

Combined approaches toward mapping and cloning of powdery mildew resistance gene *QPm.tut-4A* introgressed to bread wheat from *T. militinae*

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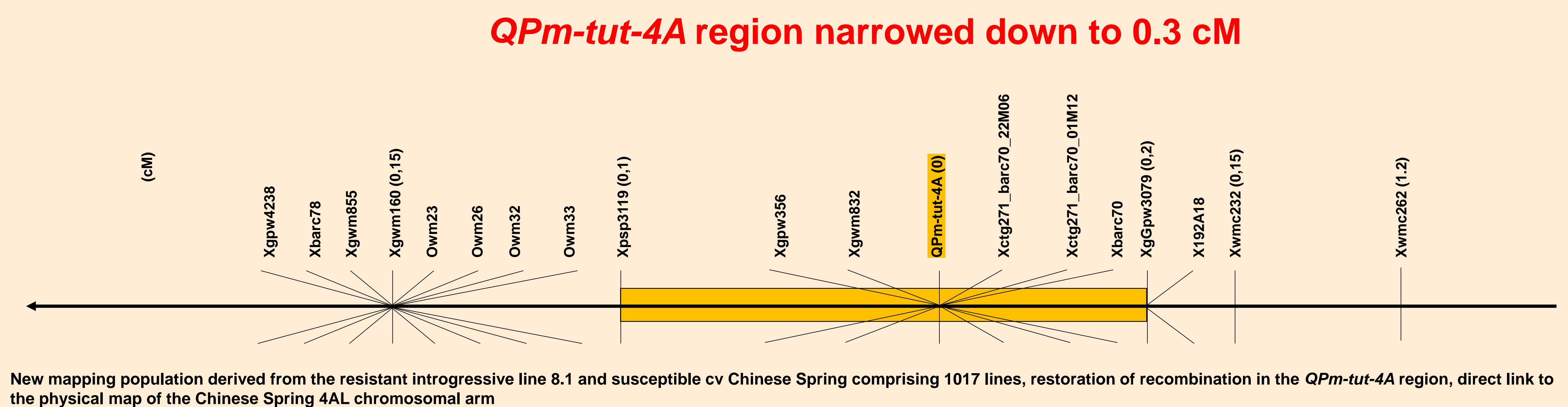
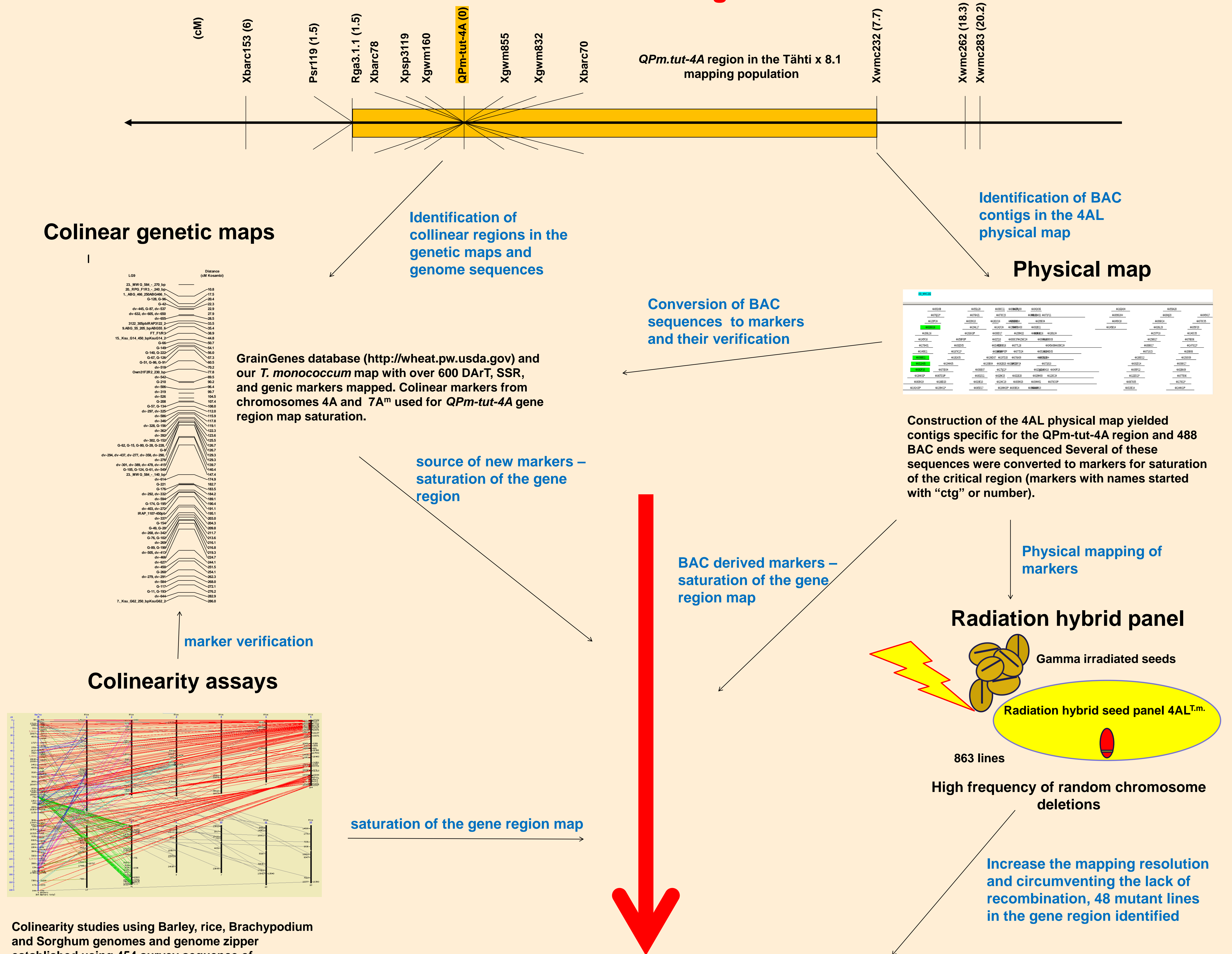
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Introduction

Powdery mildew caused by *Blumeria graminis* is one of the major diseases of wheat causing substantial yield and quality losses. Recently, locus *QPm.tut-4A* conferring non-race-specific resistance to powdery mildew was introgressed to hexaploid wheat cv. Tähti from tetraploid *Triticum militinae*. The locus was mapped to the distal end of the wheat 4AL chromosomal arm, between markers *Rga3.1.1* and *Xwmc232* in the mapping population derived from the

cross of the introgressive line 8.1 and cv Tähti (Jakobson *et al.*, 2006). Unfortunately, no natural recombination within the region was observed among 1200 haplotypes tested. In an attempt to clone the *QPm.tut-4A* gene, we combined several approaches to overcome the limitation and saturate the region with markers.

QPm.tut-4A region ~ 10 cM



REFERENCES

Jakobson I., Peusha H., Timofejeva I., Jarve K - *Theor. Appl. Genet.* 112: 760–769, 2006.
Hernandez P., Martis M., Dorado G., et al., *Plant J.* DOI: 10.1111/j.1365-313X.2011.04808.x

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