

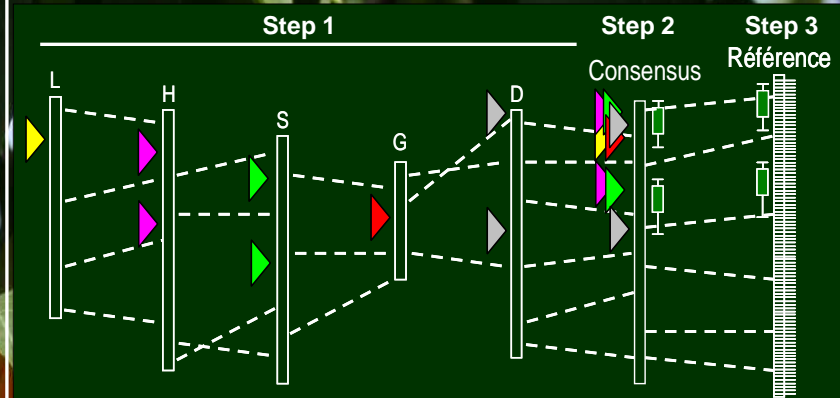
Genomic organization of the resistance to *Plum pox virus* in distinct apricot progenies through a quantitative meta-analysis



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To date, few regions involved in resistance have been identified and mapped in several apricot progenies issued from the genitors 'Stark Early Orange' (SEO), 'Goldrich', 'Harcot', and 'Harlayne'. However, whether those regions are distinct or not is still questioned. Within the SharCo consortium, a meta-analysis of the apricot resistance to PPV was performed. The purpose of this study was i) to integrate all the PPV resistance QTL information available in the literature in a QTL meta-analysis in order to detect consensual, most probable genomic regions linked to resistance to sharka disease, ii) to compare the genomic organization of those resistance loci in different genitors.

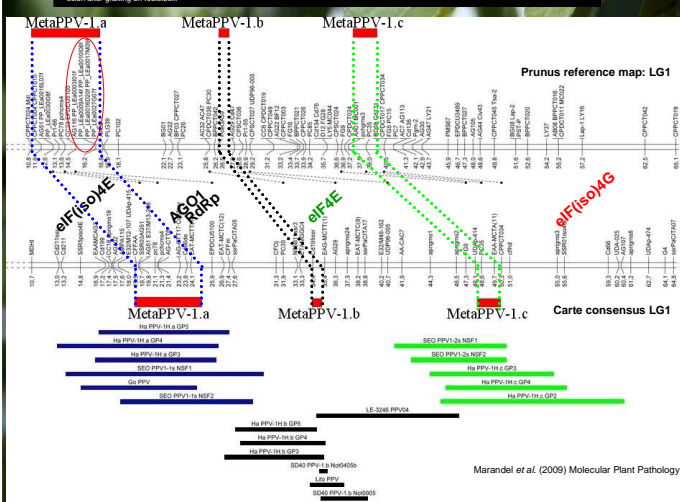
A three-step approach



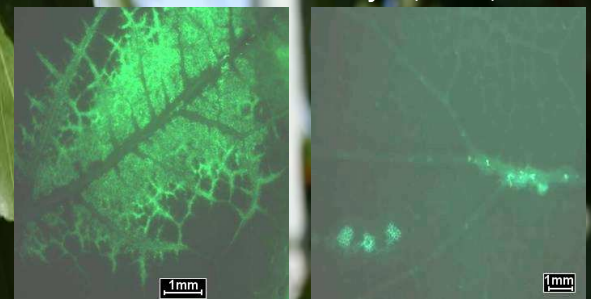
Four MetaQTLs, three on top of LG1 and one on LG3, identified and linked to resistance to PPV

- 1) Construction of a consensus genetic map based on a subset of common markers,
- 2) Projection of the QTLs on the consensus map,
- 3) Statistical computation to determine the number and location of the MetaQTLs

No immunity to PPV in the currently available apricot genitors of resistance to PPV



PPV susceptible apricot 'Monique'
 PPV resistant apricot 'Harlayne', 'SEO', 'Goldrich'



Does the number of inherited MetaQTLs determine the level of resistance to PPV ?

	MetaPPV-1.a	MetaPPV-1.b	MetaPPV-1.c	MetaPPV-3
Goldrich	✓	✗	✗	✗
Stark Early Orange	✓	✗	✓	✓
Harlayne	✓	✓	✓	✓
Susceptibility	←	←	←	←
Tolerance	←	←	←	←
Partial resistance	←	←	←	←
Resistance	←	←	←	←
Immunity	←	←	←	←
	'Harcot'	'Goldrich' 'Henderson'	'SEO'	'Stella' 'Harlayne' 'NJA2'

Results and perspectives: The identification of MetaQTLs allows distinguishing the different sources of resistance to PPV in apricot. It points out the interest of other genitors such as 'Stella' and 'NJA2' but also the importance of cumulating genetic factors from one genitor ('Harlayne' for example) to another ('Harcot', 'Goldrich'). New sources based on totally distinct mechanisms of resistance are searched for in order to pyramid them into the above mentioned genitors (See Tricon et al.).