



Reshaping of crossover distribution in *Vitis vinifera* x *Muscadinia rotundifolia* interspecific hybrids

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Muscadinia rotundifolia: a valuable resource for grape breeding

High level of resistance to several major diseases



Muscadinia rotundifolia: a valuable resource for grape breeding difficult to exploit

High level of resistance to several major diseases



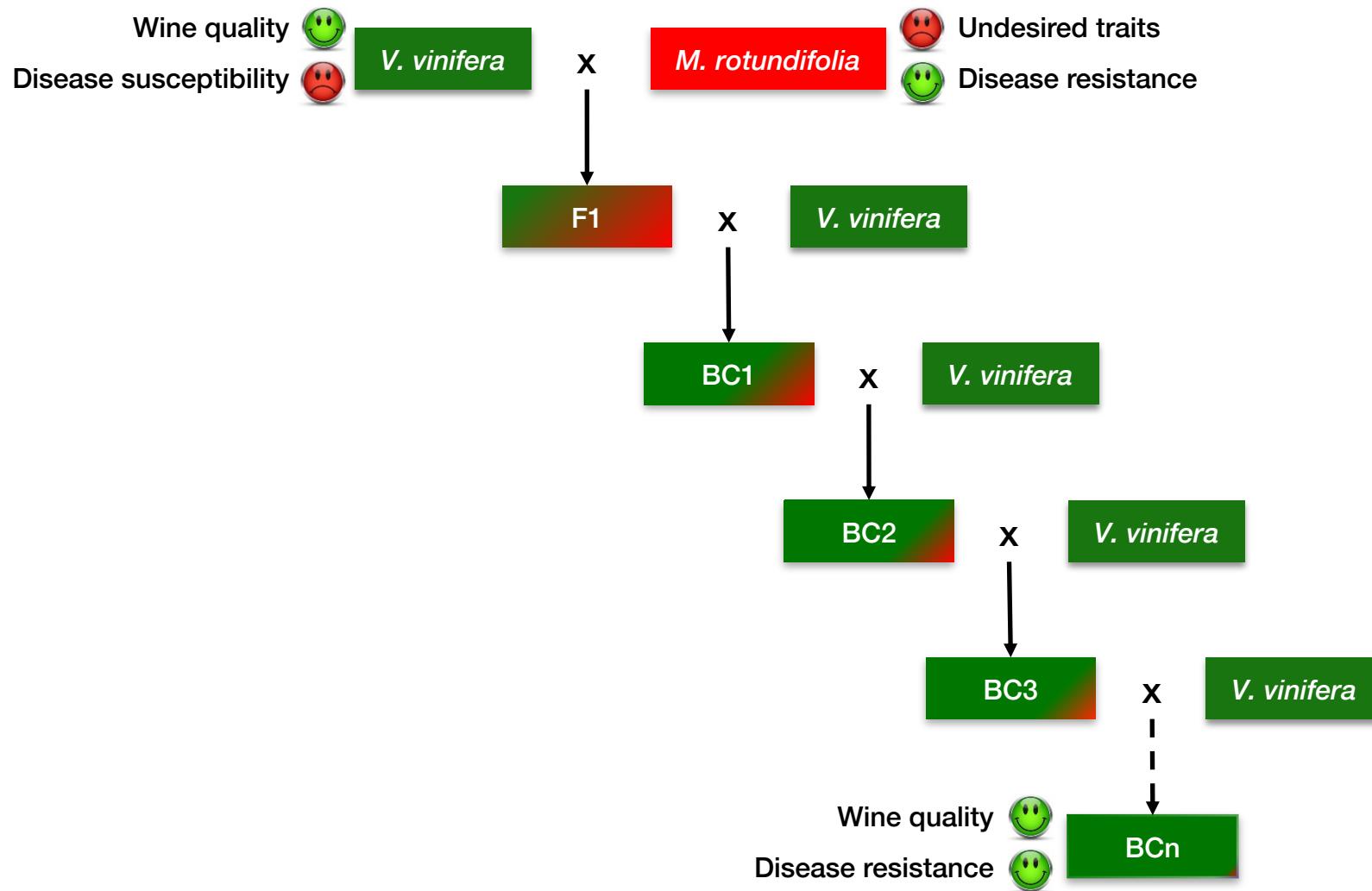
But ...

