



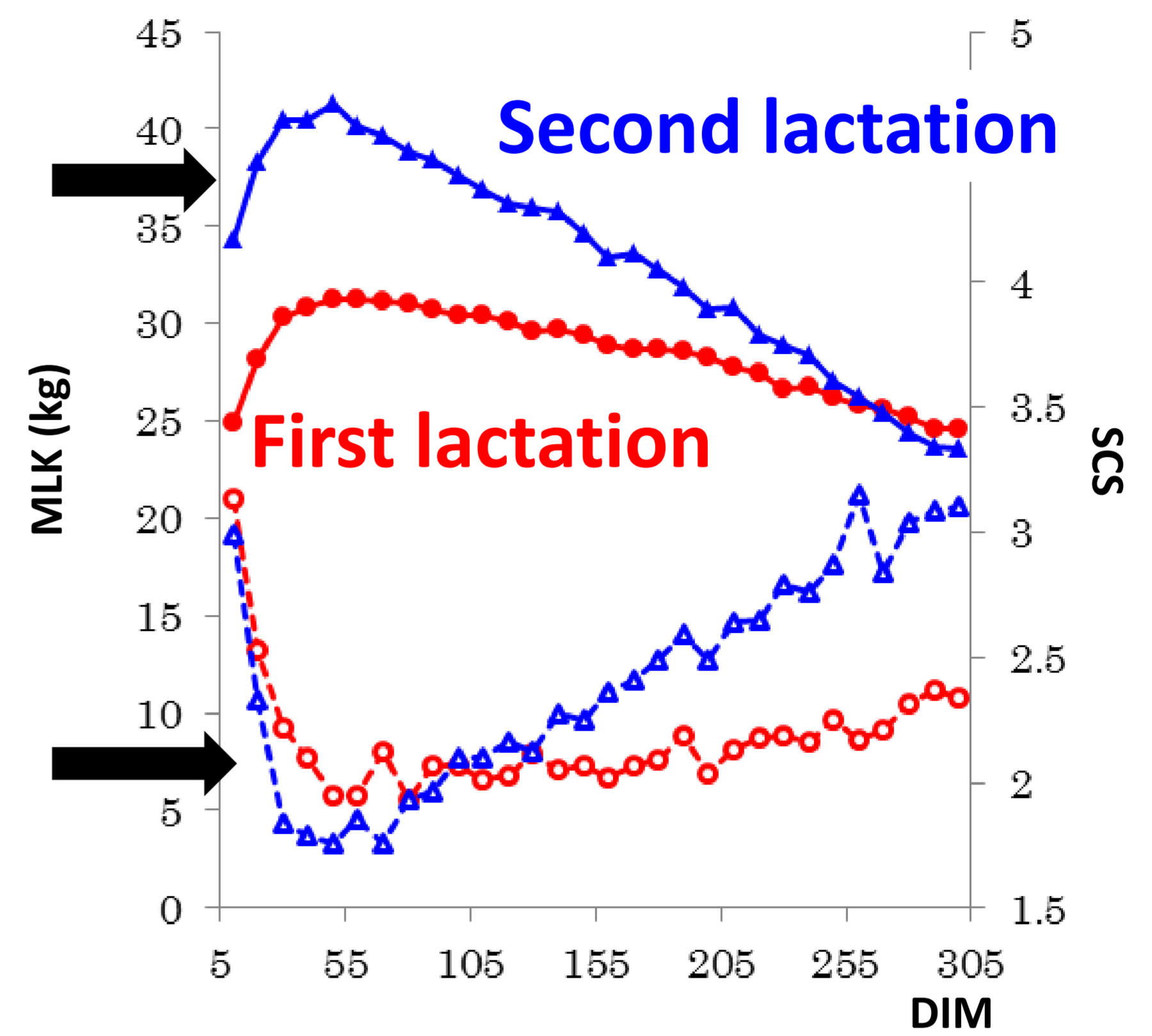
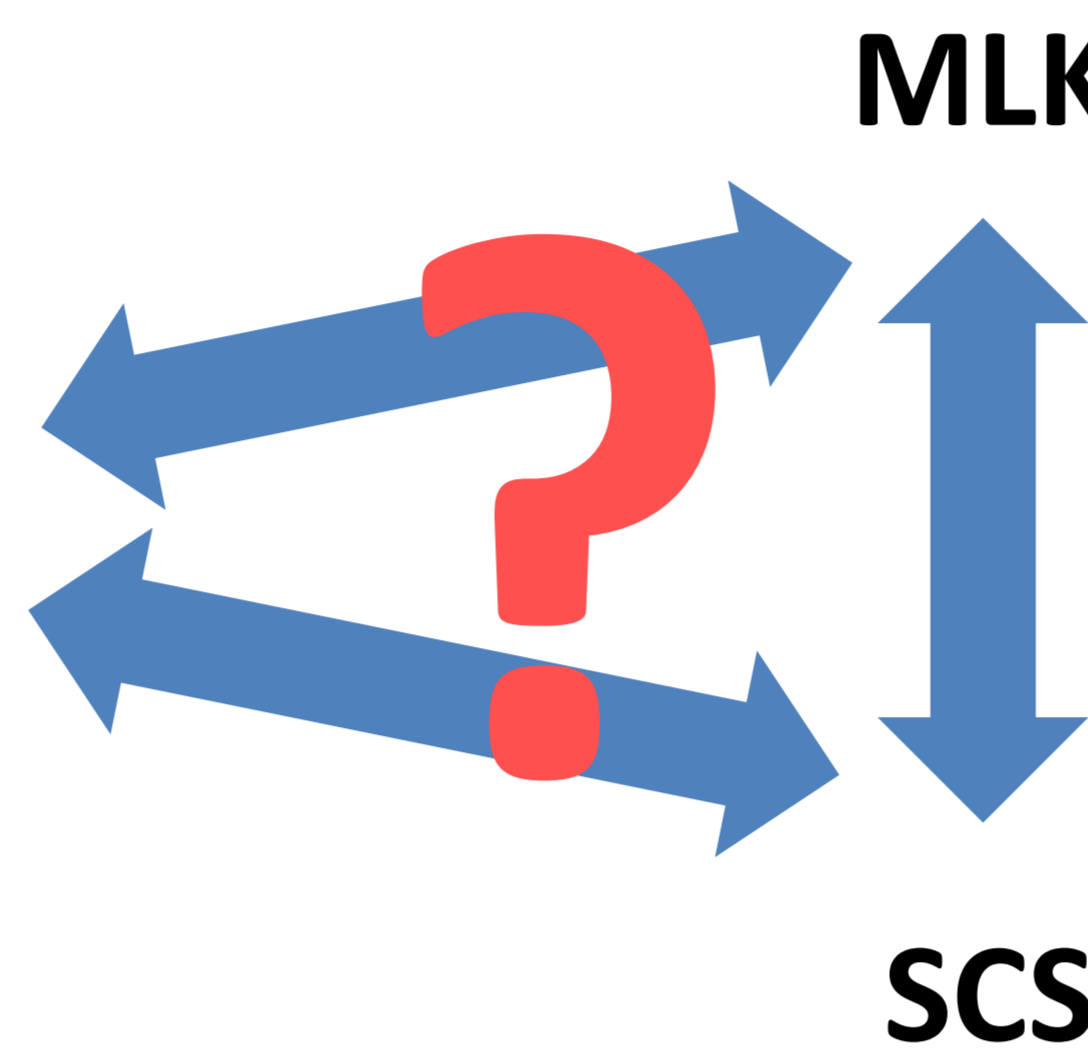
