

Confirmed linkage for QTLs affecting muscling in Texel sheep on chromosomes 2 and 18

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Previous studies have detected loci increasing fatness and muscling near the myostatin locus in New Zealand Texel sheep and at the 'Carwell' muscling locus in Australian Poll Dorset sheep. 348 British Texel sheep, in 3 half-sib families and their sires were genotyped for informative markers around these two regions. One sire was the son of another, hence the data for these two half-sib families were pooled. QTL analyses were performed using interval mapping by regressing phenotypes adjusted for fixed effects and covariates onto the genotype probabilities at 1cM intervals along the chromosomal regions. Phenotypic data comprised of live weight and ultrasonic fat and muscle depths at approximately 20 weeks of age.

Significant evidence ($P < 0.05$) was found in both families for an effect at the proximal end of the region covering the myostatin gene, albeit for different traits (fat and muscle depth). The true QTL location most likely lies outside the region covered by this study, at the top of chromosome 2. Highly significant effects ($P < 0.001$) were detected in the joint family on chromosome 18 affecting muscle depth. The position and effect are similar to previous reports of the Carwell gene.

This study confirms evidence for QTLs affecting muscle depth on chromosomes 2 and 18 in sheep.