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## Genetic engineering of PPV resistance in plum rootstock 'Elita' ((*Prunus pumila L. x P. salicina* Lindl.) x (*P. cerasifera* Ehrh.))

Plum pox virus (PPV) is the serious viral disease affecting *Prunus* species such as plum, apricot, cherry and peach. To date the few PPV resistance genetic resources found in *Prunus* germplasm, nevertheless the conventional breeding approaches are very challenging for use in fruit trees due to several limiting intrinsic factors. Several biotechnological approaches could be used to develop PPV resistance in plants; nonetheless, the RNA interference is shown to be the most effective disease-control strategy. In our initial report we have successfully used this biotechnological technology to produce transgenic plants of commercial cultivar "Startovaja" (*Prunus domestica* L.) with PPV-derived ihpRNA construct. The transformation experiments were conducted using genetic construct containing the self-complementary sequences of fragment of PPVCP gene separated by an intron for the induction Plum Pox Virus (PPV) resistance through the mechanism of post-transcriptional gene silencing. Transgenic plum rootstocks plants have been produced from organogenic callus developed on leaf explants within 6-month culture after the inoculation. PCR-analysis confirmed the transgenic status of produced plants by the amplification of the fragments of "hairpin"-PPV-CP construct and hpt gene. To our knowledge, this is the first report of the successful attempt to produce transgenic plum rootstock.

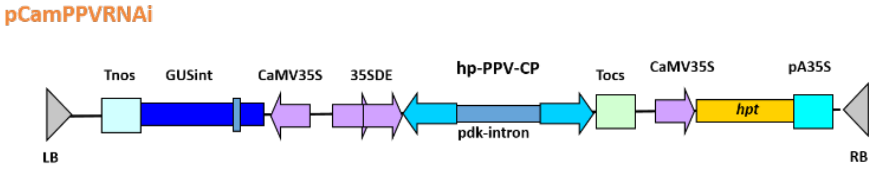


**Figure 1:** Schematic drawing of pCamPPVRNAi vector containing the self-complementary sequences of fragment of PPV-CP gene separated by an intron.

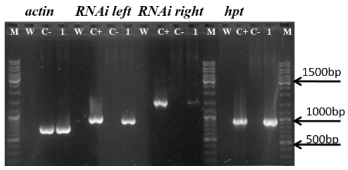


**Figure 2:** Analysis of transformed plum rootstock for the presence of transferred genes

## Biography

Sergey Dolgov is the Head of Laboratory of Expression Systems and Plant Genome Modification "Biotron". During last 25 years, the technologies of *in vitro* cultivation of isolated cells, tissues and organs on artificial media have been developed for more than plant 30 species. Highly effective methods of genetic transformation have been developed for a large number of plants (carrots, tomatoes, pears, apples, strawberries, wheat, duckweed, chrysanthemum), which allow to study the activity of foreign proteins in transgenic plants and obtain varieties with economically valuable traits. Currently, the station of artificial climate "Biotron" researches on the plant physiology and molecular biology (studying of genes that affect the flowering morphology of Compositae), biopharming, protection of plants against biotic and abiotic stresses, field trials of transgenic fruit trees, etc.

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