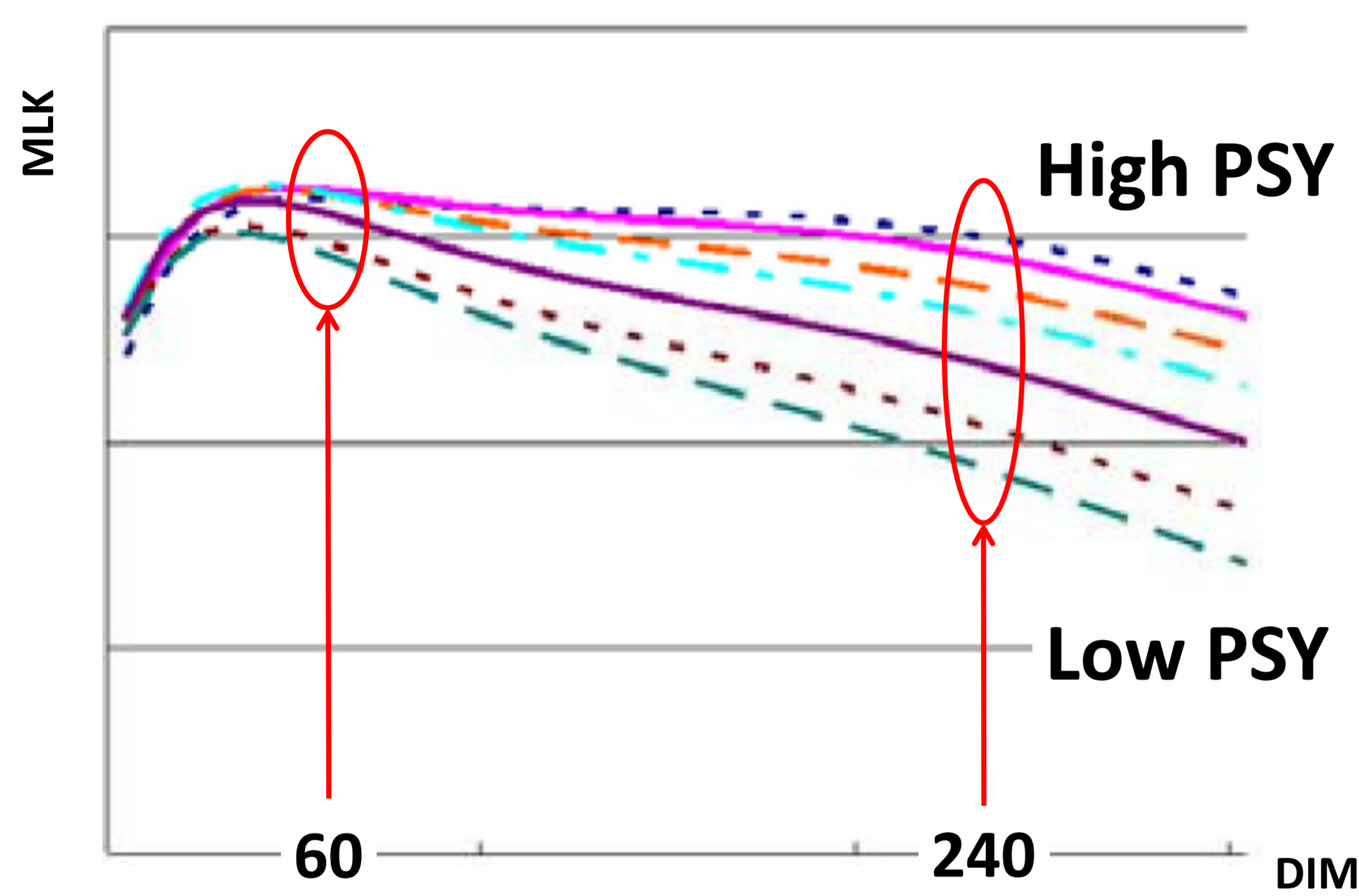
Genetic relationships of lactation persistency with test-day milk yields and somatic cell scores