Unwanted cultural traits and off-flavours

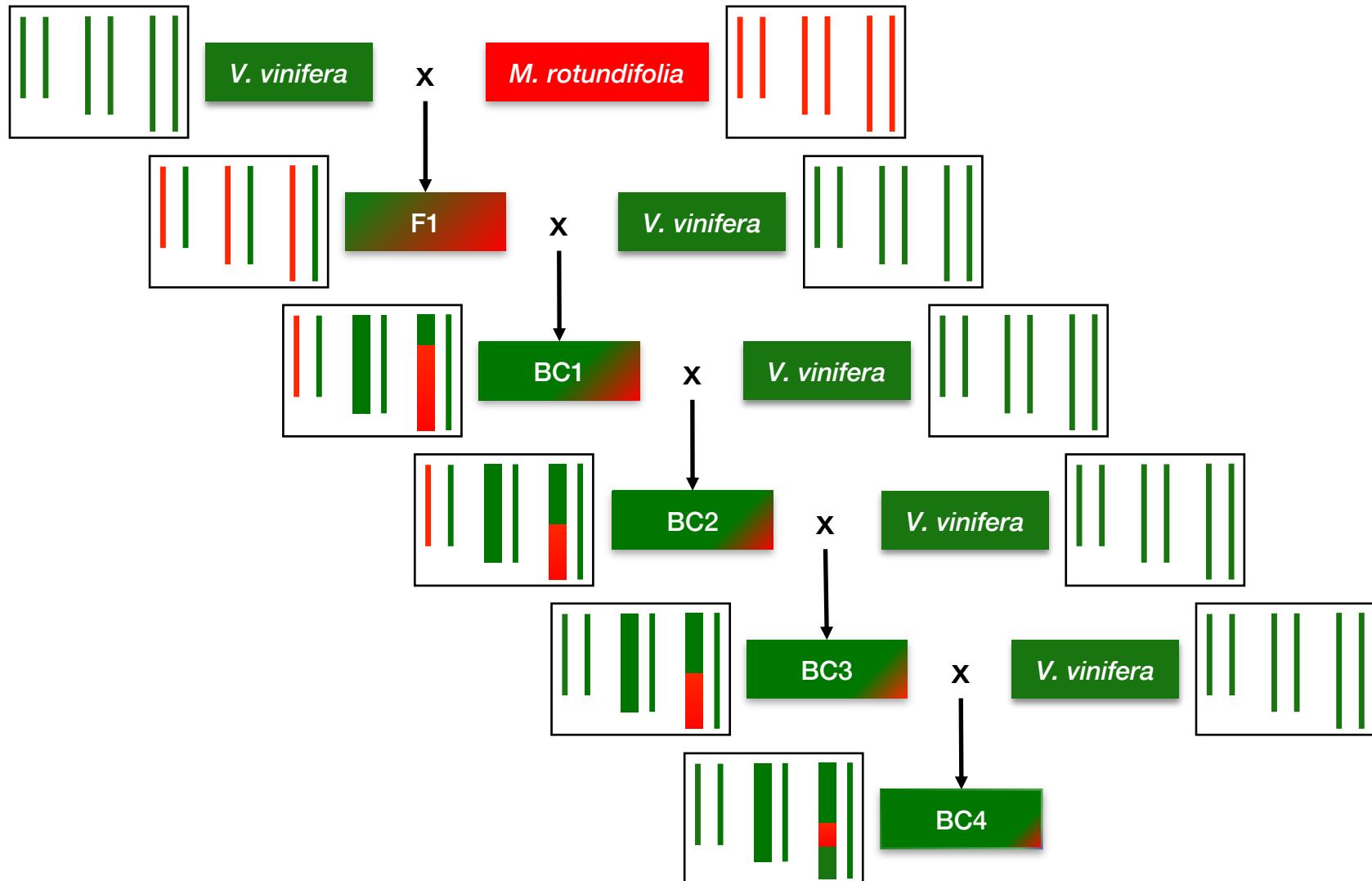
Low rate of success of interspecific crosses

