

Table S1. Pig trait values dependent on breed effect (mean±S.D).

| Index | PLW (96) | PUL (150) | PL (96) | Total (336) |
|--|---------------------------|---------------------------|---------------------------|-------------|
| Water exudation (%) | 35.6 ± 7.6 ^A | 28.8 ± 2.50 ^B | 36.2 ± 6.54 ^A | 33.4 ± 0.44 |
| Meat color L*(lightness) | 53.8 ± 2.43 ^A | 55.1 ± 3.73 ^B | 55.1 ± 2.31 ^B | 54.8 ± 3.10 |
| Meat color b*(yellowness) | 2.37 ± 0.91 ^A | 2.94 ± 1.17 ^B | 2.45 ± 0.68 ^A | 2.65 ± 1.02 |
| pH 45 min (<i>longissimus dorsi</i>) | 6.30 ± 0.19 ^A | 6.16 ± 0.21 ^B | 6.28 ± 0.16 ^A | 6.23 ± 0.20 |
| pH 24 h (<i>longissimus dorsi</i>) | 5.59 ± 0.11 ^A | 5.52 ± 0.09 ^B | 5.61 ± 0.10 ^A | 5.57 ± 0.11 |
| pH 45 min (<i>semimembranosus</i>) | 6.33 ± 0.16 ^A | 6.21 ± 0.07 ^B | 6.28 ± 0.14 ^A | 6.22 ± 0.19 |
| pH 24 h (<i>semimembranosus</i>) | 5.62 ± 0.12 ^A | 5.56 ± 0.11 ^B | 5.65 ± 0.10 ^A | 5.60 ± 0.11 |
| IMF (%) | 1.34 ± 0.41 ^A | 1.70 ± 0.46 ^B | 1.12 ± 0.14 ^C | 1.41 ± 0.43 |
| Carcass yield (%) | 77.2 ± 2.71 ^A | 74.5 ± 2.28 ^B | 76.2 ± 2.27 ^C | 75.7 ± 2.47 |
| Lion mass (kg) | 6.18 ± 0.58 ^A | 5.06 ± 0.43 ^B | 5.95 ± 0.60 ^C | 5.62 ± 0.73 |
| Ham mass (kg) | 9.28 ± 0.62 ^A | 8.78 ± 0.62 ^B | 9.23 ± 0.40 ^A | 9.05 ± 0.61 |
| Average backfat thickness (cm) | 1.31 ± 0.31 ^{Aa} | 1.55 ± 0.42 ^B | 1.23 ± 0.28 ^{Ab} | 1.40 ± 0.38 |
| Loin eye area (cm ²) | 52.2 ± 5.37 | 51.9 ± 5.53 | 53.4 ± 4.50 | 52.4 ± 5.22 |
| Lean meat percentage (%) | 61.0 ± 3.01 ^{Aa} | 60.1 ± 3.08 ^{Ab} | 62.4 ± 2.21 ^B | 61.1 ± 2.95 |
| Primary cuts (kg) | 24.1 ± 1.27 ^A | 22.2 ± 1.45 ^B | 24.0 ± 1.09 ^A | 23.2 ± 1.57 |
| Average daily gain (g/day) | 924 ± 107 ^A | 778 ± 141 ^B | 945 ± 105 ^A | 865 ± 146 |
| Feed conversion (kg/kg) | 2.69 ± 0.22 ^A | 3.04 ± 0.33 ^B | 2.75 ± 0.20 ^A | 2.86 ± 0.32 |
| Daily feed intake (kg) | 2.48 ± 0.30 ^A | 2.33 ± 0.31 ^B | 2.59 ± 0.25 ^C | 2.44 ± 0.31 |
| Age at slaughter (day) | 167 ± 16.4 ^A | 184 ± 21.2 ^B | 165 ± 19.9 ^A | 174 ± 22.6 |

Mean± standard deviation. Within rows, in each column, means denoted by different letter superscripts differ ^AB^P<0.01; ^{ab}P<0.05. PLW – Polish Large White, PUL – Puławska, PL – Polish Landrace.

