

Genetically engineered PRORP protein for the development of RNA-Virus resistant plants



- Novel genetical approach offering plants a universal resistance against TLS-RNA-viruses (27 viruses/ 8 families)
- Vast possibilities of [Virus/plants] couples & Market opportunities

KEYWORDS

Plants viruses
RNA viruses
Virus resistance
PRORP
TLS like sequences

PATENTS

EP14305771.9

INVENTOR

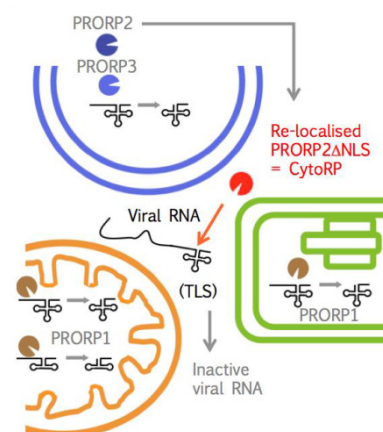
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TECHNOLOGY

- PRORP proteins family are newly discovered RNase P activity enzymes, located in organelles, able to cleave tRNA & tRNA-like-sequences (TLS).
- TLS are constituents of 3'-extremity of some virus RNA, Necessary to use the cellular machinery and proliferate.
- Idea : Cytosolic PRORP mutant (CytoRP) can be obtained by deletion/mutation of the localization sequence. Consequently, CytoRP can exhibit a RNase-P activity in the cytoplasm, avoiding virus RNA proliferation.



APPLICATION

- TLS RNA-viruses resistant plants generation (8 families, 27 virus, including TYMV, TMV, CMV ...)
- Applicable to any vegetable crops.
- GMO & Non-GMO transformations possible

INNOVATION ADVANTAGES

- Not transgenic : CYTORP DNA results from a DNA sequence deletion/mutation of PRORP
- Multiple resistances in 1 transformation
- Low risk of resistance development thanks to the new resistance Mode of action
- CRISPR-Cas9 method possible and currently investigated

DEVELOPMENT STATUS

- Cucumber CYTORP enzymatically active on virus cleavage
- *In vivo* POC in Arabidopsis = established virus resistant plants by CYTORP transgenic expression
- Gene edited plants ongoing (Arabidopsis)

Partnership : out-licensing

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