Poor vigour and low fertility of interspecific hybrids

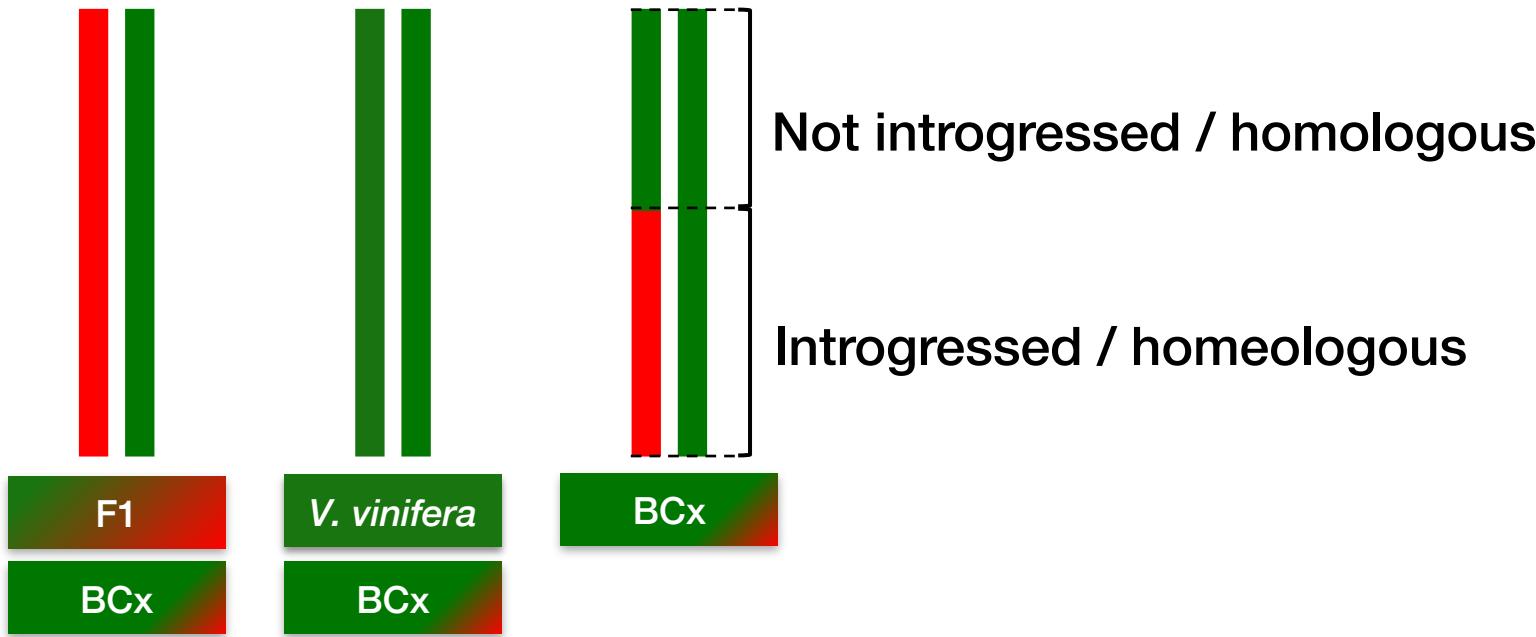
Introgression of a trait of interest



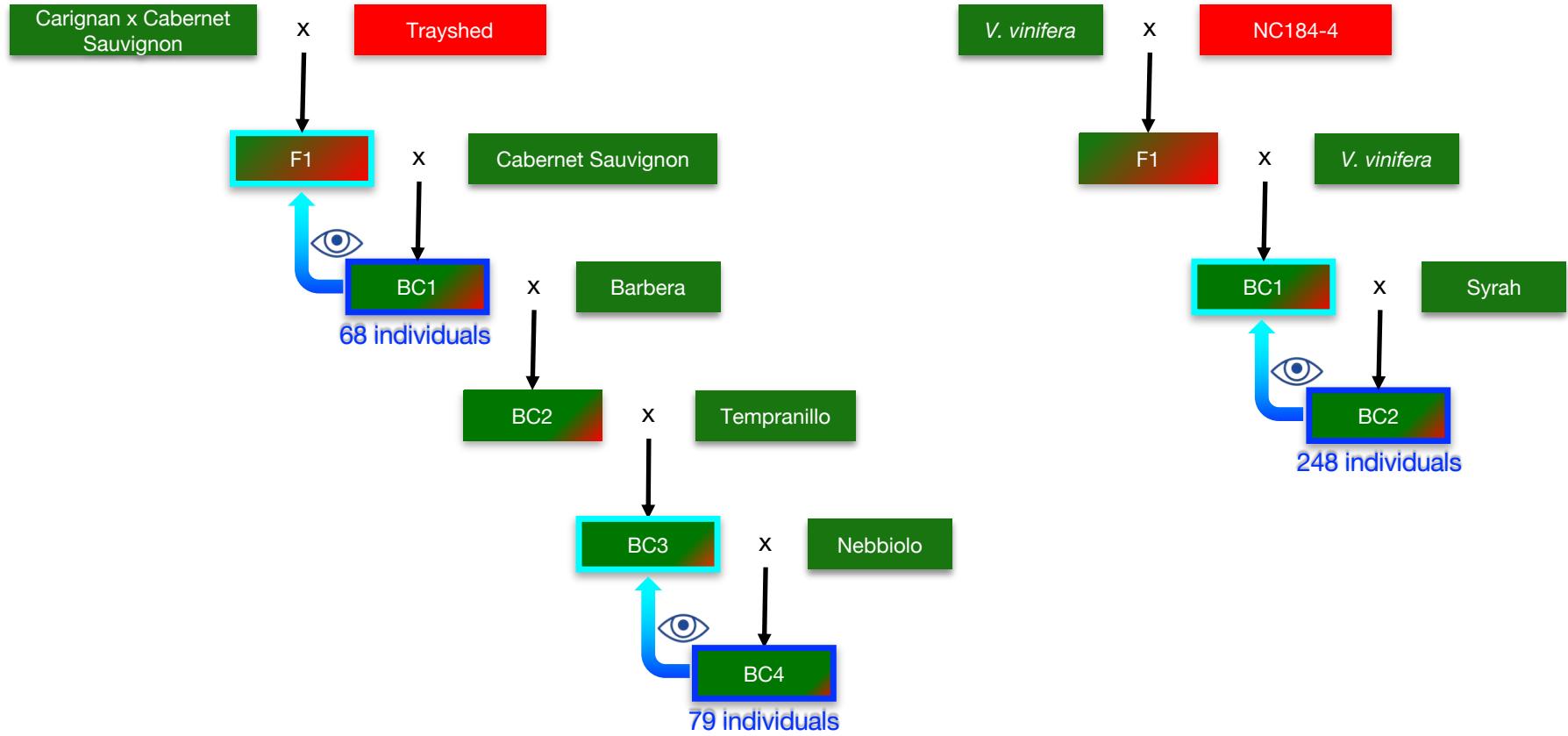
