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The clone P1908 of *Prunus davidiana,* a peach-related species, is currently the only source of resistance to *Plum pox virus* (PPV)) that has been so far studied for resistance, both at the phenotypic and molecular levels, and which might be useful in peach (*Prunus persica*) breeding programs. Two previous studies using F_1 and F_2 populations derived from the nectarine cv. Summergrand and *P. davidiana* P1908 identified a total of six *P. davidiana* quantitative trait loci (QTLs) involved in PPV resistance (Marcus strain). The current study evaluated the incidence of PPV infection in a F_1 population derived from the susceptible peach cv. Rubira and *P. davidiana* P1908 and identified nine regions involved in differential symptom expression, among which, six were common with the previous studies. However several discrepancies were observed, suggesting interactions between the genetic background of the susceptible parent and that of *P. davidiana* P1908. Based on these findings, sequence analysis of previously published candidate genes was undertaken in order to detect SNPs useful for Marker Assisted Breeding (MAB). Part of these results will be presented and discussed but as a preliminary outcome, they suggest that i) *P. davidiana* P1908 would be a limited resource in breeding programs aimed at PPV resistance if used alone, ii) it might still remain an interesting quantitative resistance source if combined with medium to strong resistance sources such as those provided by some almond cultivars (*Prunus dulcis*).