

Alleles of the bovine histatherin gene are associated with mastitis traits and milk production in New Zealand cattle

C Walker, S-A Turner, S Rowe, P Maclean,
R Brauning, Y Bi, D Lu, S Devlin, M Rijnkels,
C Gavin, N Maqbool and A Molenaar

Why histatherin?

- Antimicrobial peptide in milk
- *HSTN* resides on Chr 6
 - Under the control of a casein promoter
- 3 SNPs in *HSTN* associated with
 - somatic cell scores, milk production and composition in Chinese cattle
- Are these 3 SNPs in NZ dairy cows?
 - Are they associated with mastitis and production traits?

Data collected....

- Primiparous cows (n = 3153)
 - ¼ milk samples for bacteriology
 - at calving, mid (~112 DIM) & late (~206 DIM) lactation & at drying off. Any clinical cases.
 - Milk yield and production, including SCC
 - Blood sample
 - DNA extraction, genotyping for 3 SNPs
- Association analyses conducted

Associations....

- SNP rs109955918 - crude protein % ($P < 0.0001$)
 - explains ~1-2% of the phenotypic variance
- SNP rs110175257 - new IMI after calving ($P < 0.01$)
 - G allele increased risk
 - *S. uberis* IMI at calving ($P = 0.06$)
 - G allele = fewer infections
- SNP rs109805873 - prevalence of CM ($P = 0.08$)
 - G allele (minor) increased risk of CM
 - TT's had least prevalence of CM
- No SNPs were associated with SCC ($P > 0.3$)