 102447 | ENSSSCG00000036245 | *RF00026* |  |
| RF AMD 1 | H3GA0005759 | 74 | 0.093336 | 2 | 7536991 | 0 | ENSSSCG00000013024 |  |  |
| RF AMD 1 | ASGA0013496 | 75 | 0.091696 | 3 | 12508944 | 153099 | ENSSSCG00000036217 |  |  |
| RF AMD 1 | MARC0081495 | 76 | 0.090729 | 15 | 32706880 | 114029 | ENSSSCG00000028195 |  |  |
| RF AMD 1 | ASGA0009826 | 77 | 0.090539 | 2 | 28808479 | 5605 | ENSSSCG00000032287 |  |  |
| RF AMD 1 | DRGA0000162 | 78 | 0.089654 | 1 | 14280903 | 0 | ENSSSCG00000025777 | *ESR1* | Wilkinson *et al.* (2013), Li *et al.* (2014), Yang *et al.* (2017) |
| RF AMD 1 | ALGA0082759 | 79 | 0.089167 | 14 | 133894145 | 0 | ENSSSCG00000010735 | *LHPP* |  |
| RF AMD 1 | ALGA0063912 | 80 | 0.088978 | 11 | 74261351 | 0 | ENSSSCG00000009536 | *ARGLU1* |  |
| RF AMD 1 | ALGA0023597 | 81 | 0.088424 | 4 | 15861394 | 5766 | ENSSSCG00000039048 | *RF00100* |  |
| RF AMD 1 | INRA0038383 | 82 | 0.0879 | 12 | 2375789 | 0 | ENSSSCG00000017158 | *CCDC40* |  |
| RF AMD 1 | DRGA0014500 | 83 | 0.087743 | 14 | 115099053 | 9734 | ENSSSCG00000035752 |  |  |
| RF AMD 1 | ALGA0012424 | 84 | 0.087433 | 2 | 19978593 | 661069 | ENSSSCG00000032988 |  |  |
| RF AMD 1 | ALGA0010817 | 85 | 0.086283 | 1 | 270437113 | 0 | ENSSSCG00000005699 |  |  |
| RF AMD 1 | MARC0073404 | 86 | 0.085354 | 4 | 107197826 | 77791 | ENSSSCG00000006767 | *MAGI3* | Li *et al.* (2013) |
| RF AMD 1 | ALGA0103099 | 87 | 0.084495 | 2 | 2878103 | 0 | ENSSSCG00000031191 |  |  |
| RF AMD 1 | ALGA0022724 | 88 | 0.083726 | 4 | 7521886 | 166535 | ENSSSCG00000030947 | *ZFAT* |  |
| RF AMD 1 | MARC0010468 | 89 | 0.083699 | 11 | 30778570 | 166842 | ENSSSCG00000009446 | *PCDH17* |  |
| RF AMD 1 | ALGA0097763 | 90 | 0.083375 | 18 | 29106999 | 0 | ENSSSCG00000016629 | *ST7* |  |
| RF AMD 1 | ALGA0110177 | 91 | 0.082995 | 8 | 114474271 | 104956 | ENSSSCG00000031901 | *PAPSS1* |  |
| RF AMD 1 | ASGA0038190 | 92 | 0.081987 | 8 | 21908257 | 128198 | ENSSSCG00000008763 |  |  |
| RF AMD 1 | ALGA0109424 | 93 | 0.080671 | 10 | 46700019 | 0 | ENSSSCG00000026499 | *NMT2* |  |
| RF AMD 1 | INRA0038984 | 94 | 0.078518 | 12 | 35880188 | 0 | ENSSSCG00000022659 | *CLTC* |  |
| RF AMD 1 | H3GA0031138 | 95 | 0.078181 | 11 | 6366025 | 0 | ENSSSCG00000025996 | *MTUS2* |  |
| RF AMD 1 | ASGA0012625 | 96 | 0.077783 | 2 | 144428742 | 0 | ENSSSCG00000014399 | *ARHGAP26* |  |
| RF AMD 2 | MARC0069433 | 1 | 100 | 7 | 109719307 | 30305 | ENSSSCG00000037928 |  |  |
| RF AMD 2 | MARC0040061 | 2 | 100 | 5 | 90587030 | 20854 | ENSSSCG00000031633 |  |  |
| RF AMD 2 | MARC0019347 | 3 | 100 | 6 | 4970323 | 0 | ENSSSCG00000002684 | *CDH13* |  |
| RF AMD 2 | M1GA0026730 | 4 | 100 | 5 | 1063347 | 255335 | ENSSSCG00000032820 | *BRD1* |  |
| RF AMD 2 | M1GA0024473 | 5 | 100 | 6 | 2873515 | 167902 | ENSSSCG00000034980 | *IRF8* |  |
| RF AMD 2 | INRA0039368 | 6 | 100 | 13 | 1927404 | 0 | ENSSSCG00000037430 | *COL6A6* |  |
| RF AMD 2 | H3GA0056764 | 7 | 100 | 6 | 3055344 | 0 | ENSSSCG00000034980 | *IRF8* |  |
| RF AMD 2 | H3GA0054927 | 8 | 100 | 8 | 77179007 | 43424 | ENSSSCG00000009015 | *GATB* |  |
| RF AMD 2 | H3GA0047667 | 9 | 100 | 17 | 5249754 | 0 | ENSSSCG00000006987 | *SLC7A2* |  |
| RF AMD 2 | H3GA0017190 | 10 | 100 | 5 | 94340474 | 0 | ENSSSCG00000000927 | *TMTC3* |  |
| RF AMD 2 | H3GA0014895 | 11 | 100 | 4 | 128511140 | 382994 | ENSSSCG00000006928 | *LMO4* |  |
| RF AMD 2 | H3GA0014860 | 12 | 100 | 4 | 127492397 | 0 | ENSSSCG00000006925 | *KYAT3* |  |
| RF AMD 2 | DIAS0002950 | 13 | 100 | 15 | 128798562 | 0 | ENSSSCG00000031572 | *MFF* |  |
| RF AMD 2 | ASGA0059607 | 14 | 100 | 13 | 187083442 | 1408927 | ENSSSCG00000012020 |  |  |
| RF AMD 2 | ASGA0041840 | 15 | 100 | 9 | 14520594 | 182874 | ENSSSCG00000024327 | *RF00026* |  |
| RF AMD 2 | ASGA0031237 | 16 | 100 | 7 | 11429838 | 0 | ENSSSCG00000001061 | *JARID2* |  |
| RF AMD 2 | ASGA0018107 | 17 | 100 | 4 | 9676649 | 0 | ENSSSCG00000031717 | *ADCY8* |  |
| RF AMD 2 | ALGA0085294 | 18 | 100 | 15 | 48159190 | 0 | ENSSSCG00000015820 | *NSD3* |  |
| RF AMD 2 | ALGA0067729 | 19 | 100 | 13 | 6825056 | 1679 | ENSSSCG00000011205 | *EFHB* |  |
| RF AMD 2 | ALGA0060299 | 20 | 100 | 11 | 3399721 | 0 | ENSSSCG00000035421 | *ATP8A2* |  |
| RF AMD 2 | ALGA0038590 | 21 | 100 | 7 | 10812279 | 53040 | ENSSSCG00000039116 | *ssc-mir-9807* |  |
| RF AMD 2 | ALGA0031253 | 22 | 100 | 5 | 21534750 | 287 | ENSSSCG00000000379 | *ESYT1* |  |
| RF AMD 2 | ALGA0012230 | 23 | 100 | 2 | 17109174 | 11383 | ENSSSCG00000031590 | *SYT13* |  |
| RF AMD 2 | ALGA0009192 | 24 | 100 | 1 | 251437923 | 0 | ENSSSCG00000005455 | *SVEP1* | Li *et al.* (2013), Wang *et al.* (2018) |
| RF AMD 2 | MARC0074172 | 25 | 99 | 17 | 15768175 | 6981 | ENSSSCG00000039442 | *BMP2* |  |
| RF AMD 2 | M1GA0010653 | 26 | 99 | 7 | 97795647 | 0 | ENSSSCG00000002368 | *LTBP2* |  |
| RF AMD 2 | ASGA0024910 | 27 | 99 | 5 | 18170949 | 0 | ENSSSCG00000000252 | *KRT8* |  |
| RF AMD 2 | ALGA0090354 | 28 | 99 | 16 | 36326662 | 27033 | ENSSSCG00000016922 | *GPBP1* |  |
| RF AMD 2 | ALGA0038519 | 29 | 99 | 7 | 9685704 | 0 | ENSSSCG00000001053 | *TBC1D7* |  |
| RF AMD 2 | ALGA0002123 | 30 | 99 | 1 | 28949254 | 19590 | ENSSSCG00000004169 | *HBS1L* |  |
| RF AMD 2 | H3GA0022612 | 31 | 98 | 7 | 95276843 | 105726 | ENSSSCG00000002332 | *SIPA1L1* |  |
| RF AMD 2 | H3GA0017431 | 32 | 98 | 6 | 5559838 | 0 | ENSSSCG00000002684 | *CDH13* |  |
| RF AMD 2 | ALGA0021535 | 33 | 98 | 3 | 124303840 | 107568 | ENSSSCG00000039080 | *TRIB2* |  |
| RF AMD 2 | MARC0088620 | 34 | 97 | 6 | 2732746 | 135087 | ENSSSCG00000038460 | *FOXF1* |  |