Introgression of a trait of interest



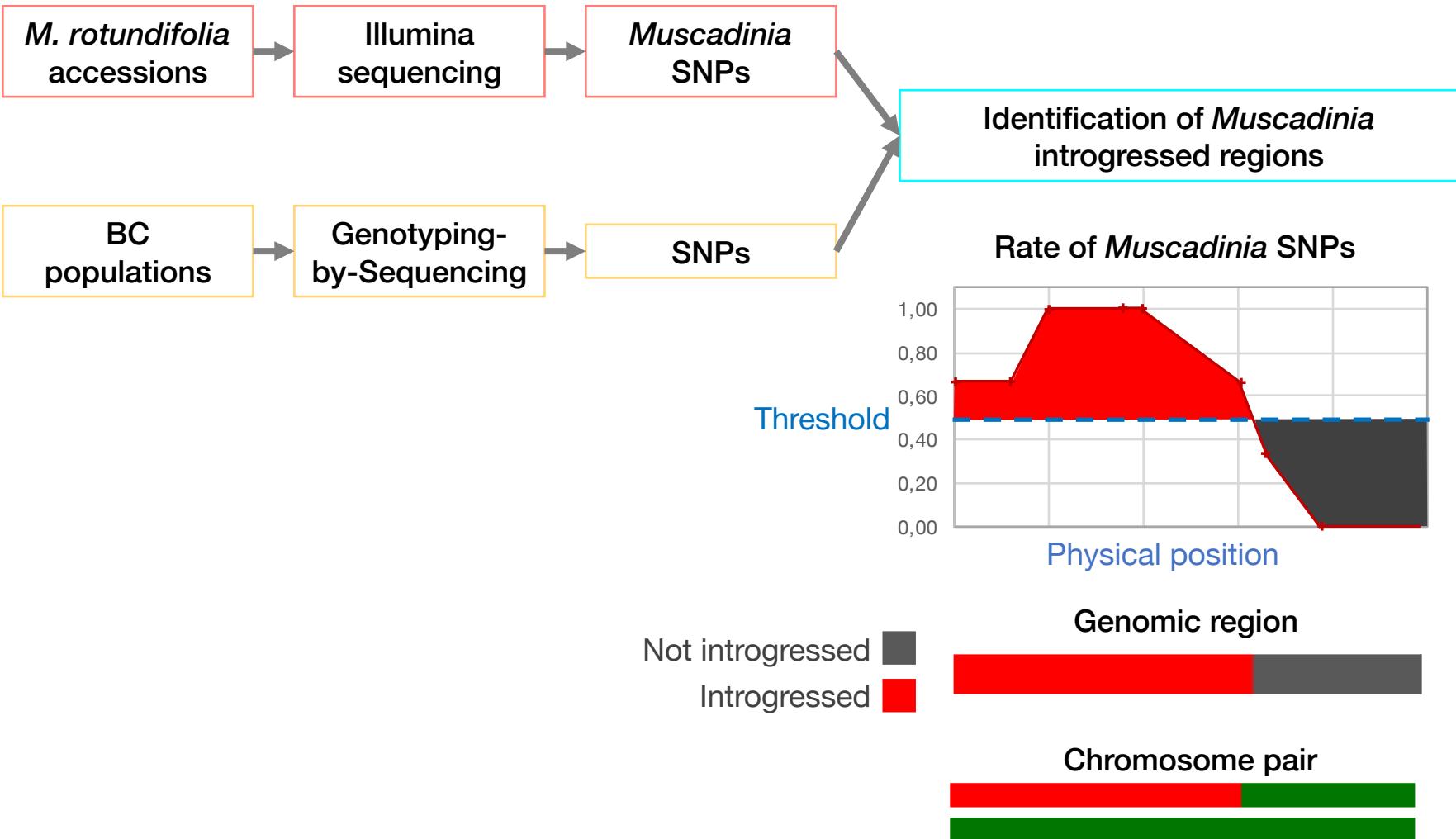
Meiotic recombination between homeologous chromosome pairs