Table S2. The frequencies of genotypes and alleles in *FASN* gene.

| | Genotype | | | Alleles | |
|-----|------------|-----------|-----------|---------|------|
| | GG | AG | AA | G | A |
| PL | - | 0,42 (39) | 0,58 (54) | 0,21 | 0,79 |
| PLW | 0,11 (10) | 0,73 (65) | 0,16 (14) | 0,48 | 0,52 |
| PUL | 0,66 (100) | 0,3 (46) | 0,04 (6) | 0,81 | 0,19 |

Table S3. The frequencies of genotypes and alleles in *SCD* gene.

| | Genotype | | | Alleles | |
|-----|-----------|-----------|----------|---------|------|
| | GG | AG | AA | G | A |
| PL | 0,91 (74) | 0,09 (7) | - | 0,96 | 0,04 |
| PLW | 0,82 (55) | 0,18 (12) | - | 0,91 | 0,09 |
| PUL | 0,66 (99) | 0,32 (49) | 0,02 (3) | 0,82 | 0,18 |

Table S4. The frequencies of genotypes and alleles in *ACACA* gene.

| | Genotype | | | Alleles | |
|-----|-----------|-----------|-----------|---------|------|
| | TT | CT | CC | T | C |
| PL | 0,62 (49) | 0,35 (28) | 0,03 (2) | 0,80 | 0,20 |
| PLW | 0,74 (64) | 0,24 (21) | 0,01 (1) | 0,87 | 0,13 |
| PUL | 0,57 (87) | 0,36 (55) | 0,07 (10) | 0,75 | 0,25 |

Table S5. Association of *FASN* mutation and analyzed traits (LSM±S.E.).

| Index | Genotype | PLW | PUŁ | PL | Total | GLM | |
|--------------------------------------|----------|-------------|--------------|------------------------|---------------------------|-------------|-------|
| | | | | | | <i>FASN</i> | Breed |
| IMF (%) | GG | 1.36±0.11 | 1.66±0.05 | - | 1.56±0.06 | ns | *** |
| | AG | 1.31±0.05 | 1.75±0.08 | 1.11±0.02 | 1.58±0.05 | | |
| | AA | 1.44±0.11 | 1.52±0.19 | 1.15±0.02 | 1.56±0.07 | | |
| Meat color a* (redness) | GG | 16.0±0.49 | 15.8±0.11 | - | 16.8±0.20 | ns | ns |
| | AG | 16.8±0.27 | 15.7±0.14 | 16.3±0.14 | 16.7±0.16 | | |
| | AA | 17.0±0.42 | 15.9±0.32 | 16.5±0.16 | 16.6±0.18 | | |
| pH 24 h (<i>longissimus dorsi</i>) | GG | 5.61±0.03 | 5.52±0.01 | - | 5.49±0.02 | ns | *** |
| | AG | 5.59±0.01 | 5.53±0.01 | 5.61±0.01 | 5.49±0.01 | | |
| | AA | 5.59±0.03 | 5.52±0.04 | 5.61±0.02 | 5.49±0.02 | | |
| pH 24 h (<i>semiembranosus</i>) | GG | 5.62±0.04 | 5.57±0.04 | - | 5.60±0.02 | ns | *** |
| | AG | 5.63±0.02 | 5.56±0.02 | 5.65±0.01 ^a | 5.59±0.02 | | |
| | AA | 5.61±0.04 | 5.53±0.01 | 5.65±0.02 ^b | 5.58±0.02 | | |
| Ham mass (kg) | GG | 9.30±0.18 | 8.80±0.16 | - | 8.84±0.08 ^A | ns | *** |
| | AG | 9.21±0.08 | 8.72±0.07 | 9.18±0.06 | 9.05±0.07 ^B | | |
| | AA | 9.27±0.15 | 8.96±0.06 | 9.29±0.05 | 9.26±0.08 ^C | | |
| Loin eye area (cm ²) | GG | 52.4 ± 1.60 | 51.9 ± 1.63 | - | 51.9 ± 0.80 | ns | *** |
| | AG | 52.6 ± 0.70 | 51.9 ± 0.71 | 53.2 ± 0.6 | 52.5 ± 0.63 | | |
| | AA | 49.3 ± 1.36 | 54.6 ± 0.56 | 53.2 ± 0.5 | 52.3 ± 0.80 | | |
| Lean meat percentage (%) | GG | 61.8 ± 0.86 | 60.3 ± 0.98 | - | 60.4 ± 0.47 ^A | ns | *** |
| | AG | 60.9 ± 0.37 | 60.0 ± 0.43 | 62.4 ± 0.34 | 61.0 ± 0.37 ^{AB} | | |
| | AA | 61.0 ± 0.73 | 61.0 ± 0.34 | 62.1 ± 0.30 | 61.8 ± 0.47 ^B | | |
| Primary cuts (kg) | GG | 24.4 ± 0.34 | 22.3 ± 0.35 | - | 22.5 ± 0.17 ^A | ns | *** |
| | AG | 24.0 ± 0.15 | 22.1 ± 0.15 | 23.8 ± 0.13 | 23.3 ± 0.14 ^B | | |
| | AA | 23.7 ± 0.29 | 22.9 ± 0.112 | 24.0 ± 0.12 | 23.9 ± 0.17 ^C | | |

