Recombination rates across *A. lyrata* linkage groups 1 and 2

Figure 1 shows estimates of recombination rate across the region surveyed, in *A. thaliana*, *A. lyrata*, and an outgroup species, *C. rubella*. Rate estimates are based on physical distances in *A. thaliana*, and genetic mapping data from *A. thaliana* (Arabidopsis Genome Initiative), *A. lyrata* (Hansson et al. 2006; Kuittinen and Aguade 2000; Kuittinen et al. 2004), and *C. rubella* (Boivin et al. 2004). The *A. thaliana* first chromosome is homeologous to two linkage groups in *A. lyrata* and *C. rubella* (hereafter called LG1 and LG2). LG1 shows a very high correlation in estimated recombination rates across the species, and the complete linkage of pericentromeric markers on the *A. lyrata* genetic map suggests conservation of the centromere location (Figure 2; see Hansson et al. 2006). In LG2, recombination rate estimates are substantially higher in both *A. lyrata* and *C. rubella* than in *A. thaliana*. This is most likely due to the fact that, in the first two species without the chromosome fusion, LG2 is a significantly shorter chromosome arm than in *A. thaliana*, which is often associated higher crossing-over per unit of physical distance (Kaback et al. 1999). However, other possibilities are that physical distances are disproportionately increased in this region, additional small rearrangements have occurred in this region, or that low marker density and/or incomplete mapping resolution are generating discrepancies. Because of this uncertainty, we did all analyses using both estimates of recombination rates, those based on *A. thaliana* and those based on *A. lyrata*. 


Figure 1- Estimates of scaled recombination rate across the *A. thaliana* chromosome 1, from *A. thaliana*, *A. lyrata*, and *C. rubella*. Light gray squares, *A. thaliana*, black squares, *A. lyrata*; dark gray squares, *C. rubella*. Black circles show the positions of the genes surveyed in this study. LG1 and LG2 refer to the first and second linkage groups in *A. lyrata*. 
A. lyrata
C. rubella
A. thaliana

Chromosome 1
Chromosome 2

Recombination Rate (cM/MB)

Physical Position in A thaliana (MB)