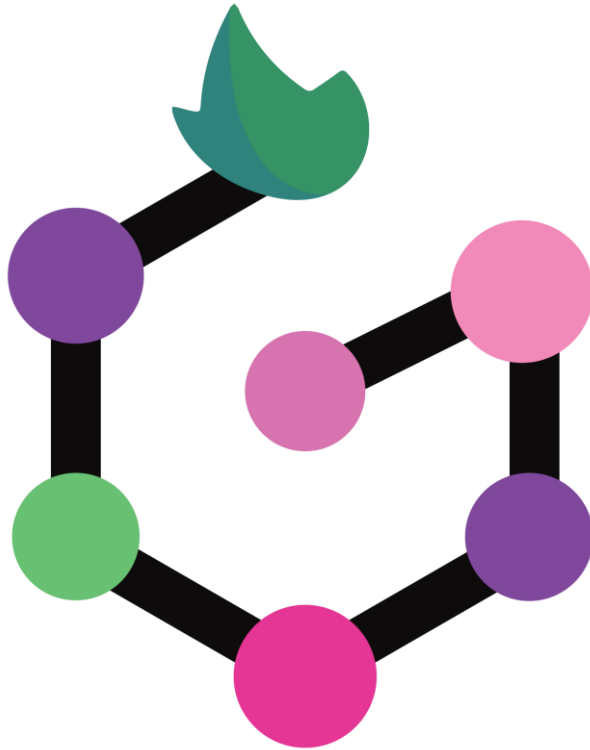


# Grapedia

The Grapevine Genomics Encyclopedia



## The Annual Meeting Booklet

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The birth of a centralized, federative portal



## **Rgb3: an organ-specific QTL for bunch resistance to black rot identified in the hybrid cultivar 'Merzling'. Hands-on demo of the potential of GRAPEDIA**

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Abstract:

Crops are continuously exposed to the onset of emerging diseases and the exploitation of resistance donors in breeding programs is a widely used valid strategy. In the last two decades black rot (BR), caused by the ascomycete *Phyllosticta ampellicida* (syn. *Guignardia bidwellii*), has begun to threaten European viticulture in humid continental areas due to the advent of higher temperatures which favor the pathogenic cycle of the fungus. For this reason, a program has been established for the dissection of BR resistance trait and its introgression both in *Vitis vinifera* varieties and mildew resistant hybrids. A preliminary study was carried out to improve germplasm screening through different approaches. Historical phenotypic and pedigree information of resistance donors were gathered to support the decision-making process in breeding. A new propagation and inoculation strategy was developed to optimize and fasten inoculation experiments. Isolates of *P. ampellicida* were genetically characterized and combined for the assessment of resistance independent of race-specificity. Finally, these improvements were employed first for the identification of new BR resistant parental lines and breeding selections, and then for the quantitative trait locus (QTL) analysis in a segregating population derived from the cross 'Merzling' (hybrid, resistant) × 'Teroldego' (*V. vinifera*, susceptible). The screening of this progeny, under greenhouse and field conditions, allowed the discrimination between two distinct organ-specific QTLs on chromosome 14. The previously identified *Resistance to G. bidwellii* (Rgb)1 locus was confirmed associated with leaf/shoot resistance, while upstream a new QTL



designated *Rgb3* was discovered linked to bunch resistance. Driven and inspired by the INTEGRAPE community effort that led to GRAPEDIA (GRAPEvine -omics encyclopDIA), all the available tools and resources have been exploited for the exploration of the physical region of the two QTLs, providing a hands-on demo of the potential of this portal.