Allele: A– wild type; G– mutation; Within rows, in each column, means denoted by different letter superscripts differ ^{AB}P<0.01; ^{ab}P<0.05. PLW – Polish Large White, PUŁ – Puławska, PL – Polish The linear model for mixed analysis was: $Y_{ijkl} = \mu + d_i + b_j + (d_i \cdot b_j) + \alpha(x_{ijk}) + e_{ijkl}$ where: Y_{ijk} – observation, μ – overall mean, d_i –fixed effect of genotype group, b_j – fixed effect of the breed, $(d_i \cdot b_j)$ – the interaction between d_i genotype group and breed, $\alpha(x_{ijk})$ – covariate for weight of the right side of the carcass, e_{ijkl} – random error. GLM model for analysis within breeds omitted b_j – fixed effect of breed and $(d_i \cdot b_j)$ – the interaction between d_i genotype group and breed. Landrace.

Table S6. Association of the ACACA mutation and analyzed traits (LSM±S.E).

| Index | Genotype | PLW | PUŁ | PL | Total | GLM | |
|--------------------------------------|----------|-------------|--------------|--------------------------|---------------------------|-------|-------|
| | | | | | | ACACA | Breed |
| Water exudation (%) | CC | - | 30.7 ± 1.97 | - | 30.9 ± 2.02 | | |
| | CT | 37.3 ± 1.76 | 30.6 ± 0.85 | 36.2 ± 1.29 | 33.5 ± 0.99 | ns | ** |
| | TT | 34.9 ± 1.04 | 29.9 ± 0.68 | 36.8 ± 0.96 | 33.2 ± 0.84 | | |
| Meat color L* (lightness) | CC | - | 54.6 ± 1.18 | - | 54.7 ± 0.87 | | |
| | CT | 53.7 ± 0.52 | 55.3 ± 0.51 | 55.5 ± 0.44 | 55.1 ± 0.69 | ns | *** |
| | TT | 54.1 ± 0.31 | 55.1 ± 0.41 | 55.0 ± 0.33 | 54.7 ± 0.66 | | |
| Meat colour a* (redness) | CC | - | 15.7 ± 0.32 | - | 15.9 ± 0.35 | | |
| | CT | 16.7 ± 0.35 | 15.7 ± 0.14 | 16.3 ± 0.19 | 16.1 ± 0.17 | ns | ns |
| | TT | 16.7 ± 0.21 | 15.8 ± 0.11 | 16.5 ± 0.14 | 16.3 ± 0.15 | | |
| pH 24 h (<i>longissimus dorsi</i>) | CC | - | 5.54 ± 0.03 | - | 5.56 ± 0.03 | ns | *** |
| | CT | 5.62 ± 0.02 | 5.52 ± 0.01 | 5.63 ± 0.02 | 5.57 ± 0.02 | | |
| | TT | 5.65 ± 0.01 | 5.53 ± 0.01 | 5.60 ± 0.02 | 5.56 ± 0.02 | | |
| pH 24 h (<i>semimembranosus</i>) | CC | - | 5.58 ± 0.03 | - | 5.59 ± 0.03 | ns | *** |
| | CT | 5.64 ± 0.03 | 5.55 ± 0.01 | 5.68 ± 0.02 ^a | 5.60 ± 0.02 | | |
| | TT | 5.62 ± 0.02 | 5.57 ± 0.01 | 5.63 ± 0.02 ^b | 5.60 ± 0.02 | | |
| Loin mass (kg) | CC | - | 5.06 ± 0.11 | - | 5.41 ± 0.13 ^a | | |
| | CT | 6.10 ± 0.11 | 5.08 ± 0.05 | 6.03 ± 0.09 | 5.54 ± 0.06 ^{ab} | ns | *** |
| | TT | 6.25 ± 0.06 | 5.06 ± 0.04 | 5.90 ± 0.07 | 5.65 ± 0.05 ^b | | |
| Ham mass (kg) | CC | - | 8.80 ± 0.16 | - | 8.92 ± 0.15 | | |
| | CT | 9.37 ± 0.13 | 8.73 ± 0.07 | 9.28 ± 0.09 | 9.00 ± 0.07 | ns | *** |
| | TT | 9.22 ± 0.08 | 8.80 ± 0.06 | 9.26 ± 0.07 | 9.05 ± 0.06 | | |
| Loin eye area (cm ²) | CC | - | 52.9 ± 1.63 | - | 53.7 ± 1.45 | | |
| | CT | 51.4 ± 1.20 | 52.4 ± 0.71 | 53.6 ± 0.7 | 52.5 ± 0.71 | ns | *** |
| | TT | 52.4 ± 0.71 | 51.6 ± 0.56 | 53.3 ± 0.3 | 52.3 ± 0.61 | | |
| Lean meat percentage (%) | CC | - | 61.0 ± 0.98 | - | 61.5 ± 0.84 | | |
| | CT | 61.7 ± 0.63 | 59.8 ± 0.43 | 62.4 ± 0.39 | 60.9 ± 0.41 | ns | *** |
| | TT | 60.8 ± 0.37 | 60.4 ± 0.34 | 62.3 ± 0.29 | 61.0 ± 0.35 | | |
| Primary cuts (kg) | CC | - | 22.4 ± 0.35 | - | 22.9 ± 0.31 | | |
| | CT | 24.1 ± 0.25 | 22.1 ± 0.15 | 24.0 ± 0.14 | 23.0 ± 0.15 | ns | *** |
| | TT | 24.1 ± 0.15 | 22.3 ± 0.112 | 23.9 ± 0.11 | 23.3 ± 0.13 | | |
| Feed conversion (kg/kg) | CC | - | 3.03 ± 0.10 | - | 2.98 ± 0.08 | | |
| | CT | 2.68 ± 0.05 | 3.02 ± 0.05 | 2.71 ± 0.04 | 2.87 ± 0.04 | ns | *** |
| | TT | 2.67 ± 0.03 | 3.06 ± 0.04 | 2.75 ± 0.03 | 2.86 ± 0.03 | | |
| Age at slaughter (day) | CC | - | 188 ± 7 | - | 182 ± 6 ^a | | |
| | CT | 165 ± 4 | 185 ± 3 | 166 ± 4 | 176 ± 3 ^{ab} | ns | *** |
| | TT | 168 ± 2 | 183 ± 2 | 162 ± 3 | 173 ± 3 ^b | | |

