**Objective**

To estimate the effect of RN gene haplotypes on meat quality traits with progeny testing data of French purebred pig populations.

**Methods**

**Animals and performances**
- Half-sib families: 50 castrate and female offspring / purebred sire
- 5 breed groups: LW (3 Large-White type lines), LF (French Landrace), P (3 Pietrain lines), D (3 Duroc lines) and CH (4 Chinese-European lines)
- Performance recording at INRA UETP test station: growth, carcass composition, meat quality traits (23 meat quality traits)
  - Meat Quality Index (MQI): combining semi-membranous pH 24h post mortem (pHSM), Minolta L* and water holding capacity both measured on gluteus medius a few minutes after cutting
  - Drip loss measured in a tray (13th thoracic vertebra sample)

**Polymorphisms and statistical analyses**
- Haplotypes (number 1 to 6) defined with the segregating RN mutations
  - No polymorphism found for R200Q and L53P
- Effect of haplotypes estimated with the MIXED procedure (SAS software) with sex, slaughter date and, in P Hal, as fixed effects, dam and sire as random effects and carcass weight as covariate

**Results**

**Focus on haplotypes 1 and 6**

**Haplotypic frequencies**
- Frequencies of haplotype 1 and 6 were estimated on parents
- No estimation for 1/1-carriers (i.e. haplotype-based genotypes) in CH and for 6/6-carriers in LW because of insufficient data

**Most significant results**
- Observed for MQI (Fig 1-A) and pHSM: haplotype 1 is favorable on both traits in LW, LF, D and only on MQI in P
  - Large substitution effect between 1/1- and 1/6- or 6/6-carriers: between 0.7 to 0.9 standard deviation for MQI
- In LW, LF, D and P, although not significant for all traits/breed groups: 1/1-carriers have higher pH (semi-membranous and longissimus), lower L*, a*, b* (gluteus medius, longissimus) and drip loss (Fig 1-B) than 1/6- or 6/6-carriers
- In CH, substitution effect between 1/6- and 6/6-carriers were not significant except on color traits (but few animals)
- None of the segregating RN polymorphisms alone had similar substitution effect

**Conclusions**

R200Q polymorphism (named RN- mutation) has not been found in French purebred pig populations. Haplotypes defined by 6 other RN gene polymorphisms have quite important effects on quality traits. Haplotype 1 appears favorable; similar trends have been found in different groups of breeds.

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