

# Supplementary Materials: Identification of Single Nucleotide Polymorphisms in Porcine MAOA Gene Associated with Aggressive Behavior of Weaned Pigs after Group Mixing

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**Table S1.** Primers for PCR in amplification of the MAOA gene.

| Primer  | Primer sequence (5'-3')  | Product Size (bp) | Start  | Stop   |
|---------|--------------------------|-------------------|--------|--------|
| MAOA-1  | F: CGTTTGCTTGTTTTCAACCT  | 412               | -1 920 | -1 901 |
|         | R: CTGGTGCTTTCATTGTTACG  |                   | -1 509 | -1 490 |
| MAOA-2  | F: TTCCTTCAGTACGCGCT     | 621               | -1 602 | -1 586 |
|         | R: GAGTGTGTTACGTCTGGTG   |                   | -982   | -964   |
| MAOA-3  | F: ATTCTGAGTGGCGGACT     | 504               | -1 057 | -1 041 |
|         | R: ATAACCCAAGTACTGACGCT  |                   | -554   | -535   |
| MAOA-4  | F: GTCCAGAACTCTTAGACC    | 638               | -699   | -680   |
|         | R: GATTCTTCCATCGATACCCG  |                   | -62    | -43    |
| MAOA-5  | F: TCAGTACAACAGTCCAGCCA  | 616               | -480   | -461   |
|         | R: ATCGATGCAGTCCACACTGA  |                   | 135    | 154    |
| MAOA-6  | F: AGTCCAAGAGTCCAAGTGTGC | 694               | 9 413  | 9 433  |
|         | R: GCTCAGATTCTACACACCAGC |                   | 10 106 | 10 086 |
| MAOA-7  | F: TGGTTCAGGTTGGTGGTTCA  | 405               | 18 511 | 18 530 |
|         | R: CAGGGCTACGGAGGACAAAT  |                   | 18 915 | 18 896 |
| MAOA-8  | F: GCCTCACCAGTAACTAGGCAA | 392               | 29 042 | 29 062 |
|         | R: AATGCCCTCCCATCAGTCACA |                   | 29 433 | 29 413 |
| MAOA-9  | F: GGTGGATTGGTTTTGGATCT  | 230               | 47 258 | 47 277 |
|         | R: ATCTGCTACTGATAATGCGG  |                   | 47 487 | 47 468 |
| MAOA-10 | F: ATCCCAGACCCACCACTATCT | 395               | 48 327 | 48 347 |
|         | R: CCTCCAAGGTTCTACTGATGG |                   | 48 721 | 48 701 |
| MAOA-11 | F: TGGAGTGGGATTGGCATGTT  | 431               | 53 265 | 53 284 |
|         | R: ACTGGGTGAGGGCAAAATCA  |                   | 53 695 | 53 676 |
| MAOA-12 | F: GTATGGCCCGTGATTTTCTGG | 388               | 56 736 | 56 756 |
|         | R: CAAGGCTGGTGATTTCGAAGA |                   | 57 123 | 57 103 |