| RF AMD 2 | M1GA0024147 | 35 | 97 | 3 | 125072571 | 0 | ENSSSCG00000008624 | *LPIN1* |  |
| RF AMD 2 | INRA0013882 | 36 | 97 | 4 | 40522682 | 33650 | ENSSSCG00000034943 | *GDF6* |  |
| RF AMD 2 | DRGA0008986 | 37 | 97 | 8 | 134933342 | 0 | ENSSSCG00000009233 | *GPAT3* |  |
| RF AMD 2 | ASGA0082366 | 38 | 97 | 9 | 47037744 | 146175 | ENSSSCG00000015125 | *NECTIN1* |  |
| RF AMD 2 | ASGA0077668 | 39 | 97 | 17 | 53124572 | 12273 | ENSSSCG00000019814 | *RF00614* |  |
| RF AMD 2 | ALGA0071689 | 40 | 97 | 13 | 110159400 | 0 | ENSSSCG00000011750 | *PLD1* |  |
| RF AMD 2 | MARC0015751 | 41 | 96 | 13 | 200576767 | 0 | ENSSSCG00000012059 | *HLCS* | Schiavo *et al.* (2016) |
| RF AMD 2 | H3GA0001444 | 42 | 96 | 1 | 35058376 | 0 | ENSSSCG00000004209 | *PTPRK* | Wang *et al.* (2018) |
| RF AMD 2 | ASGA0060423 | 43 | 96 | 14 | 1284288 | 81441 | ENSSSCG00000031962 |  |  |
| RF AMD 2 | ALGA0102818 | 44 | 96 | 13 | 2712414 | 0 | ENSSSCG00000028911 | *COLQ* |  |
| RF AMD 2 | ALGA0033799 | 45 | 93 | 5 | 96197534 | 6159 | ENSSSCG00000032321 | *MGAT4C* |  |
| RF AMD 2 | H3GA0053137 | 46 | 92 | 2 | 9252507 | 0 | ENSSSCG00000036669 |  |  |
| RF AMD 2 | ALGA0037006 | 47 | 92 | 6 | 140693657 | 0 | ENSSSCG00000032901 |  |  |
| RF AMD 2 | MARC0021090 | 48 | 91 | 15 | 16708105 | 0 | ENSSSCG00000015694 | *ZRANB3* |  |
| RF AMD 2 | H3GA0028486 | 49 | 91 | 9 | 131142226 | 65665 | ENSSSCG00000015599 | *PPP2R5A* |  |
| RF AMD 2 | ASGA0046309 | 50 | 91 | 10 | 8819660 | 0 | ENSSSCG00000038539 |  |  |
| RF AMD 2 | MARC0002965 | 51 | 90 | 10 | 56249158 | 0 | ENSSSCG00000011102 | *NRP1* |  |
| RF AMD 2 | H3GA0055680 | 52 | 90 | 5 | 80745316 | 0 | ENSSSCG00000000854 | *STAB2* |  |
| RF AMD 2 | MARC0101447 | 53 | 89 | 6 | 40963330 | 56671 | ENSSSCG00000035009 | *RF00001* |  |
| RF AMD 2 | MARC0027201 | 54 | 89 | 10 | 15331939 | 0 | ENSSSCG00000010865 | *EXO1* |  |
| RF AMD 2 | ASGA0088991 | 55 | 89 | 10 | 45838774 | 9009 | ENSSSCG00000020561 | *RF00322* |  |
| RF AMD 2 | MARC0016585 | 56 | 87 | 1 | 28299172 | 0 | ENSSSCG00000004165 | *PDE7B* |  |
| RF AMD 2 | DRGA0010562 | 57 | 83 | 10 | 54936339 | 0 | ENSSSCG00000040615 | *MALRD1* |  |
| RF AMD 2 | ALGA0048895 | 58 | 83 | 8 | 102209143 | 2197 | ENSSSCG00000009092 | *TRPC3* | Schiavo *et al.* (2016) |
| RF AMD 2 | MARC0024515 | 59 | 82 | 11 | 13323140 | 0 | ENSSSCG00000009362 | *TRPC4* |  |
| RF AMD 2 | M1GA0021255 | 60 | 82 | 16 | 74705136 | 180841 | ENSSSCG00000017101 | *ADCY2* |  |
| RF AMD 2 | H3GA0021877 | 61 | 81 | 7 | 54941913 | 6534 | ENSSSCG00000019173 | *ssc-mir-9-3* |  |
| RF AMD 2 | M1GA0021645 | 62 | 80 | 17 | 9234377 | 0 | ENSSSCG00000007008 | *ADAM18* |  |
| RF AMD 2 | MARC0016290 | 63 | 77 | 6 | 169185577 | 31026 | ENSSSCG00000003970 | *GUCA2B* |  |
| RF AMD 2 | DIAS0002834 | 64 | 77 | 6 | 71221170 | 0 | ENSSSCG00000023126 |  |  |
| RF AMD 2 | ALGA0122843 | 65 | 76 | 3 | 123049851 | 102447 | ENSSSCG00000036245 | *RF00026* |  |
| RF AMD 2 | ASGA0095253 | 66 | 75 | 18 | 7941226 | 0 | ENSSSCG00000034639 |  |  |
| RF AMD 2 | H3GA0036906 | 67 | 72 | 13 | 78280947 | 56551 | ENSSSCG00000011655 |  |  |
| RF AMD 2 | H3GA0030446 | 68 | 72 | 10 | 56726017 | 295206 | ENSSSCG00000011102 | *NRP1* |  |
| RF AMD 2 | DRGA0000162 | 69 | 72 | 1 | 14280903 | 0 | ENSSSCG00000025777 | *ESR1* | Wilkinson *et al.* (2013), Yang *et al.* (2017) |
| RF AMD 2 | MARC0066315 | 70 | 71 | 11 | 21536725 | 0 | ENSSSCG00000038733 | *SIAH3* |  |
| RF AMD 2 | ASGA0016156 | 71 | 71 | 3 | 112385083 | 22024 | ENSSSCG00000008564 | *CIB4* |  |
| RF AMD 2 | ALGA0065765 | 72 | 71 | 12 | 26972131 | 0 | ENSSSCG00000017561 | *ABCC3* |  |
| RF AMD 2 | H3GA0005759 | 73 | 69 | 2 | 7536991 | 0 | ENSSSCG00000013024 |  |  |
| RF AMD 2 | ALGA0041246 | 74 | 68 | 7 | 43524915 | 72236 | ENSSSCG00000001732 | *MUT* |  |
| RF AMD 2 | MARC0081495 | 75 | 67 | 15 | 32706880 | 114029 | ENSSSCG00000028195 |  |  |
| RF AMD 2 | MARC0005038 | 76 | 67 | 8 | 125999733 | 0 | ENSSSCG00000009197 | *GRID2* |  |
| RF AMD 2 | ASGA0009826 | 77 | 63 | 2 | 28808479 | 5605 | ENSSSCG00000032287 |  |  |
| RF AMD 2 | ASGA0013496 | 78 | 61 | 3 | 12508944 | 153099 | ENSSSCG00000036217 |  |  |
| RF AMD 2 | ALGA0082759 | 79 | 61 | 14 | 133894145 | 0 | ENSSSCG00000010735 | *LHPP* |  |
| RF AMD 2 | ALGA0012424 | 80 | 61 | 2 | 19978593 | 661069 | ENSSSCG00000032988 |  |  |
| RF AMD 2 | DRGA0014500 | 81 | 60 | 14 | 115099053 | 9734 | ENSSSCG00000035752 |  |  |
| RF AMD 2 | ALGA0063912 | 82 | 58 | 11 | 74261351 | 0 | ENSSSCG00000009536 | *ARGLU1* |  |
| RF AMD 2 | ALGA0010817 | 83 | 58 | 1 | 270437113 | 0 | ENSSSCG00000005699 |  |  |
| RF AMD 2 | MARC0010468 | 84 | 55 | 11 | 30778570 | 166842 | ENSSSCG00000009446 | *PCDH17* |  |
| RF AMD 2 | INRA0038383 | 85 | 55 | 12 | 2375789 | 0 | ENSSSCG00000017158 | *CCDC40* |  |
| RF AMD 2 | ALGA0023597 | 86 | 55 | 4 | 15861394 | 5766 | ENSSSCG00000039048 | *RF00100* |  |
| RF AMD 2 | ALGA0022724 | 87 | 53 | 4 | 7521886 | 166535 | ENSSSCG00000030947 | *ZFAT* |  |
| RF AMD 2 | ALGA0103099 | 88 | 52 | 2 | 2878103 | 0 | ENSSSCG00000031191 |  |  |
| RF AMD 2 | MARC0073404 | 89 | 51 | 4 | 107197826 | 77791 | ENSSSCG00000006767 | *MAGI3* | Li *et al.* (2013) |
| RF AMD 2 | ALGA0110177 | 90 | 48 | 8 | 114474271 | 104956 | ENSSSCG00000031901 | *PAPSS1* |  |
| RF AMD 2 | ALGA0097763 | 91 | 47 | 18 | 29106999 | 0 | ENSSSCG00000016629 | *ST7* |  |
| RF AMD 2 | INRA0038984 | 92 | 45 | 12 | 35880188 | 0 | ENSSSCG00000022659 | *CLTC* |  |
| RF AMD 2 | ASGA0038190 | 93 | 45 | 8 | 21908257 | 128198 | ENSSSCG00000008763 |  |  |
| RF AMD 2 | ASGA0012625 | 94 | 45 | 2 | 144428742 | 0 | ENSSSCG00000014399 | *ARHGAP26* |  |
