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Abstracts

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Conclusions: This meant that the higher expression of genotype F at VDR Fok1 locus could induce the myofiber proliferation in skeletal muscle. It was indicated that VDR Fok1 locus polymorphism is a major factor for meat tenderness.

Key words: VDR, Fok1, locus polymorphism, myofiber proliferation, meat shear force, pigs

PO230

RELATIONSHIP OF PPARΓ2 BSR1 LOCUS POLYMORPHISM AND LIPIDS METABOLISM IN LONGISSIMUS DORSI

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Background and objectives: The expression and polymorphism of PPARγ2 gene and its Bsr1 locus, located in the coding region of the first promoter, was studied the relationship of lipids metabolism in pig's Longissimus dorsi (LD).

Methods: 101 LDs as muscle samples were to analyze its intramuscular fat (IMF) and prepared cDNA to test PPARγ2 expression in LD, Bsr1 locus polymorphism and sequences.

Results: The expression of PPARγ2 gene in pig's LD was between 0.35±0.07- 0.58±0.07 in 12 breeds ($p<0.05$ or $p<0.01$, YIMF=4.04X+0.68, R=0.22). Bsr1 locus had three genotypes such as b (wide), bB (heterozygote) or B (mutant) in pig's skeletal muscle (LD). The average frequency of three genotypes was 15.49% b, 23.95% Bb and 60.56% B respectively. When the base G on Bsr1 locus (CCAGT) was replaced by A as CCAAT, wide genotype b was mutated to genotype B. Bsr1 locus genotypes in LD of China dark pig as Shanzhu contained all of three (b, bB and B), in which type b was expressing up to 50.00%. In contrast, Bsr1 locus in Landrace and Yorkshire LD was lack of type b. If China pigs were hybridized with Landrace, type bB would express highly in these breeds. So a mathematical model (GLM, $Y = \mu + G + X + S + e$, Y as apparent characters; μ as means of apparent characters; G as genotype; X as breeds; S as sex; e as residuals) was built a relationship of Bsr1 locus enotypes and lipids metabolism. It was found that the higher type b, the more content IMF, significantly ($P<0.05$). There were b > Bb > B, respectively.

Conclusions: This suggested that the high expression of type b contributed to adipose differentiation, deposition and appropriate meat tenderness. It also means PPARγ2 gene can be the meat target gene.

Key words: PPARγ2; Bsr1 locuspolymorphism; lipids metabolism; intramuscular fat; pigs

PO231

QR-CODES IN FOOD LABELING: OUTLOOK FOR FOOD SCIENCE AND NUTRITION

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Background and objectives: Although the use of QR-codes (Quick Response codes) has not been broadly adopted in the domain of food science/nutrition, it is possible to find it increasely as a complement for labelling. The aim is to explore and show proposals for using QR-codes in the domain. The final goal is to describe how the applications of QR-codes can largely benefit the food science/nutrition.

Methods: From the evaluation of QR-codes use cases in the context of the industry, it is possible to derive new applications to the nutrition domain. The goal is to design Web-based systems to enable the provision of advanced services that already are supported in the present in many contexts of the daily-life but with better performance.

Results: Some proposals about the use of QR-codes:

- Basic research:
  - -Advanced tagging of laboratory samples.
- Food security:
  - -Comprehensive information about nutritional composition.
  - -Advanced features to avoid falsifications and food fraud.
  - -Control of technological processes and determination of the HACCPs (Hazard Analysis and Critical Control Points).
  - -Application to food traceability.
- Community nutrition:
  - -Use for patient education.
  - -Reduced time and costs in investigating food poisoning.
- Clinical nutrition:
  - -Based on the patient profile, reporting food suitability in certain metabolic diseases.
  - -Providing information on food-drug interactions.