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Objective

To estimate the Genetic correlations between lactation persistency (PSY), daily milk yield (MLK) and daily somatic cell score (SCS) within and across first and second lactations in Holstein cows

PSY = MLK at 240 DIM – MLK at 60 DIM (Japan)



$$SCS = \log_2 (\text{Somatic cell count}/100,000) + 3$$

Material and methods

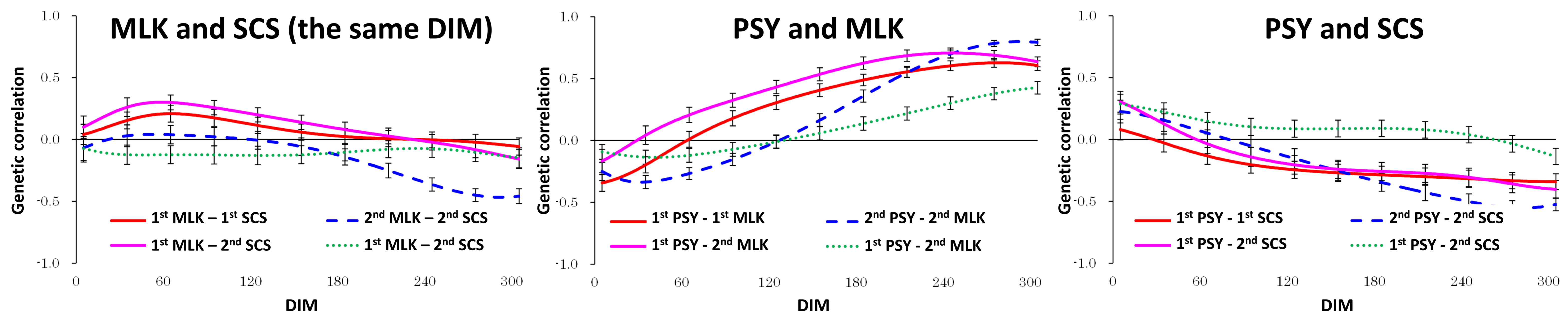
Genetic correlations were estimated from variance components of random regression coefficients for additive genetic effects.

Data; Test day MLK and SCS records. First lactation; 21,238 cows, second lactation; 15,281 cows (pedigree; 48,754 animals)

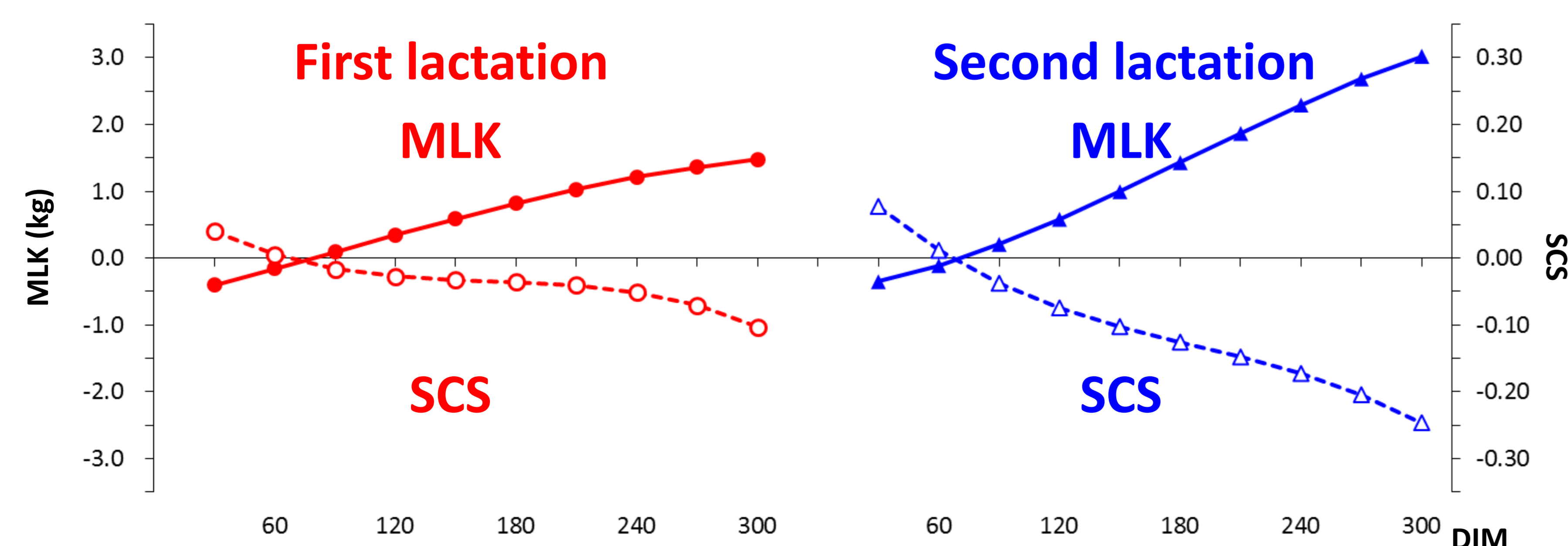
Model ; two-trait, two-lactation random regression animal model