| RF AMD 2 | H3GA0031138 | 95 | 43 | 11 | 6366025 | 0 | ENSSSCG00000025996 | *MTUS2* |  |
| RF AMD 2 | ALGA0109424 | 96 | 41 | 10 | 46700019 | 0 | ENSSSCG00000026499 | *NMT2* |  |
| Delta | ALGA0119129 | 1 | 0.425504 | 8 | 21163107 | 329232 | ENSSSCG00000018604 | *RF00100* |  |
| Delta | INRA0039430 | 2 | 0.421467 | 13 | 4711430 | 0 | ENSSSCG00000011199 | *TBC1D5* |  |
| Delta | ALGA0067806 | 3 | 0.420267 | 13 | 8248921 | 0 | ENSSSCG00000011208 | *ZNF385D* |  |
| Delta | H3GA0014895 | 4 | 0.418409 | 4 | 128511140 | 382994 | ENSSSCG00000006928 | *LMO4* |  |
| Delta | ALGA0071689 | 5 | 0.414159 | 13 | 110159400 | 0 | ENSSSCG00000011750 | *PLD1* |  |
| Delta | H3GA0024821 | 6 | 0.412868 | 8 | 39730926 | 0 | ENSSSCG00000030621 |  |  |
| Delta | M1GA0024147 | 7 | 0.411534 | 3 | 125072571 | 0 | ENSSSCG00000008624 | *LPIN1* |  |
| Delta | ALGA0049836 | 8 | 0.409351 | 8 | 130428498 | 0 | ENSSSCG00000009208 | *HERC3* |  |
| Delta | MARC0074172 | 9 | 0.40796 | 17 | 15768175 | 6981 | ENSSSCG00000039442 | *BMP2* |  |
| Delta | ALGA0062298 | 10 | 0.404869 | 11 | 48976099 | 0 | ENSSSCG00000009468 | *KCTD12* | Li *et al.* (2013) |
| Delta | ASGA0060423 | 11 | 0.404093 | 14 | 1284288 | 81441 | ENSSSCG00000031962 |  |  |
| Delta | ALGA0076069 | 12 | 0.404038 | 14 | 21903447 | 0 | ENSSSCG00000009722 | *SPOCK3* |  |
| Delta | ALGA0065765 | 13 | 0.403828 | 12 | 26972131 | 0 | ENSSSCG00000017561 | *ABCC3* |  |
| Delta | M1GA0026730 | 14 | 0.398107 | 5 | 1063347 | 255335 | ENSSSCG00000032820 | *BRD1* |  |
| Delta | H3GA0056051 | 15 | 0.395152 | 3 | 127101211 | 17596 | ENSSSCG00000008642 | *ASAP2* |  |
| Delta | ALGA0034772 | 16 | 0.394492 | 6 | 21467637 | 48151 | ENSSSCG00000019425 | *RF00026* |  |
| Delta | INRA0039368 | 17 | 0.3939 | 13 | 1927404 | 0 | ENSSSCG00000037430 | *COL6A6* |  |
| Delta | MARC0060803 | 18 | 0.393548 | 14 | 25778376 | 0 | ENSSSCG00000038915 | *TMEM132D* |  |
| Delta | MARC0077938 | 19 | 0.393026 | 15 | 11942351 | 389834 | ENSSSCG00000036486 |  |  |
| Delta | ASGA0060262 | 20 | 0.389718 | 13 | 206014277 | 0 | ENSSSCG00000030016 | *PDE9A* |  |
| Delta | DIAS0004272 | 21 | 0.389575 | 8 | 19534850 | 633 | ENSSSCG00000022446 | *SEL1L3* |  |
| Delta | ALGA0047010 | 22 | 0.389278 | 8 | 25084597 | 1208802 | ENSSSCG00000035424 |  |  |
| Delta | INRA0052276 | 23 | 0.388941 | 17 | 1177941 | 0 | ENSSSCG00000006970 | *DLC1* |  |
| Delta | ALGA0119566 | 24 | 0.388665 | 8 | 24112187 | 236392 | ENSSSCG00000035424 |  |  |
| Delta | ASGA0058767 | 25 | 0.385878 | 13 | 123359577 | 0 | ENSSSCG00000025921 |  |  |
| Delta | H3GA0050431 | 26 | 0.385419 | 18 | 15768346 | 0 | ENSSSCG00000016543 | *EXOC4* |  |
| Delta | ALGA0096892 | 27 | 0.385158 | 18 | 8348758 | 0 | ENSSSCG00000016492 | *AGK* |  |
| Delta | ALGA0095780 | 28 | 0.384663 | 17 | 52672064 | 71506 | ENSSSCG00000007477 | *NFATC2* |  |
| Delta | H3GA0019985 | 29 | 0.384394 | 7 | 11747624 | 0 | ENSSSCG00000001062 | *DTNBP1* |  |
| Delta | ALGA0113675 | 30 | 0.384349 | 3 | 124814868 | 68882 | ENSSSCG00000036761 |  |  |
| Delta | H3GA0030446 | 31 | 0.384325 | 10 | 56726017 | 295206 | ENSSSCG00000011102 | *NRP1* |  |
| Delta | MARC0069433 | 32 | 0.383849 | 7 | 109719307 | 30305 | ENSSSCG00000037928 |  |  |
| Delta | ALGA0055609 | 33 | 0.382911 | 9 | 131580890 | 19429 | ENSSSCG00000015604 | *NEK2* |  |
| Delta | ALGA0092770 | 34 | 0.382643 | 17 | 4018290 | 78676 | ENSSSCG00000006979 | *MSR1* |  |
| Delta | ASGA0068580 | 35 | 0.382228 | 15 | 1738783 | 4369 | ENSSSCG00000040445 | *RND3* |  |
| Delta | ALGA0046905 | 36 | 0.381674 | 8 | 20905388 | 71513 | ENSSSCG00000018604 | *RF00100* |  |
| Delta | M1GA0024188 | 37 | 0.380907 | 8 | 7606509 | 24856 | ENSSSCG00000019000 | *RF00026* | Wang *et al.* (2018) |
| Delta | MARC0027201 | 38 | 0.379301 | 10 | 15331939 | 0 | ENSSSCG00000010865 | *EXO1* |  |
| Delta | MARC0069132 | 39 | 0.377251 | 4 | 119106087 | 0 | ENSSSCG00000006877 | *SNX7* |  |
| Delta | ALGA0001328 | 40 | 0.376881 | 1 | 15517117 | 73768 | ENSSSCG00000032778 | *PLEKHG1* |  |
| Delta | ASGA0015624 | 41 | 0.375912 | 3 | 102384694 | 0 | ENSSSCG00000008488 |  |  |
| Delta | ASGA0058976 | 42 | 0.374784 | 13 | 137020019 | 0 | ENSSSCG00000027952 | *ADCY5* |  |
| Delta | INRA0049968 | 43 | 0.37461 | 15 | 102936048 | 28421 | ENSSSCG00000021657 | *SATB2* |  |
| Delta | MARC0052565 | 44 | 0.373913 | 8 | 127898522 | 87244 | ENSSSCG00000022986 | *CCSER1* |  |
| Delta | ALGA0012381 | 45 | 0.373444 | 2 | 19033569 | 39329 | ENSSSCG00000013285 | *API5* |  |
| Delta | ALGA0060332 | 46 | 0.373403 | 11 | 4041094 | 0 | ENSSSCG00000037194 |  |  |
| Delta | MARC0019146 | 47 | 0.373183 | 8 | 32279946 | 0 | ENSSSCG00000022168 | *APBB2* |  |
| Delta | M1GA0015213 | 48 | 0.37301 | 11 | 65653687 | 136516 | ENSSSCG00000009503 |  |  |
| Delta | H3GA0038523 | 49 | 0.372341 | 14 | 5651597 | 91987 | ENSSSCG00000009605 | *GFRA2* |  |
| Delta | H3GA0006564 | 50 | 0.37206 | 2 | 39275035 | 0 | ENSSSCG00000013351 | *NAV2* |  |
| Delta | ASGA0037899 | 51 | 0.370443 | 8 | 14973392 | 16403 | ENSSSCG00000008749 | *SLIT2* |  |
| Delta | ASGA0051087 | 52 | 0.370279 | 11 | 61168204 | 0 | ENSSSCG00000031946 | *GPC5* | Wang *et al.* (2018) |
| Delta | ALGA0091391 | 53 | 0.370181 | 16 | 67193370 | 149088 | ENSSSCG00000039000 |  |  |
| Delta | ALGA0108646 | 54 | 0.36974 | 8 | 124464677 | 0 | ENSSSCG00000021874 | *UNC5C* |  |
| Delta | MARC0043512 | 55 | 0.369719 | 3 | 5129774 | 0 | ENSSSCG00000007590 | *PMS2* |  |
| Delta | M1GA0024473 | 56 | 0.369428 | 6 | 2873515 | 167902 | ENSSSCG00000034980 | *IRF8* | Li *et al.* (2013) |