Allele: C – wild type, T – mutation. Within rows, in each column, means denoted by different letter superscripts differ ^{AB}P<0.01; ^{ab}P<0.05. PLW – Polish Large White, PUŁ – Puławska, PL – Polish Landrace. The linear model for mixed analysis was: $Y_{ijkl} = \mu + d_i + b_j + (d_i \cdot b_j) + \alpha(x_{ijk}) + e_{ijkl}$ where: Y_{ijk} – observation, μ – overall mean, d_i – fixed effect of genotype group, b_j – fixed effect of the breed, $(d_i \cdot b_j)$ – the interaction between d_i genotype group and breed, $\alpha(x_{ijk})$ – covariate for

weight of the right side of the carcass, e_{ijkl} – random error. GLM model for analysis within breeds omitted b_j – fixed effect of breed and $(d_i \cdot b_j)$ – the interaction between d_i genotype group and breed.

Table S7. Association of SCD mutation and analyzed traits (LSM±S.E).

| Index | Genotype | PLW | PUŁ | PL | Total | GLM | |
|-----------------------------------|----------|------------------------|-------------|------------------------|--------------------------|-----|-------|
| | | | | | | SCD | Breed |
| Meat colour a* (redness) | AA | - | - | - | - | ns | * |
| | AG | 16.4 ± 0.43 | 15.9 ± 0.15 | 16.2 ± 0.39 | 16.0 ± 0.21 | | |
| | GG | 16.7 ± 0.23 | 15.7 ± 0.11 | 16.4 ± 0.12 | 16.2 ± 0.16 | | |
| pH 24 h (longissimus dorsi) | AA | - | - | - | - | ns | *** |
| | AG | 5.62 ± 0.03 | 5.52 ± 0.01 | 5.68 ± 0.04 | 5.55 ± 0.02 | | |
| | GG | 5.59 ± 0.02 | 5.52 ± 0.01 | 5.61 ± 0.01 | 5.57 ± 0.02 | | |
| pH 45 min (semimembranosus) | AA | - | - | - | - | ns | *** |
| | AG | 6.32 ± 0.05 | 6.13 ± 0.03 | 6.27 ± 0.05 | 6.18 ± 0.03 | | |
| | GG | 6.32 ± 0.03 | 6.12 ± 0.02 | 6.29 ± 0.02 | 6.22 ± 0.03 | | |
| pH 24 h (semimembranosus) | AA | - | - | - | - | ns | *** |
| | AG | 5.67 ± 0.04 | 5.56 ± 0.02 | 5.68 ± 0.04 | 5.59 ± 0.02 | | |
| | GG | 5.63 ± 0.02 | 5.56 ± 0.01 | 5.65 ± 0.01 | 5.61 ± 0.02 | | |
| Carcass yield (%) | AA | - | - | - | - | ns | ** |
| | AG | 77.7±0.33 ^a | 74.2±0.09 | 77.1±0.24 ^A | 75.2±0.15 | | |
| | GG | 77.1±0.18 ^b | 74.6±0.06 | 76.3±0.07 ^B | 75.8±0.12 | | |
| Average backfat thickness (cm) | AA | - | - | - | - | ns | *** |
| | AG | 1.39 ± 0.08 | 1.55 ± 0.06 | 1.35 ± 0.10 | 1.50 ± 0.06 | | |
