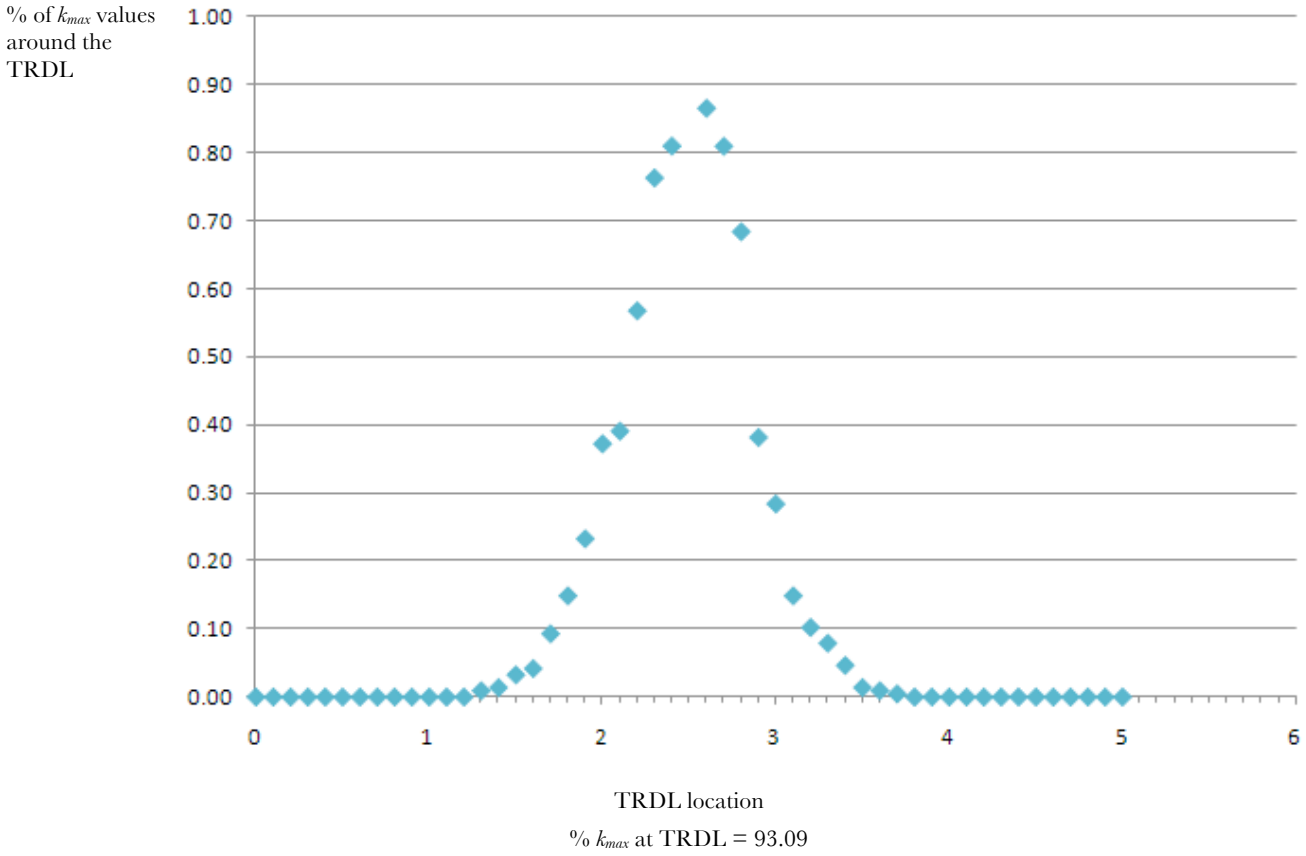
FILE S2

Estimation of the precision of the mapping of a transmission ratio distorter locus (TRDL) using the k_{max} measurement by simulation

In order to estimate the precision of the mapping of a transmission ratio distorter locus (TRDL) using the k_{max} measurement, we simulated 10,000 BC1F1 populations of 734 individuals each, bearing one chromosome segment of 5 cM long spanned by 50 markers (10 markers per cM). A TRDL was located in the middle of the segment at the position 2.5 cM, and induced a differential viability rate of 0.95. For each population generated, the k statistic was computed for each marker. We then determined the percentage of cases where the maximum value of k (k_{max}) was observed on each marker surrounding the TRDL and plotted this percentage value against the position on the chromosome segment.



The simulation results showed a percentage of k_{max} of 93.09 % at the TRDL position, and showed that 95.58 % of the k_{max} felt in an interval of 0.3 cM around the TRDL, meaning that there is a 95 % probability of observing a k_{max} in an interval of slightly less than 0.3 cM around the true TRDL position. Converting this genetic distance to a physical one using the local rate of 80 kbp/cM (derived from our data, see Figure 3) leads to an interval of slightly less than 24 kb.