| Delta | H3GA0052480 | 57 | 0.369343 | 12 | 34031802 | 461 | ENSSSCG00000017620 | *CCDC182* |  |
| Delta | ALGA0047511 | 58 | 0.368905 | 8 | 33543822 | 0 | ENSSSCG00000008803 | *ATP8A1* |  |
| Delta | MARC0089587 | 59 | 0.367963 | 6 | 56052717 | 22831 | ENSSSCG00000003259 | *OSCAR* |  |
| Delta | ASGA0018107 | 60 | 0.367809 | 4 | 9676649 | 0 | ENSSSCG00000031717 | *ADCY8* |  |
| Delta | ALGA0108594 | 61 | 0.367237 | 12 | 38298279 | 152865 | ENSSSCG00000017692 | *LHX1* |  |
| Delta | MARC0010452 | 62 | 0.366477 | 8 | 17193350 | 179289 | ENSSSCG00000008754 | *GBA3* |  |
| Delta | DIAS0001436 | 63 | 0.366065 | 9 | 9027384 | 0 | ENSSSCG00000014843 | *CHRDL2* |  |
| Delta | H3GA0043731 | 64 | 0.366021 | 15 | 2743894 | 47329 | ENSSSCG00000023627 | *LYPD6* |  |
| Delta | MARC0055810 | 65 | 0.365655 | 8 | 73775961 | 0 | ENSSSCG00000008991 | *FRAS1* |  |
| Delta | ASGA0072441 | 66 | 0.365107 | 16 | 18178672 | 58661 | ENSSSCG00000016810 | *PDZD2* |  |
| Delta | H3GA0009816 | 67 | 0.365038 | 3 | 67407018 | 140751 | ENSSSCG00000021287 | *GCFC2* |  |
| Delta | MARC0038400 | 68 | 0.364892 | 12 | 38400096 | 51048 | ENSSSCG00000017692 | *LHX1* | Rubin *et al.* (2012) |
| Delta | ALGA0031253 | 69 | 0.364739 | 5 | 21534750 | 287 | ENSSSCG00000000379 | *ESYT1* |  |
| Delta | ASGA0031237 | 70 | 0.363663 | 7 | 11429838 | 0 | ENSSSCG00000001061 | *JARID2* |  |
| Delta | MARC0064928 | 71 | 0.363608 | 8 | 122888447 | 203434 | ENSSSCG00000039281 | *RF00191* |  |
| Delta | MARC0023143 | 72 | 0.363538 | 3 | 121479228 | 18434 | ENSSSCG00000020466 | *RF00001* |  |
| Delta | H3GA0008864 | 73 | 0.363054 | 3 | 14796402 | 2037 | ENSSSCG00000007727 | *AUTS2* |  |
| Delta | ALGA0087932 | 74 | 0.362861 | 15 | 130220567 | 0 | ENSSSCG00000035058 | *PID1* | Wang *et al.* (2018) |
| Delta | ALGA0117795 | 75 | 0.362186 | 10 | 50907471 | 0 | ENSSSCG00000011075 | *KIAA1217* |  |
| Delta | ASGA0035828 | 76 | 0.362165 | 7 | 104803311 | 520055 | ENSSSCG00000002414 | *SEL1L3* |  |
| Delta | ALGA0095167 | 77 | 0.362114 | 17 | 41712233 | 0 | ENSSSCG00000007349 | *ACTR5* | Ai *et al.* (2013), Li *et al.* (2013) |
| Delta | MARC0002409 | 78 | 0.361925 | 8 | 72426290 | 0 | ENSSSCG00000008984 | *SHROOM3* |  |
| Delta | ASGA0061534 | 79 | 0.361807 | 14 | 12929073 | 0 | ENSSSCG00000009683 | *KIF13B* |  |
| Delta | ASGA0054746 | 80 | 0.360783 | 12 | 42973537 | 0 | ENSSSCG00000017743 | *CRLF3* |  |
| Delta | DBUN0001582 | 81 | 0.360769 | 2 | 15033652 | 0 | ENSSSCG00000032081 | *NDUFS3* |  |
| Delta | ALGA0045097 | 82 | 0.360457 | 7 | 115603615 | 684 | ENSSSCG00000002476 | *SERPINA1* |  |
| Delta | ALGA0064381 | 83 | 0.360222 | 12 | 4555452 | 0 | ENSSSCG00000033293 |  |  |
| Delta | ALGA0019654 | 84 | 0.359969 | 3 | 69232914 | 3435 | ENSSSCG00000008297 | *TPRKB* |  |
| Delta | ALGA0113880 | 85 | 0.359701 | 5 | 84090278 | 0 | ENSSSCG00000000882 | *ANKS1B* |  |
| Delta | ASGA0038543 | 86 | 0.359677 | 8 | 32086489 | 0 | ENSSSCG00000022168 | *APBB2* |  |
| Delta | ASGA0046309 | 87 | 0.359648 | 10 | 8819660 | 0 | ENSSSCG00000038539 |  |  |
| Delta | ALGA0021273 | 88 | 0.359646 | 3 | 118632952 | 0 | ENSSSCG00000008606 | *OSR1* |  |
| Delta | MARC0113118 | 89 | 0.359636 | 12 | 57365006 | 126568 | ENSSSCG00000028465 | *ELAC2* | Li *et al.* (2013) |
| Delta | H3GA0030748 | 90 | 0.359586 | 10 | 65913514 | 207125 | ENSSSCG00000039612 |  |  |
| Delta | MARC0014525 | 91 | 0.359316 | 12 | 52439848 | 0 | ENSSSCG00000017925 | *SLC16A11* |  |
| Delta | DRGA0014831 | 92 | 0.359303 | 15 | 7407292 | 90866 | ENSSSCG00000032773 | *RF01987* |  |
| Delta | ASGA0050619 | 93 | 0.358831 | 11 | 32421035 | 73255 | ENSSSCG00000009448 | *DIAPH3* |  |
| Delta | ASGA0075694 | 94 | 0.357944 | 17 | 19679617 | 49532 | ENSSSCG00000007067 | *JAG1* |  |
| Delta | ALGA0030145 | 95 | 0.35778 | 5 | 8772762 | 5203 | ENSSSCG00000038126 | *MGAT3* | Wang *et al.* (2018) |
| Delta | ALGA0086613 | 96 | 0.357727 | 15 | 107494021 | 59600 | ENSSSCG00000040137 |  |  |
| Fst | M1GA0026730 | 1 | 0.763587 | 5 | 1063347 | 255335 | ENSSSCG00000032820 | *BRD1* |  |
| Fst | ASGA0037875 | 2 | 0.614559 | 8 | 13830411 | 860417 | ENSSSCG00000008748 | *LCORL* | Wilkinson *et al.* (2013), Li *et al.* (2013) |
| Fst | H3GA0013086 | 3 | 0.610221 | 4 | 75531190 | 0 | ENSSSCG00000006243 | *PENK* | Li *et al.* (2013) |
| Fst | MARC0055968 | 4 | 0.588672 | 15 | 112195437 | 0 | ENSSSCG00000016151 | *MAP2* |  |
| Fst | ASGA0059460 | 5 | 0.580264 | 13 | 179739227 | 86914 | ENSSSCG00000021038 | *NRIP1* |  |
| Fst | INRA0029820 | 6 | 0.558063 | 8 | 51326707 | 17579 | ENSSSCG00000018686 | *RF00425* |  |
| Fst | MARC0054603 | 7 | 0.551208 | 3 | 129788760 | 10094 | ENSSSCG00000008649 | *SOX11* |  |
| Fst | ALGA0032252 | 8 | 0.550565 | 5 | 61155355 | 4794 | ENSSSCG00000037609 |  |  |
| Fst | ALGA0102818 | 9 | 0.549998 | 13 | 2712414 | 0 | ENSSSCG00000028911 | *COLQ* |  |
| Fst | M1GA0011035 | 10 | 0.549092 | 7 | 118773385 | 24250 | ENSSSCG00000040662 | *uncharacterized\_LOC102161430* |  |
| Fst | H3GA0055965 | 11 | 0.546733 | 6 | 151864144 | 311395 | ENSSSCG00000003823 | *C1orf87* |  |
| Fst | ASGA0079412 | 12 | 0.544943 | 18 | 28009964 | 0 | ENSSSCG00000035981 |  |  |
| Fst | ALGA0083768 | 13 | 0.531594 | 15 | 1396192 | 278163 | ENSSSCG00000032103 |  |  |
| Fst | ASGA0015747 | 14 | 0.526391 | 3 | 106148074 | 0 | ENSSSCG00000008509 | *RASGRP3* |  |
| Fst | ASGA0030406 | 15 | 0.515315 | 7 | 621685 | 42688 | ENSSSCG00000000991 | *FOXQ1* |  |
| Fst | M1GA0024473 | 16 | 0.512461 | 6 | 2873515 | 167902 | ENSSSCG00000034980 | *IRF8* |  |
| Fst | ALGA0074320 | 17 | 0.510119 | 14 | 2316862 | 81598 | ENSSSCG00000009591 | *AUH* |  |
