

# Candidate causative mutations for two mastitis QTL in Holstein dairy cattle

G Sahana, B Guldbrandtsen, B Thomsen, C Bendixen, MS Lund

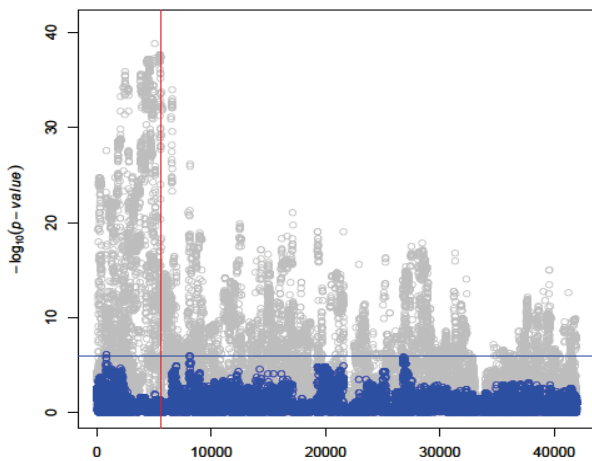
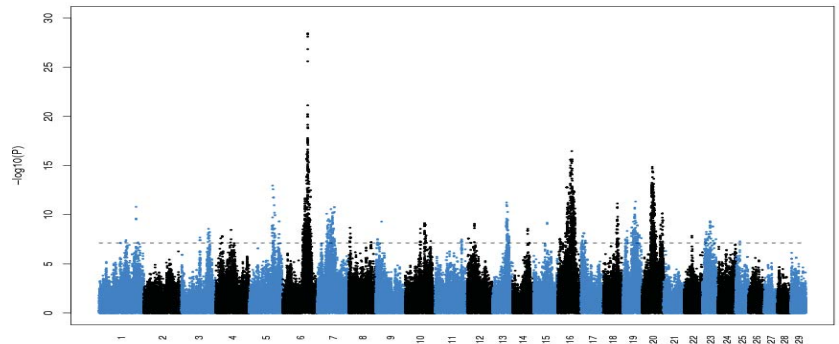
Department of Molecular Biology and Genetics, Aarhus University, Denmark

Imputed WGS information in combination with results from GWAS results identify candidate mutations for two major mastitis QTL



## GWAS with SNP chip

- Nine mastitis related traits/indices
- 5,200 Nordic Holsteins
- 50K SNP genotypes imputed to 777K
- **61 QTL regions identified**

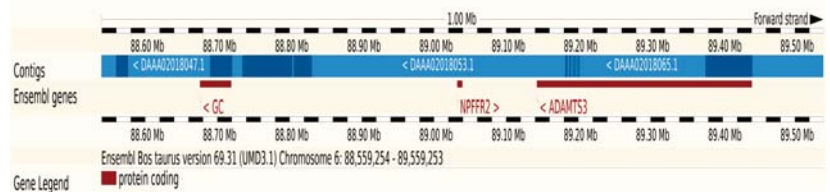


## RWAS with NGS

- Six selected QTL regions imputed to sequence
- RWAS with mixed model
- Substantial improvement in association signals with NGS (in grey)**
- Strong candidate genes identified

## Strong QTN

- Candidate QTN in NPFFR2 (BTA6) and LIFR (BTA20)
- Candidate QTNs explain the QTL variance (in blue)**



## Follow-up

- Concordance analyses
- Confirmation studies in Nordic Red and Danish Jersey
- Functional verification