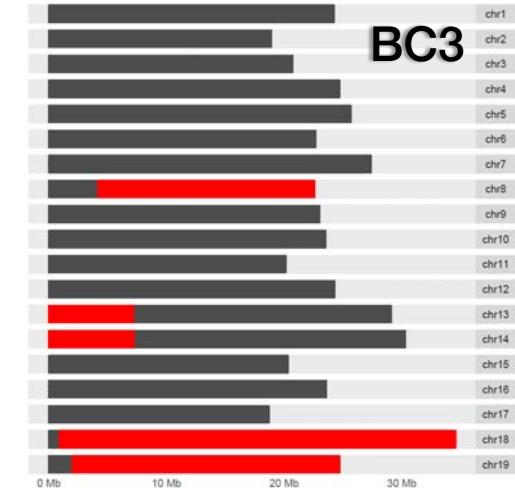
BC1, BC2 and BC4 populations to analyse meiosis in hybrid parents



Chromosome painting of *M. rotundifolia* introgressed regions



Chromosome painting of *M. rotundifolia* introgressed regions in hybrid parents



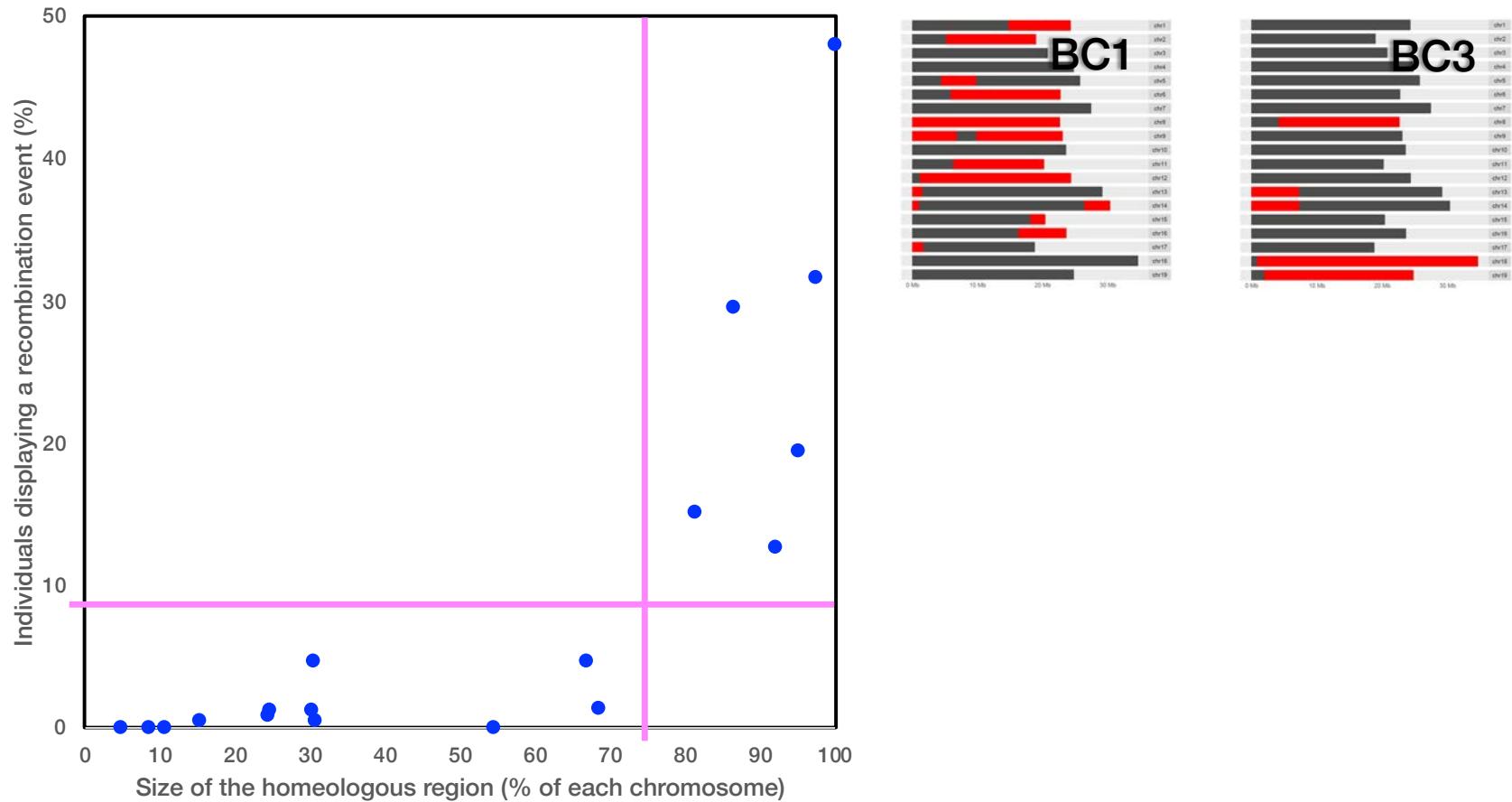