Results

Genetic correlations

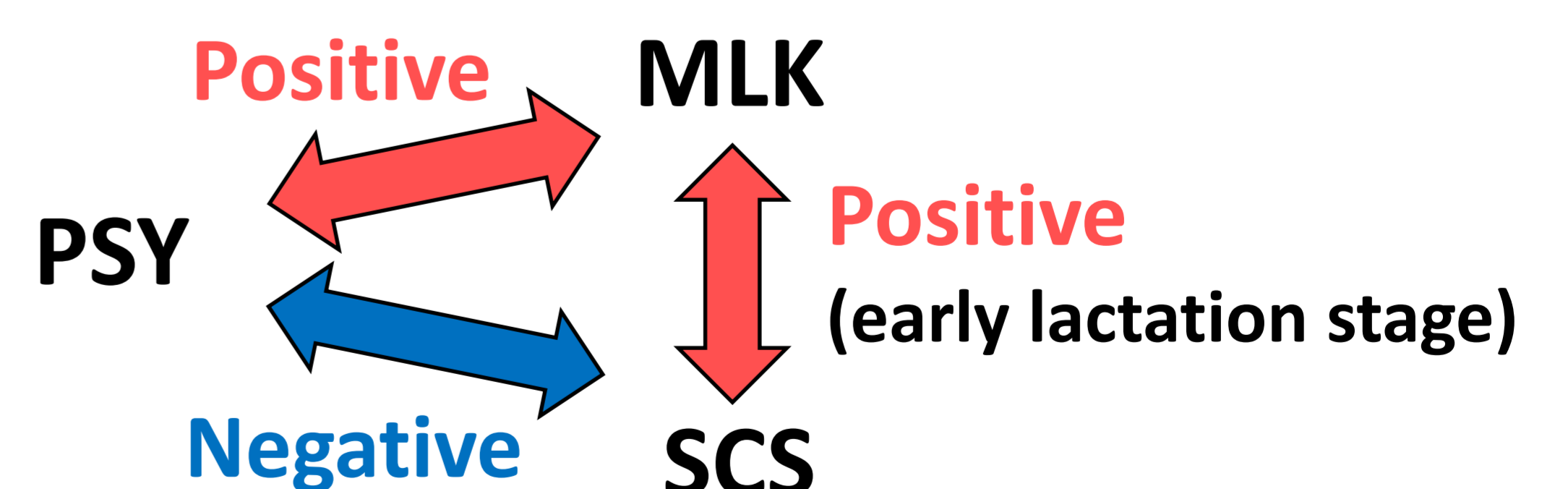


Correlated responses of milk and SCS to the selection* on EBV of persistency (per generation)



Conclusions

Genetic correlations



Selection for lactation persistency could help to increase lactation yield in the first and second lactations without increasing SCS.

*Selecting bulls based on the selection index (I) for EBVs of persistency in first and second lactations (\hat{u}_1, \hat{u}_2) was assumed;

$I = \hat{u}_1/\sigma_{\hat{u}_1} + \hat{u}_2/\sigma_{\hat{u}_2}$, where $\sigma_{\hat{u}_1}$ (or \hat{u}_2) is standard deviation for \hat{u}_1 (or \hat{u}_2).

Selection intensity is 1.

The average reliabilities among selected bulls for EBVs of persistency in first and second lactations are set as 0.689 and 0.612, respectively.