Candidate genes for milk production traits in Limousin beef cattle

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Little is known about the genetic determinism of milk production of beef cows whereas this trait is of major economic importance for beef cattle breeders because of its direct link with calf growth. In this study, three traits in relation with milk production were considered in Limousin breed: the maternal effect on weaning weight from field data, the udder score and milk yield recorded on primiparous cows in test station. The 1,637 animals were genotyped on various chips densities, and all imputed in high density (777K SNP). The QTL detections were performed with a bayesian variable selection method. A total of 420 QTL were detected for the 3 traits : 225 for udder score, 136 for milk yield and 59 for maternal weaning weight. Considering milk yield as reference, 18% of the QTL were also detected for udder score, and 8% were also detected for maternal weaning weight. 12% of QTL detected for maternal weaning weight were common with udder score. Among those QTL, 13 were fine mapped and corresponded to a Bayes factor indicated very strong evidence. Therefore 10 candidate genes were suggested. In particular, *Inhibin Beta A* gene corresponded to a major QTL on chromosome 7 for both maternal weaning weight and milk yield. *Corin* gene was also in the area of a major QTL on chromosome 12 for udder score and milk yield. The *SLC13A5* gene involved in lipid metabolism was detected as QTL on chromosome 19 for milk yield and udder score.