|         |                                                                                      |       |                  |                  |
|---------|--------------------------------------------------------------------------------------|-------|------------------|------------------|
| MAOA-13 | F: CCTCACAGTGGCTTCGTTCT<br>R: CAAAGAGTGTGGTCCCGTCA                                   | 346   | 57 151<br>57 496 | 57 170<br>57 477 |
| MAOA-14 | F: GTCTGGGCGAACAAACATCTG<br>R: TCCAAAACAACATGCTCTGCC                                 | 359   | 58 854<br>59 212 | 58 874<br>59 192 |
| MAOA-15 | F: GGTGTGGCCATAAAAATGAAT<br>R: TCATGCAACAAGCACAATAG                                  | 450   | 63 231<br>63 680 | 63 251<br>63 661 |
| MAOA-16 | F: CATCGTGTGTAGTCACAGAA<br>R: CTTAGAGCAAACAGAGCAGA                                   | 258   | 68 535<br>68 792 | 68 554<br>68 773 |
| MAOA-17 | F: AGCATTTTACGCTTTGTCTTCC<br>R: CAGGTCTTGAATCGATTGGT                                 | 189   | 70 387<br>70 575 | 70 407<br>70 556 |
| MAOA-18 | F: AGTAAATGAGGGCTGAGATT<br>R: GGAAAGATGAGATGCCAGTTT                                  | 257   | 74 162<br>74 418 | 74 181<br>74 398 |
| MAOA-19 | F: AGACCATGGTGACTTTCTTT<br>R: ACAATGACATCAGGGCTAGA                                   | 290   | 74 960<br>75 249 | 74 979<br>75 230 |
| MAOA-20 | F: CCACATGCTGATTGTAGAGA<br>R: ATCCTCAGGCGTTTTATGTT                                   | 547   | 75 273<br>75 819 | 75 292<br>75 800 |
| MAOA-21 | F: CTGGTGTTGATTGGTAGGAA<br>R: TCTGCCCAATTTTACTGTGG                                   | 763   | 75 692<br>76 454 | 75 711<br>76 435 |
| MAOA-22 | F: TCACTCACTGAACATTCTCT<br>R: AGGAGGTCTGTCAAAAGGTT                                   | 696   | 76 321<br>77 016 | 76 340<br>76 997 |
| MAOA-23 | F: AAACCTTTTGACAGACCTCC<br>R: GGTATAAAAATGCAGCAACCC                                  | 533   | 76 996<br>77 528 | 77 015<br>77 509 |
| MAOA-24 | F: GACCTTGCACTTGAAAAGAG<br>R: AACTACACACAGTTCACGAT                                   | 672   | 77 431<br>78 102 | 77 450<br>78 083 |
| MAOA-P1 | F: <u>CGAGCT</u> CGGTATCGATGGAAGAATCGGC<br>R: <u>CCGCTCGAGCT</u> ATCGATGCAGTCCACACT  | 216   | -78<br>138       | -59<br>119       |
| MAOA-P2 | F: <u>CGAGCTCGGT</u> CCCATGAGGTGGTAAGAG<br>R: <u>CCGCTCGAGCT</u> ATCGATGCAGTCCACACT  | 538   | -400<br>138      | -381<br>119      |
| MAOA-P3 | F: <u>CGAGCTCG</u> CAATAACTTCCTACGAGGGC<br>R: <u>CCGCTCGAGCT</u> ATCGATGCAGTCCACACT  | 817   | -679<br>138      | -660<br>119      |
| MAOA-P4 | F: <u>CGAGCTCG</u> CGATAACTGACAAGGACATCA<br>R: <u>CCGCTCGAGCT</u> ATCGATGCAGTCCACACT | 1 076 | -938<br>138      | -918<br>119      |
| MAOA-P5 | F: <u>CGAGCTCGT</u> TCAGCGTAACAATGAAAGC<br>R: <u>CCGCTCGAGCT</u> ATCGATGCAGTCCACACT  | 1 672 | -1 534<br>138    | -1 515<br>119    |
| MAOA-P6 | F: <u>CGAGCTCGG</u> GAGGAAATTTAAGGAAGGGA<br>R: <u>CCGCTCGAGCT</u> ATCGATGCAGTCCACACT | 2 286 | -2 015<br>138    | -1 996<br>119    |
| MAOA-P7 | F: <u>CGAGCTCGT</u> CAGTACAACAGTCCAGCCA<br>R: <u>CCCAAGCTT</u> ATCGATGCAGTCCACACTGA  | 616   | -480<br>135      | -461<br>154      |

The base of the underlined marker is the cleavage site and the protective base.

**Table S2.** The numbers of barrows and gilts with different genotypes of four linked SNPs in the porcine MAOA gene.

| SNP         | Genotype | n (Male/Female) | $\chi^2$ | p-value |
|-------------|----------|-----------------|----------|---------|
| rs321936011 | GG       | 82/32           | 71.684   | 0.00 ** |
|             | AG       | 1/51            |          |         |
|             | AA       | 21/13           |          |         |
| rs331624976 | CC       | 94/24           | 15.648   | 0.00 ** |
|             | TC       | 2/18            |          |         |
|             | TT       | 43/682          |          |         |
| rs346245147 | AA       | 61/22           | 54.407   | 0.00 ** |
|             | GA       | 5/48            |          |         |
|             | GG       | 36/27           |          |         |
| rs346324437 | AA       | 94/73           | 23.607   | 0.00 ** |
|             | GA       | 1/21            |          |         |
|             | GG       | 9/3             |          |         |

$\chi^2$ : Chi-square value; \*\*  $p < 0.01$ .

**Table S3.** The numbers of barrows and gilts with different haplotypes in the porcine MAOA gene.

| Haplotypes | n (Male/Female) | $\chi^2$ | p-value |
|------------|-----------------|----------|---------|
| GCAA       | 60/22           | 38.857   | 0.00 ** |
| ACGA       | 12/43           |          |         |
| GCGA       | 19/10           |          |         |
| ATGG       | 9/13            |          |         |
| ACGG/GTAA  | 2/4             |          |         |

$\chi^2$ : Chi-square value; \*\*  $p < 0.01$ .

**Table S4.** Change of transcription factor-binding sites before and after the SNP rs321936011 mutation in the promoter region of the porcine MAOA gene.

| Transcription factor-binding sites | Score | Strand | Predicted site sequence | Appear (+)<br>/Disappear (-) |
|------------------------------------|-------|--------|-------------------------|------------------------------|
| EGR1                               | 3.029 | -1     | TTTCTACCGACTCT          | -                            |
| FOXC1                              | 5.308 | 1      | AGTCGGTA                | -                            |
| FOXA1                              | 1.044 | -1     | TTTCTATCGACTCTC         | +                            |
| ZNF354C                            | 4.828 | -1     | ATCGAC                  | +                            |