| Fst | MARC0077026 | 18 | 0.509838 | 12 | 6445462 | 0 | ENSSSCG00000017230 | *TMEM104* |  |
| Fst | INRA0023116 | 19 | 0.507781 | 7 | 1629309 | 0 | ENSSSCG00000028777 | *MYLK4* | Schiavo *et al.* (2016) |
| Fst | ALGA0120799 | 20 | 0.506965 | 2 | 3657005 | 0 | ENSSSCG00000031191 |  |  |
| Fst | H3GA0026371 | 21 | 0.499864 | 9 | 9566683 | 0 | ENSSSCG00000014852 | *ARRB1* |  |
| Fst | ASGA0041892 | 22 | 0.499734 | 9 | 15814661 | 464605 | ENSSSCG00000031263 | *RF00026* |  |
| Fst | ASGA0091572 | 23 | 0.499734 | 17 | 44744368 | 0 | ENSSSCG00000038990 | *PTPRT* |  |
| Fst | INRA0013282 | 24 | 0.498457 | 4 | 22355750 | 173399 | ENSSSCG00000035709 | *RF00100* |  |
| Fst | ASGA0016987 | 25 | 0.497308 | 4 | 2020990 | 8324 | ENSSSCG00000032079 |  |  |
| Fst | INRA0006910 | 26 | 0.496167 | 1 | 246596618 | 0 | ENSSSCG00000005425 | *SLC44A1* |  |
| Fst | MARC0013127 | 27 | 0.494081 | 10 | 3191225 | 0 | ENSSSCG00000010809 | *BRINP3* |  |
| Fst | M1GA0004288 | 28 | 0.493115 | 3 | 34865796 | 69974 | ENSSSCG00000007917 | *RBFOX1* |  |
| Fst | ALGA0097282 | 29 | 0.492951 | 18 | 18795475 | 24128 | ENSSSCG00000016564 | *UBE2H* |  |
| Fst | ALGA0073265 | 30 | 0.492731 | 13 | 183523251 | 535128 | ENSSSCG00000012019 | *TMPRSS15* |  |
| Fst | ALGA0037592 | 31 | 0.490453 | 6 | 160475452 | 0 | ENSSSCG00000021292 | *OSBPL9* |  |
| Fst | MARC0052394 | 32 | 0.488372 | 4 | 44074375 | 0 | ENSSSCG00000035526 |  |  |
| Fst | ASGA0038670 | 33 | 0.485686 | 8 | 36504871 | 2411 | ENSSSCG00000028922 | *GABRA2* |  |
| Fst | MARC0037363 | 34 | 0.48523 | 15 | 12903962 | 49171 | ENSSSCG00000040715 | *NXPH2* |  |
| Fst | ALGA0056864 | 35 | 0.484922 | 10 | 8409606 | 3835 | ENSSSCG00000010816 | *TGFB2* |  |
| Fst | ASGA0018107 | 36 | 0.483183 | 4 | 9676649 | 0 | ENSSSCG00000031717 | *ADCY8* |  |
| Fst | INRA0012432 | 37 | 0.483132 | 4 | 8439633 | 0 | ENSSSCG00000005950 | *PHF20L1* |  |
| Fst | ALGA0103905 | 38 | 0.479987 | 9 | 92551065 | 0 | ENSSSCG00000024485 | *RUNDC3B* |  |
| Fst | MARC0049965 | 39 | 0.477547 | 1 | 1208216 | 0 | ENSSSCG00000004013 | *SMOC2* | Wilkinson *et al.* (2013) |
| Fst | DIAS0000370 | 40 | 0.475533 | 12 | 6827876 | 0 | ENSSSCG00000024357 | *DNAI2* |  |
| Fst | ALGA0038613 | 41 | 0.47526 | 7 | 11025466 | 214226 | ENSSSCG00000001060 |  |  |
| Fst | ALGA0108646 | 42 | 0.475084 | 8 | 124464677 | 0 | ENSSSCG00000021874 | *UNC5C* |  |
| Fst | ALGA0001096 | 43 | 0.473542 | 1 | 12948288 | 245296 | ENSSSCG00000004074 | *OPRM1* |  |
| Fst | H3GA0024318 | 44 | 0.472901 | 8 | 13010923 | 40929 | ENSSSCG00000008748 | *LCORL* | Wilkinson *et al.* (2013), Li *et al.* (2013) |
| Fst | ALGA0046137 | 45 | 0.471004 | 8 | 3136455 | 0 | ENSSSCG00000023907 | *AFAP1* |  |
| Fst | ALGA0022450 | 46 | 0.470633 | 4 | 5462168 | 422235 | ENSSSCG00000033680 |  |  |
| Fst | ALGA0071800 | 47 | 0.46721 | 13 | 116878989 | 90510 | ENSSSCG00000011761 |  |  |
| Fst | H3GA0054129 | 48 | 0.467086 | 8 | 11417429 | 1766 | ENSSSCG00000021828 | *TAPT1* |  |
| Fst | H3GA0031500 | 49 | 0.4667 | 11 | 19018315 | 22330 | ENSSSCG00000018211 | *RF00026* |  |
| Fst | ASGA0046112 | 50 | 0.46607 | 10 | 6569050 | 0 | ENSSSCG00000038066 | *USH2A* |  |
| Fst | ASGA0068580 | 51 | 0.463507 | 15 | 1738783 | 4369 | ENSSSCG00000040445 | *RND3* |  |
| Fst | ASGA0090018 | 52 | 0.463139 | 3 | 19239839 | 0 | ENSSSCG00000007814 | *KIAA0556* |  |
| Fst | ASGA0074530 | 53 | 0.461046 | 16 | 74561961 | 37666 | ENSSSCG00000017101 | *ADCY2* |  |
| Fst | H3GA0032382 | 54 | 0.46006 | 11 | 68644922 | 0 | ENSSSCG00000009519 | *CLYBL* |  |
| Fst | INRA0051262 | 55 | 0.459451 | 16 | 23393297 | 24478 | ENSSSCG00000020227 | *RF00026* |  |
| Fst | ALGA0081487 | 56 | 0.457628 | 14 | 121042895 | 34310 | ENSSSCG00000010625 | *SMC3* |  |
| Fst | ASGA0031365 | 57 | 0.457489 | 7 | 13572291 | 0 | ENSSSCG00000020858 | *KIF13A* |  |
| Fst | ASGA0012112 | 58 | 0.457461 | 2 | 134454157 | 48055 | ENSSSCG00000020915 | *P4HA2* |  |
| Fst | MARC0010497 | 59 | 0.456636 | 13 | 36205402 | 16518 | ENSSSCG00000027019 | *CACNA2D3* |  |
| Fst | ASGA0062298 | 60 | 0.455895 | 14 | 25679165 | 0 | ENSSSCG00000038915 | *TMEM132D* | Ai *et al.* (2013), Li *et al.* (2013) |
| Fst | ALGA0060299 | 61 | 0.452626 | 11 | 3399721 | 0 | ENSSSCG00000035421 | *ATP8A2* |  |
| Fst | H3GA0056764 | 62 | 0.452514 | 6 | 3055344 | 0 | ENSSSCG00000034980 | *IRF8* |  |
| Fst | ASGA0056725 | 63 | 0.448461 | 13 | 24228664 | 42278 | ENSSSCG00000011267 |  |  |
| Fst | MARC0056988 | 64 | 0.447159 | 5 | 66440638 | 2845 | ENSSSCG00000000728 | *PARP11* |  |
| Fst | ALGA0109598 | 65 | 0.446662 | 9 | 130833557 | 47958 | ENSSSCG00000015595 | *ATF3* |  |
| Fst | ALGA0067334 | 66 | 0.446102 | 13 | 508540 | 0 | ENSSSCG00000011178 | *copine\_4* |  |
| Fst | MARC0024281 | 67 | 0.446026 | 3 | 48649479 | 0 | ENSSSCG00000008141 | *ST6GAL2* |  |
| Fst | ALGA0097013 | 68 | 0.442782 | 18 | 10862772 | 33410 | ENSSSCG00000016513 | *KIAA1549* |  |
| Fst | H3GA0012850 | 69 | 0.442251 | 4 | 64787956 | 0 | ENSSSCG00000006193 |  |  |
| Fst | ASGA0084454 | 70 | 0.441128 | 12 | 6971812 | 73048 | ENSSSCG00000017239 |  |  |
| Fst | ALGA0093772 | 71 | 0.440793 | 17 | 22010607 | 0 | ENSSSCG00000007073 | *ISM1* |  |
| Fst | INRA0036442 | 72 | 0.439639 | 11 | 48500204 | 366756 | ENSSSCG00000040184 | *LMO7* |  |
| Fst | MARC0068367 | 73 | 0.439538 | 15 | 234102 | 66404 | ENSSSCG00000016399 | *STAM2* |  |
| Fst | MARC0043512 | 74 | 0.439473 | 3 | 5129774 | 0 | ENSSSCG00000007590 | *PMS2* | Li *et al.* (2013) |
| Fst | ALGA0040984 | 75 | 0.438312 | 7 | 40581807 | 103182 | ENSSSCG00000037416 | *CLIC5* |  |