- Genome entirely homeologous

■ Homologous region
■ Homeologous region

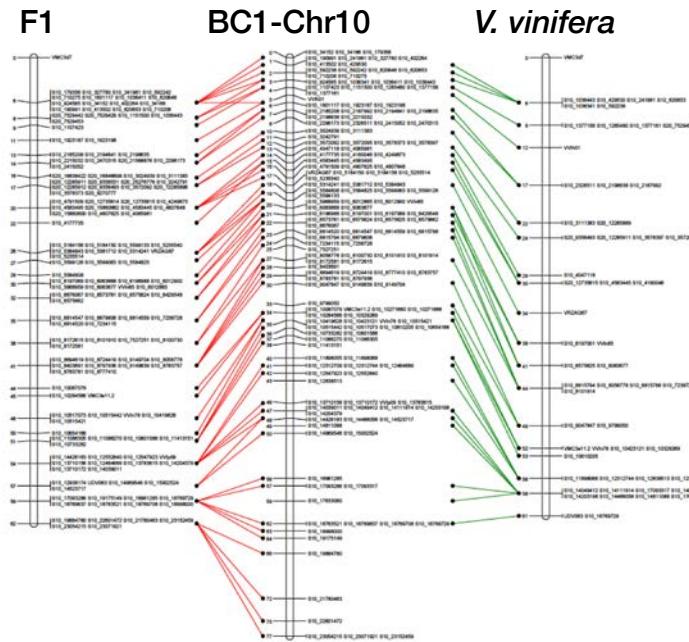
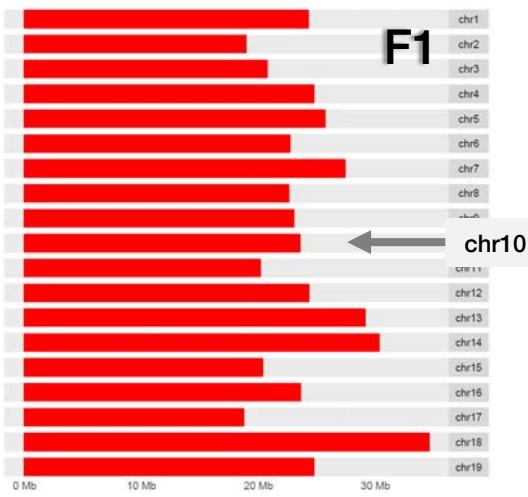
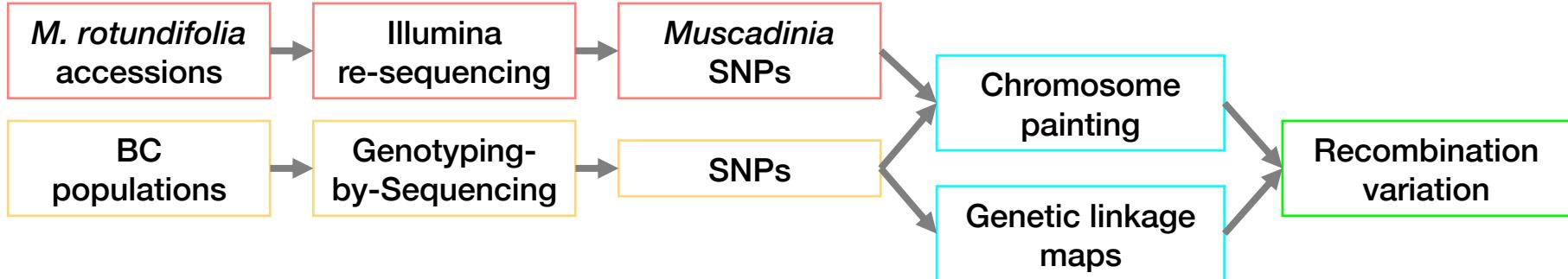
- Homologous and homeologous regions
- Homologous and homeologous chromosomes
- 0 to 2 recombination events per chromosome

