



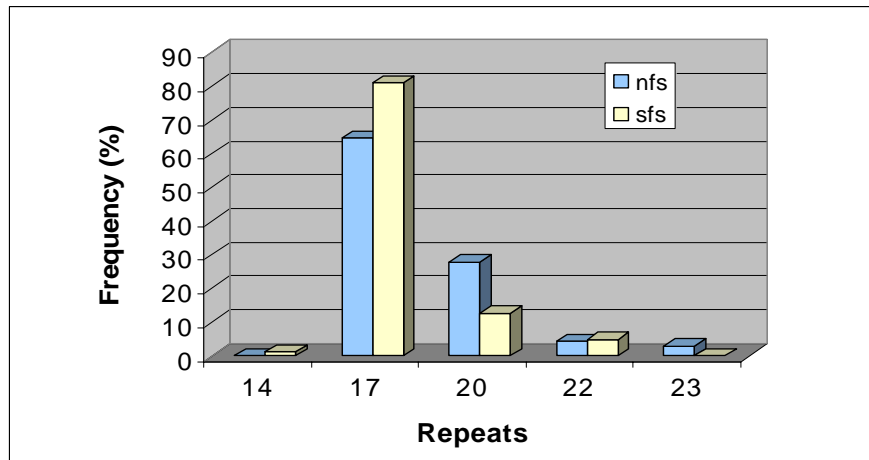
INTERSLOPE GENETIC DIFFERENTIATION

Interslope divergence for adaptive traits should not necessarily be accompanied by differentiation for selectively neutral and randomly chosen markers, unless they are in linkage disequilibrium with selected loci. Such a condition can persist despite migration, but only under tight linkage and strong selection.

We studied sequence polymorphism of genes putatively contributing to genetic variation in sexual behavior (*desaturase2*, *period*, *no-on-transient A*, etc.) and known to include polymorphic repeated sequences, indels, or nucleotide substitutions (Zamorzaeva et al., 2005).

Interslope differences in the sequence encoding the (Thr-Gly)_n repeat (exon 5) of the *period* gene were established, suggesting evolutionary functional importance. We unraveled variation in the length and composition of this region in NFS and SFS lines.

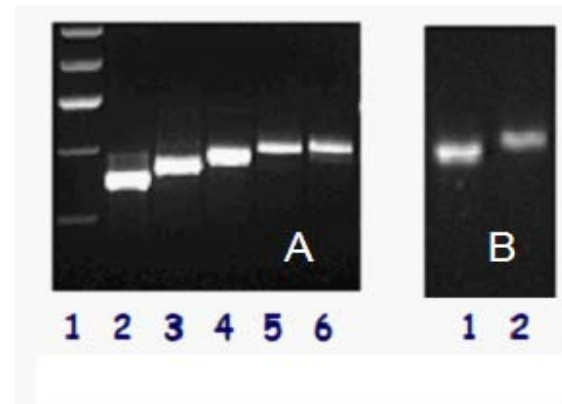
Percent of (Thr-Gly)_n length variants frequencies



The 'European' *per* allele ($n=20$) was a 2.6-fold more abundant on the NFS compared to the SFS. We suggest that repeat length/composition may influence the functional features, i.e. habitat choice, nonrandom mating, and temperature adaptation.

Female mate-choice tests show that females derived from NFS distinguish between males with specific *per* alleles, as well as between males originated from the opposing slopes. Females from SFS were less discriminating and did not manifest significant deviation from random mating.

Amplified DNA bands of *per* gene



A – Separation made on a 2% agarose for 4 h: 1 – marker, lanes 2-6: 346 bp, 364 bp, 382 bp, 394 bp, and 400 bp bands containing 14, 17, 20, 22, and 23 Thr-Gly repeats.

B – Separation made on a 2% agarose for 6 h: lane 1 – 382 bp band containing 20 Thr-Gly repeats; lane 2 – 388 bp band containing 21 Thr-Gly repeats.