| Fst | ALGA0017827 | 76 | 0.437297 | 3 | 15331993 | 19875 | ENSSSCG00000026457 |  |  |
| Fst | MARC0016161 | 77 | 0.434268 | 6 | 75330012 | 0 | ENSSSCG00000003472 | *ARHGEF19* |  |
| Fst | ALGA0042260 | 78 | 0.432372 | 7 | 57808686 | 0 | ENSSSCG00000001872 | *LINGO1* |  |
| Fst | ALGA0089288 | 79 | 0.432267 | 16 | 16901264 | 436940 | ENSSSCG00000034232 |  |  |
| Fst | ASGA0068360 | 80 | 0.431647 | 15 | 4652193 | 392231 | ENSSSCG00000015669 | *ACVR2A* |  |
| Fst | H3GA0019979 | 81 | 0.431155 | 7 | 11531487 | 0 | ENSSSCG00000001061 | *JARID2* |  |
| Fst | H3GA0038277 | 82 | 0.429385 | 14 | 869268 | 33135 | ENSSSCG00000039841 | *SHC3* |  |
| Fst | ASGA0038765 | 83 | 0.429348 | 8 | 39341631 | 137675 | ENSSSCG00000008834 | *SPATA18* |  |
| Fst | MARC0070030 | 84 | 0.428451 | 10 | 28330355 | 178906 | ENSSSCG00000033321 | *GAS1* |  |
| Fst | H3GA0011590 | 85 | 0.427735 | 4 | 6538154 | 91381 | ENSSSCG00000005941 | *KHDRBS3* | Yang *et al.* (2014) |
| Fst | ALGA0015504 | 86 | 0.427473 | 2 | 120581732 | 0 | ENSSSCG00000014224 | *SEMA6A* |  |
| Fst | MARC0064667 | 87 | 0.425762 | 9 | 129866530 | 285361 | ENSSSCG00000015584 | *PROX1* |  |
| Fst | H3GA0047667 | 88 | 0.425547 | 17 | 5249754 | 0 | ENSSSCG00000006987 | *SLC7A2* |  |
| Fst | H3GA0038907 | 89 | 0.424393 | 14 | 10975696 | 11484 | ENSSSCG00000009662 | *STMN4* |  |
| Fst | MARC0070235 | 90 | 0.424372 | 1 | 11301273 | 140660 | ENSSSCG00000004069 |  |  |
| Fst | ALGA0000900 | 91 | 0.424102 | 1 | 10362059 | 134112 | ENSSSCG00000004064 | *ARID1B* |  |
| Fst | MARC0039180 | 92 | 0.422933 | 8 | 117640152 | 21640 | ENSSSCG00000009160 | *TACR3* |  |
| Fst | ALGA0092581 | 93 | 0.421873 | 17 | 1703513 | 20158 | ENSSSCG00000006973 |  |  |
| Fst | ASGA0045992 | 94 | 0.421495 | 10 | 5150788 | 143448 | ENSSSCG00000036162 | *RF00026* |  |
| Fst | ASGA0027547 | 95 | 0.4192 | 6 | 11957332 | 56953 | ENSSSCG00000002703 |  |  |
| Fst | H3GA0054237 | 96 | 0.419183 | 11 | 45050 | 74592 | ENSSSCG00000022638 | *ATP12A* |  |
| PCA | ALGA0065765 | 1 | 0.004431 | 12 | 26972131 | 0 | ENSSSCG00000017561 | *ABCC3* |  |
| PCA | ASGA0103093 | 2 | 0.002812 | 15 | 135595766 | 0 | ENSSSCG00000016317 |  |  |
| PCA | ASGA0090329 | 3 | 0.002769 | 8 | 124496161 | 0 | ENSSSCG00000021874 | *UNC5C* |  |
| PCA | H3GA0006564 | 4 | 0.002739 | 2 | 39275035 | 0 | ENSSSCG00000013351 | *NAV2* |  |
| PCA | ASGA0031237 | 5 | 0.002699 | 7 | 11429838 | 0 | ENSSSCG00000001061 | *JARID2* |  |
| PCA | ALGA0040669 | 6 | 0.00263 | 7 | 35479883 | 158952 | ENSSSCG00000001596 |  |  |
| PCA | M1GA0026730 | 7 | 0.002575 | 5 | 1063347 | 255335 | ENSSSCG00000032820 | *BRD1* |  |
| PCA | ALGA0098742 | 8 | 0.00252 | 18 | 50558506 | 0 | ENSSSCG00000040167 |  |  |
| PCA | ASGA0094760 | 9 | 0.002511 | 8 | 17234094 | 220033 | ENSSSCG00000008754 | *GBA3* |  |
| PCA | H3GA0051139 | 10 | 0.002479 | 18 | 49711647 | 273157 | ENSSSCG00000016728 | *IGFBP1* |  |
| PCA | ALGA0012424 | 11 | 0.00234 | 2 | 19978593 | 661069 | ENSSSCG00000013286 |  |  |
| PCA | ALGA0121935 | 12 | 0.002334 | 16 | 74876787 | 340432 | ENSSSCG00000017102 | *TENT4A* |  |
| PCA | H3GA0054560 | 13 | 0.002281 | 16 | 3124463 | 0 | ENSSSCG00000032827 |  |  |
| PCA | H3GA0049617 | 14 | 0.002275 | 17 | 54884384 | 32856 | ENSSSCG00000007485 | *BCAS1* |  |
| PCA | H3GA0034599 | 15 | 0.002264 | 12 | 48832012 | 0 | ENSSSCG00000034858 | *RAP1GAP2* |  |
| PCA | ASGA0046309 | 16 | 0.002234 | 10 | 8819660 | 0 | ENSSSCG00000038539 |  |  |
| PCA | ALGA0040904 | 17 | 0.002225 | 7 | 38893957 | 131615 | ENSSSCG00000001695 | *VEGFA* |  |
| PCA | ALGA0092893 | 18 | 0.002224 | 17 | 5347915 | 0 | ENSSSCG00000040013 | *MTUS1* |  |
| PCA | ASGA0037875 | 19 | 0.002181 | 8 | 13830411 | 860417 | ENSSSCG00000008748 | *LCORL* | Wilkinson *et al.* (2013), Li *et al.* (2013) |
| PCA | M1GA0026184 | 20 | 0.002177 | 6 | 378156 | 1425 | ENSSSCG00000021971 | *DPEP1* |  |
| PCA | MARC0089507 | 21 | 0.002172 | 18 | 6566093 | 0 | ENSSSCG00000016453 | *TCAF1* |  |
| PCA | ASGA0031989 | 22 | 0.002158 | 7 | 23444442 | 0 | ENSSSCG00000001384 | *VARS2* |  |
| PCA | MARC0073404 | 23 | 0.002153 | 4 | 107197826 | 77791 | ENSSSCG00000006767 | *MAGI3* | Li *et al.* (2013) |
| PCA | H3GA0010371 | 24 | 0.002128 | 3 | 108374942 | 0 | ENSSSCG00000008524 | *GALNT14* |  |
| PCA | ASGA0037899 | 25 | 0.002127 | 8 | 14973392 | 16403 | ENSSSCG00000008749 | *SLIT2* | Wang *et al.* (2018) |
| PCA | MARC0060803 | 26 | 0.002125 | 14 | 25778376 | 0 | ENSSSCG00000038915 | *TMEM132D* | Ai *et al.* (2013), Li *et al.* (2013) |
| PCA | MARC0001137 | 27 | 0.002113 | 8 | 110720033 | 1492 | ENSSSCG00000029911 | *RF00598* |  |
| PCA | M1GA0022766 | 28 | 0.002081 | 17 | 59821174 | 0 | ENSSSCG00000007528 | *PHACTR3* |  |
| PCA | ALGA0102818 | 29 | 0.002078 | 13 | 2712414 | 0 | ENSSSCG00000028911 | *COLQ* |  |
| PCA | ASGA0061817 | 30 | 0.00206 | 14 | 17955543 | 223680 | ENSSSCG00000029700 |  |  |
| PCA | M1GA0024473 | 31 | 0.002059 | 6 | 2873515 | 167902 | ENSSSCG00000034980 | *IRF8* |  |
| PCA | ASGA0037971 | 32 | 0.002051 | 8 | 17147527 | 133466 | ENSSSCG00000008754 | *GBA3* |  |
| PCA | ALGA0049529 | 33 | 0.00205 | 8 | 124763157 | 0 | ENSSSCG00000029621 | *BMPR1B* | Li *et al.* (2013) |
| PCA | ALGA0028235 | 34 | 0.002049 | 4 | 111423264 | 0 | ENSSSCG00000006850 | *FAM102B* |  |
| PCA | MARC0081495 | 35 | 0.002042 | 15 | 32706880 | 114029 | ENSSSCG00000028195 |  |  |
| PCA | ALGA0039910 | 36 | 0.00203 | 7 | 26714942 | 0 | ENSSSCG00000001485 | *MLIP* |  |
| PCA | M1GA0026617 | 37 | 0.002029 | 10 | 8081563 | 0 | ENSSSCG00000029778 | *SPATA17* |  |