- Homologous and homeologous regions
- Homologous (*V. vinifera*) chromosomes
- Only one recombination event conserved per chromosome

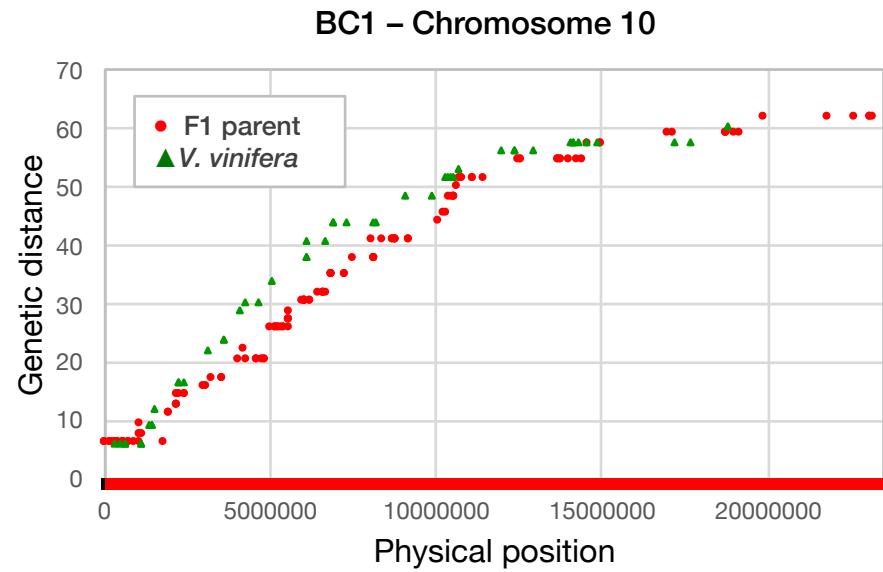
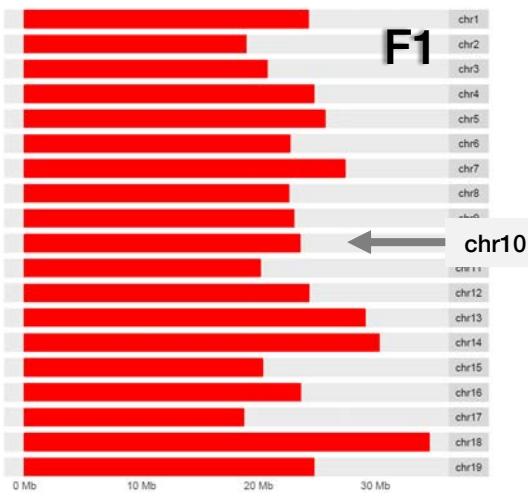
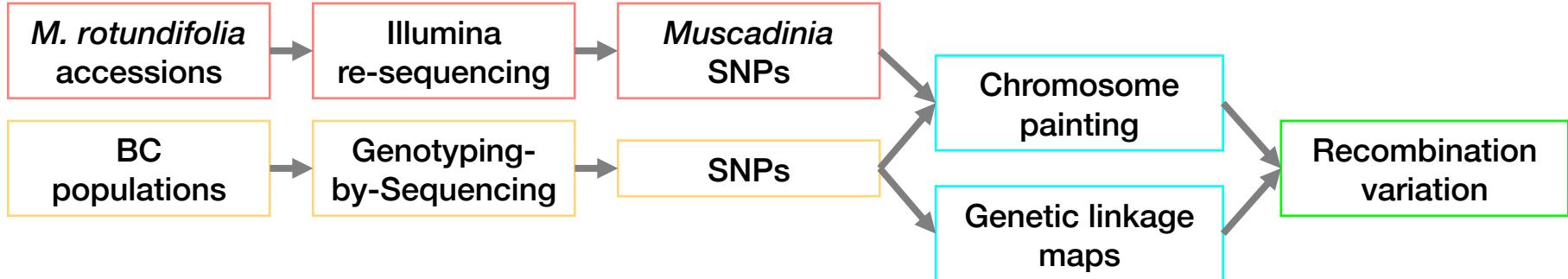
Recombination events in chromosomes bearing homeologous regions



