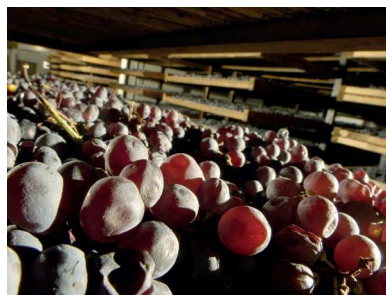




UNIVERSITÀ
di VERONA
Dipartimento
di BIOTECNOLOGIE



X INTERNATIONAL SYMPOSIUM ON GRAPEVINE PHYSIOLOGY AND BIOTECHNOLOGY



BOOK OF ABSTRACTS

June 13th – 18th, 2016
Palazzo della Gran Guardia
Verona, Italy



L66

Cisgenic grapevine: an ever closer goal

Lorenza Dalla Costa⁽¹⁾ - *Stefano Piazza*⁽¹⁾ - *Manuela Campa*⁽¹⁾ - *Valentino Poletti*⁽¹⁾
Mickael Malnoy⁽¹⁾

Research and Innovation Centre, Fondazione Edmund Mach, San Michele all'Adige, Italy⁽¹⁾

The Italian government has recently announced a significant allocation of public funds for the sustainable 'green biotechnology'. New plant breeding technologies have been designed as a great opportunity for plant genetic improvement to face future challenges in agriculture without altering the existing heritage of agronomic crops and varieties. In particular, scientific and commercial research is betting on two technologies, cisgenesis and genome editing, which may be conceived as an evolution of the traditional genetic engineering to respectively introduce and silence desired traits in planta with a minimal impact on its genomic asset. Here we present a construct to apply cisgenesis in grapevine, one of the most economically important crop worldwide. Once the candidate grapevine gene has been selected, its sequence and its promoter may be cloned in two sites of the cisgenic construct which are separated by an FRT-cassette. Such FRT-box contains a selectable marker gene (*nptII*) and the *flp recombinase* under the control of an heat-shock promoter and may be removed when desired through a site-specific recombination induced by an heat-treatment. The proper conditions for an optimal removal of the FRT-cassette have been set up in the cultivar 'Brachetto' and tested on a wide range of genotypes. In addition, a construct for intragenesis has been produced carrying the grapevine promoter *VvUBI*, which drives high levels of gene expression in different tissues and under several conditions. Experiments are in progress to produce cisgenic and intragenic grapevine of different genotypes with an improved defence response to pathogens.