| PCA | ASGA0083991 | 38 | 0.002026 | 8 | 7432564 | 9335 | ENSSSCG00000021515 | *HS3ST1* |  |
| PCA | MARC0093074 | 39 | 0.002024 | 8 | 47868597 | 0 | ENSSSCG00000037757 | *C4orf45* |  |
| PCA | ASGA0075694 | 40 | 0.002011 | 17 | 19679617 | 49532 | ENSSSCG00000007067 | *JAG1* | Li *et al.* (2013) |
| PCA | DRGA0008986 | 41 | 0.001992 | 8 | 134933342 | 0 | ENSSSCG00000009233 | *GPAT3* |  |
| PCA | ALGA0076069 | 42 | 0.001989 | 14 | 21903447 | 0 | ENSSSCG00000009722 | *SPOCK3* |  |
| PCA | DRGA0015754 | 43 | 0.001976 | 16 | 6888727 | 169275 | ENSSSCG00000016796 | *E3\_ubiquitin-protein\_ligase\_RNF167-like* |  |
| PCA | ALGA0120799 | 44 | 0.001975 | 2 | 3657005 | 0 | ENSSSCG00000031191 |  |  |
| PCA | ALGA0016053 | 45 | 0.001972 | 2 | 132498584 | 38147 | ENSSSCG00000035069 | *CHSY3* |  |
| PCA | ALGA0103099 | 46 | 0.001968 | 2 | 2878103 | 0 | ENSSSCG00000031191 |  |  |
| PCA | ASGA0033131 | 47 | 0.001963 | 7 | 38424548 | 8184 | ENSSSCG00000001680 | *ABCC10* |  |
| PCA | ASGA0028134 | 48 | 0.001962 | 6 | 42924322 | 0 | ENSSSCG00000002865 | *GPATCH1* |  |
| PCA | M1GA0008026 | 49 | 0.001961 | 5 | 76155408 | 83515 | ENSSSCG00000000804 | *ANO6* |  |
| PCA | ALGA0091391 | 50 | 0.001958 | 16 | 67193370 | 149088 | ENSSSCG00000039000 |  |  |
| PCA | ALGA0083738 | 51 | 0.001957 | 15 | 1091163 | 26238 | ENSSSCG00000032103 |  |  |
| PCA | MARC0056470 | 52 | 0.001937 | 5 | 7559194 | 0 | ENSSSCG00000033823 |  |  |
| PCA | ALGA0038926 | 53 | 0.001937 | 7 | 15596835 | 0 | ENSSSCG00000001078 | *MBOAT1* |  |
| PCA | ALGA0019028 | 54 | 0.001936 | 3 | 53207188 | 0 | ENSSSCG00000008169 | *TBC1D8* | Li *et al.* (2013) |
| PCA | MARC0103283 | 55 | 0.00193 | 8 | 18845791 | 0 | ENSSSCG00000023001 | *CCDC149* |  |
| PCA | ASGA0008611 | 56 | 0.001929 | 2 | 6150699 | 0 | ENSSSCG00000012956 | *PACS1* |  |
| PCA | ASGA0060288 | 57 | 0.001919 | 13 | 207687569 | 59393 | ENSSSCG00000012089 | *ADARB1* |  |
| PCA | ALGA0089893 | 58 | 0.001919 | 16 | 26126537 | 42795 | ENSSSCG00000016861 | *C6* |  |
| PCA | H3GA0035045 | 59 | 0.001915 | 12 | 59136124 | 0 | ENSSSCG00000018032 | *TRPV2* |  |
| PCA | ALGA0075583 | 60 | 0.001914 | 14 | 13929392 | 7809 | ENSSSCG00000031889 | *PINX1* |  |
| PCA | M1GA0011035 | 61 | 0.001907 | 7 | 118773385 | 24250 | ENSSSCG00000040662 | *uncharacterized\_LOC102161430* |  |
| PCA | M1GA0008093 | 62 | 0.001904 | 5 | 87555902 | 0 | ENSSSCG00000000893 | *AMDHD1* |  |
| PCA | MARC0060060 | 63 | 0.00189 | 14 | 33344427 | 0 | ENSSSCG00000009842 | *CCDC60* |  |
| PCA | ALGA0045624 | 64 | 0.001886 | 7 | 121046113 | 0 | ENSSSCG00000037105 | *EVL* |  |
| PCA | MARC0098171 | 65 | 0.001882 | 8 | 116359123 | 25110 | ENSSSCG00000022788 | *PPA2* |  |
| PCA | MARC0022069 | 66 | 0.001882 | 7 | 108885091 | 803633 | ENSSSCG00000037928 |  |  |
| PCA | ALGA0102245 | 67 | 0.001876 | 8 | 98066565 | 15931 | ENSSSCG00000031366 |  |  |
| PCA | ALGA0083485 | 68 | 0.001867 | 15 | 4901619 | 416970 | ENSSSCG00000031283 | *RF02271* |  |
| PCA | ALGA0108646 | 69 | 0.001867 | 8 | 124464677 | 0 | ENSSSCG00000021874 | *UNC5C* |  |
| PCA | ASGA0074238 | 70 | 0.001864 | 16 | 71479695 | 0 | ENSSSCG00000017084 | *FAT2* |  |
| PCA | MARC0015552 | 71 | 0.00186 | 6 | 36829419 | 164114 | ENSSSCG00000002844 |  |  |
| PCA | ASGA0040077 | 72 | 0.00186 | 8 | 129870982 | 1493 | ENSSSCG00000039821 | *GPRIN3* |  |
| PCA | ALGA0045070 | 73 | 0.001857 | 7 | 114908311 | 9400 | ENSSSCG00000039320 |  |  |
| PCA | ALGA0022450 | 74 | 0.001857 | 4 | 5462168 | 422235 | ENSSSCG00000033680 |  |  |
| PCA | ALGA0113630 | 75 | 0.001853 | 12 | 25753915 | 6512 | ENSSSCG00000036101 |  |  |
| PCA | MARC0066508 | 76 | 0.001852 | 8 | 28624726 | 177200 | ENSSSCG00000008770 | *NWD2* |  |
| PCA | ALGA0049836 | 77 | 0.00185 | 8 | 130428498 | 0 | ENSSSCG00000009208 | *HERC3* |  |
| PCA | ALGA0096168 | 78 | 0.001849 | 17 | 56455178 | 218546 | ENSSSCG00000007490 | *CBLN4* |  |
| PCA | M1GA0017847 | 79 | 0.001842 | 13 | 203713415 | 0 | ENSSSCG00000012072 | *DSCAM* |  |
| PCA | ASGA0009897 | 80 | 0.001842 | 2 | 31927226 | 65112 | ENSSSCG00000035279 | *RF02112* |  |
| PCA | CASI0008592 | 81 | 0.001835 | 8 | 28876795 | 0 | ENSSSCG00000008770 | *NWD2* |  |
| PCA | MARC0028671 | 82 | 0.001816 | 11 | 71531688 | 182423 | ENSSSCG00000026317 | *SLC10A2* |  |
| PCA | ALGA0095780 | 83 | 0.001807 | 17 | 52672064 | 71506 | ENSSSCG00000007477 | *NFATC2* |  |
| PCA | ALGA0066258 | 84 | 0.001806 | 12 | 37991827 | 18476 | ENSSSCG00000023186 | *CA4* |  |
| PCA | MARC0074172 | 85 | 0.001806 | 17 | 15768175 | 6981 | ENSSSCG00000039442 | *BMP2* |  |
| PCA | H3GA0028056 | 86 | 0.001804 | 9 | 111038153 | 0 | ENSSSCG00000037981 |  |  |
| PCA | DRGA0009891 | 87 | 0.001797 | 9 | 128047578 | 0 | ENSSSCG00000023351 | *PLA2G4A* |  |
| PCA | ALGA0051750 | 88 | 0.001794 | 9 | 18387058 | 0 | ENSSSCG00000014904 | *DLG2* |  |
| PCA | ALGA0081966 | 89 | 0.001792 | 14 | 125529448 | 0 | ENSSSCG00000010654 | *ATRNL1* |  |
| PCA | ALGA0083477 | 90 | 0.001791 | 15 | 4960376 | 358213 | ENSSSCG00000031283 | *RF02271* |  |
| PCA | H3GA0050431 | 91 | 0.001791 | 18 | 15768346 | 0 | ENSSSCG00000016543 | *EXOC4* |  |
| PCA | ASGA0018107 | 92 | 0.001788 | 4 | 9676649 | 0 | ENSSSCG00000031717 | *ADCY8* |  |
| PCA | M1GA0024147 | 93 | 0.001787 | 3 | 125072571 | 0 | ENSSSCG00000008624 | *LPIN1* |  |
| PCA | DRGA0008217 | 94 | 0.001783 | 7 | 116612017 | 21836 | ENSSSCG00000002494 | *CLMN* |  |
| PCA | ASGA0059911 | 95 | 0.001776 | 13 | 198331955 | 0 | ENSSSCG00000012052 |  |  |
| PCA | ALGA0032288 | 96 | 0.001776 | 5 | 61816275 | 6584 | ENSSSCG00000000647 | *OLR1* |  |