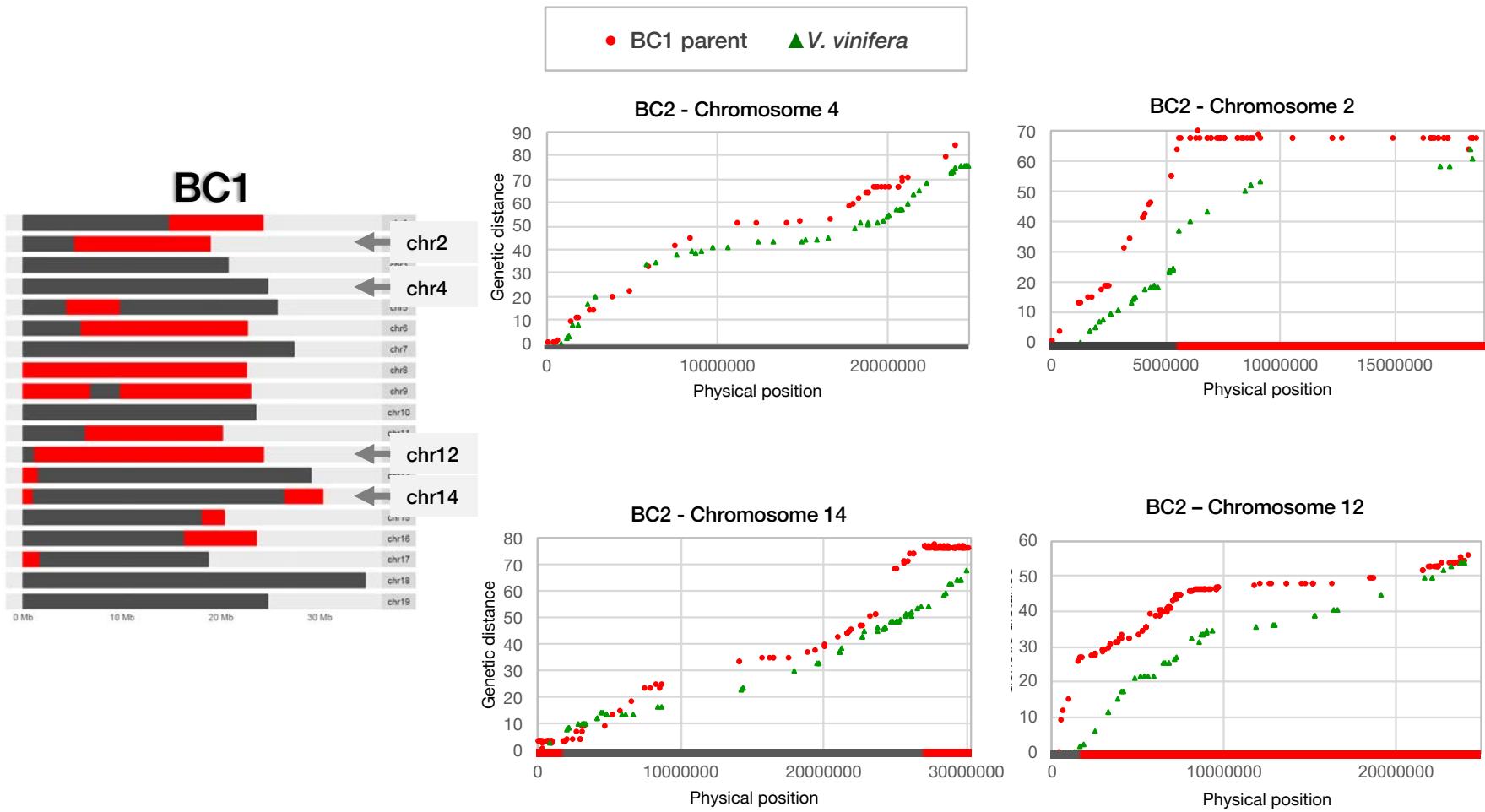
Variation of recombination in BC populations



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Variation of recombination in BC populations



Summary

Meiotic recombination of interspecific hybrids is

- similar to grapevine in chromosome pairs entirely homeologous
- suppressed in homeologous regions in chromosome pairs partly homeologous
- enhanced in homologous regions along chromosome pairs partly homeologous

The total genetic length of each chromosome is conserved between *V. vinifera* and hybrid whatever the backcross level and the proportion of homeologous region