| | GG | 1.30 ± 0.04 | 1.56 ± 0.04 | 1.23 ± 0.03 | 1.39 ± 0.05 | | |
| Loin eye area (cm ²) | AA | - | - | - | - | ns | *** |
| | AG | 52.4 ± 1.42 | 51.1 ± 0.74 | 52.9 ± 1.54 | 51.6 ± 0.86 | | |
| | GG | 52.0 ± 0.76 | 52.2 ± 0.52 | 53.4 ± 0.47 | 52.5 ± 0.68 | | |
| Lean meat percentage (%) | AA | - | - | - | - | ns | *** |
| | AG | 59.9 ± 0.79 | 59.9 ± 0.46 | 61.4 ± 0.77 | 60.0 ± 0.50 ^a | | |
| | GG | 61.5 ± 0.42 | 60.4 ± 0.32 | 62.4 ± 0.24 | 61.3 ± 0.37 ^b | | |
| Primary cuts (kg) | AA | - | - | - | - | ns | *** |
| | AG | 23.9 ± 0.31 | 22.0 ± 0.16 | 23.8 ± 0.30 | 22.5 ± 0.18 ^a | | |
| | GG | 24.2 ± 0.17 | 22.3 ± 0.11 | 24.0 ± 0.09 | 23.3 ± 0.15 ^b | | |
| Average daily gain (g/day) | GG | - | - | - | - | ns | *** |
| | AG | 967±32 | 778 ± 21 | 906 ± 41 | 826 ± 23 | | |
| | AA | 926±17 | 779 ± 15 | 948 ± 13 | 870 ± 18 | | |
| Feed conversion (kg/kg b. w.) | GG | - | - | - | - | ns | *** |
| | AG | 2.62 ± 0.07 | 2.99 ± 0.05 | 2.79 ± 0.08 | 2.90 ± 0.05 | | |
| | AA | 2.68 ± 0.04 | 3.08 ± 0.03 | 2.76 ± 0.02 | 2.93 ± 0.03 | | |
| Daily feed intake (kg) | GG | - | - | - | - | ns | *** |
| | AG | 2.54 ± 0.10 | 2.31 ± 0.05 | 2.52 ± 0.10 | 2.37 ± 0.05 | | |
| | AA | 2.48 ± 0.05 | 2.37 ± 0.03 | 2.60 ± 0.03 | 2.47 ± 0.04 | | |
| Age at slaughter (day) | GG | - | - | - | - | ns | *** |
| | AG | 163 ± 5 | 184 ± 3 | 159 ± 3 | 177 ± 4 | | |
| | AA | 166 ± 3 | 184 ± 9 | 166 ± 2 | 174 ± 3 | | |

Allele: A– wild type, G – mutation. Within rows, in each column, means denoted by different letter superscripts differ ^{ab}P<0.01; ^{ab}P<0.05. PLW – Polish Large White, PUŁ – Puławska, PL – Polish Landrace. The linear model for mixed analysis was: $Y_{ijkl} = \mu + d_i + b_j + (d_i \cdot b_j) + \alpha(x_{ijk}) + e_{ijkl}$ where: Y_{ijk} – observation, μ – overall mean, d_i – fixed effect of genotype group, b_j – fixed effect of the breed, $(d_i \cdot b_j)$ – the interaction between d_i genotype group

and breed, $\alpha(x_{ijk})$ – covariate for weight of the right side of the carcass, e_{ijkl} – random error. GLM model for analysis within breeds omitted b_j – fixed effect of breed and $(d_i \cdot b_j)$ – the interaction between d_i genotype group and breed.