1 Method acronyms are defined in the notes to Tables 1-3. Panel RF MDA 1 (mean of the 100 runs) and RF MDA 2 (occurrence in the 100 runs) include the same SNPs but their ranking position is different between the two lists of SNPs of the same panel (see methods and results for details).

2 Ranking position of the SNP as defined by the ranking values which define the statistic parameter attached to the corresponding SNP (obtained by the method used to select the 96 SNPs).

3 Statistical value obtained for the selected SNPs (see above).

4 Position of the SNP on the chromosome (coordinate system on the Sscrofa11.1 genome version).

5 Distance in bp of the indicated gene to the SNP. When “0” is reported the SNP is within the annotated gene.

6 Ensembl annotated gene ID.

7 References that identified the corresponding SNPs in selection signature regions of the porcine genome.

**Supplementary Table S5.** Correct prediction proportions (CPP) of the test population (total: considering all breeds together) for all pig breeds using the six 96 single nucleotide polymorphism (SNP) panels obtained with the random forest (RF), Delta, Fixation index (Fst) and Principal Component Analysis (PCA) methods.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Parameters/Methods**  **CCP** | **Methods** | | | | | |
| **RF Gini Index 11** | **RF Gini Index 22** | **RF MDA3** | **Delta** | **Fst4** | **PCA5** |
| Total | 0.99 | 0.99 | 0.99 | 0.99 | 1 | 0.99 |
| Italian Large White (ILW) | 1 | 1 | 1 | 1 | 1 | 1 |
| Italian Landrace | 1 | 1 | 1 | 0.8 | 0.99 (1 ID) 6 | 0.6 (2 ILW) 6 |
| Italian Duroc (ID) | 1 | 1 | 1 | 1 | 1 | 1 |
| Apulo-Calabrese | 1 | 1 | 1 | 1 | 1 | 1 |
| Casertana | 1 | 1 | 1 | 1 | 1 | 1 |
| Cinta Senese | 1 | 1 | 1 | 1 | 1 | 1 |
| Nero Siciliano | 0.4 (3 ILW) 6 | 0.4 (3 ILW) 6 | 0.6 (2 ILW) 6 | 0.4 (3 ILW) 6 | 1 | 0.6 (2 ILW) 6 |

1 Random Forest (RF) Gini Index 1 = stability mean.

2 RF Gini Index 2 = stability occurrence.

3 RF MDA = Random Forest Mean Decrease in Accuracy.

4 Fst = Fixation index.

5 PCA = Principal Component Analysis.

6 The number of pigs assigned to another breed is reported in parenthesis.

**Supplementary Figure S1.** Bidimensional and tridimensional multidimensional scaling (MDS) plots of the investigated pig breeds obtained using the 96 SNP panels defined in this study. Methods are defined in the notes to Tables 1-3.

