

# IGF-I gene polymorphism, but not its blood concentration, is associated with milk fat and protein in Holstein dairy cows

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**ABSTRACT.** We estimated the allele and genotype frequencies of IGF-I/*Sna*BI gene polymorphism and the concentration of this protein in Holstein dairy cows. We also examined the association with milk yield (305-day milk yield) and milk components (fat and protein percentage, and 305-day milk protein and fat yield). Blood IGF-I levels were measured and genotyping was performed on 250 Holstein cows of four different herds. In the association studies, traits of interest were analyzed using the GLM procedure of SAS; means of the IGF-I level among genotypes were compared by the LSMeans test. The AB and AA genotypes were the most (0.583-0.661) and least (0.083-0.192) frequent in the herds, respectively; the frequency of the BB genotype ranged from 0.201 to 0.333. The frequency of the A allele ranged from 0.375 to 0.495, while the frequency of the B allele ranged from 0.504 to 0.625, being the dominant allele. The mean level of IGF-I was  $107 \pm 22$  ng/mL for all groups, without

any significant correlation with the production traits. Association of IGF-I/*Sna*BI genotypes with percentage of fat and protein in the milk was relatively high ( $P < 0.1$  and  $P < 0.05$ , respectively); the AB genotype was superior to AA and BB genotypes. We concluded that this marker should be considered for milk component selection in Holstein dairy cattle.

**Key words:** Dairy Holstein; Gene polymorphism; Milk protein; Milk fat; IGF-I