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SNPs of Leptin, IGF-1 and NPY genes in dairy and beef cattle of Tandil, Argentina

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Introduction

üSingle Nucleotide Polymorphisms (SNPs) are genetic variants associated with several traits of beef cattle determining performance.
üSNPs of Leptin, IGF-1 and NPY genes are strongly associated with better efficiency of feed use, known as low Residual Feed Intake (RFI), in feedlot cattle but also under grazing as recent research in Uruguay revealed.
üBeef and dairy cattle from an important beef and dairy region of Argentina were genotyped for these SNPs, as a preliminar work of an ongoing project to study the relationship of SNPs with RFI and grazing behavior.

Materials and Methods

üBlood from dairy *Holando Argentino* (n=18) and beef *AberdeenAngus* and *Hereford* (n=12) calves from local herds of Tandil, Buenos Aires, Argentina (37º 19' S, 59º 08' W).
üControl DNA with known allelic variants from cattle of Uruguay.
üAllelic variants favorable for low RFI in Leptin (AF120500-198, allele C), IGF-1 (AF017143-512, allele C) and NPY (AY491054-666, allele G).
üGenotyping by real time PCR (*Eva Green*, High Resolution Melting, *Rotor Gene Q*).

Results

üFrequency of alleles favorable for low RFI is shown in **Table 1**.
üProportion of cattle found favorable homozygous for low RFI in one, two or the three SNPs altogether is shown in **Figure 1**.
üDairy had high frequency of favorable alleles for low RFI in all SNPs.
üBeef had high frequency of unfavorable allele (T) for low RFI in Leptin.
üDairy had higher proportion of favorable homozygous for low RFI than beef.
üImplications of frequency and distribution of favorable and unfavorable alleles for low RFI in these and other candidate SNPs in local dairy and beef cattle population under different feeding conditions should be further investigated.

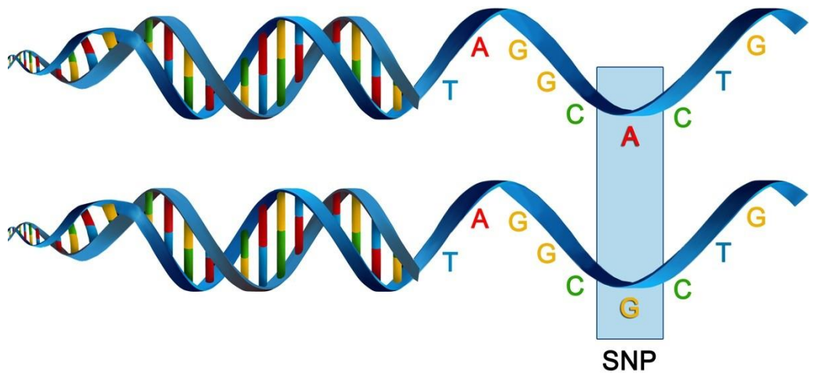

Table 1. Frequency of favorable and unfavorable alleles for low RFI in SNPs of Leptin, IGF-1 and NPY genes in dairy and beef cattle from herds of Tandil, Buenos Aires, Argentina (favorable in bold).

	Leptin		IGF-1		NPY	
	C	T	**C**	T	**G**	A
Dairy (n=18)	**0.60**	0.40	**0.60**	0.40	**0.94**	0.06
Beef (n=12)	**0.25**	0.75	**0.45**	0.55	**0.42**	0.58

Figure 1. Proportion of dairy and beef cattle found favorable homozygous for low RFI in one, two or three SNPs altogether of Leptin, IGF-1, NPY genes in herds of Tandil, Buenos Aires, Argentina. Photos from Maria Bakker.