Investigació i innovació
al grup de virologia de plantes del CRAG

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Financial support:

MINISTERIO DE CIENCIA E INNOVACIÓN

AGENCIA ESTATAL DE INVESTIGACIÓN

Virtigation

European Commission

AGAUR Agència de Gestió d'Ajuts Universitaris i de Recerca

Generalitat de Catalunya

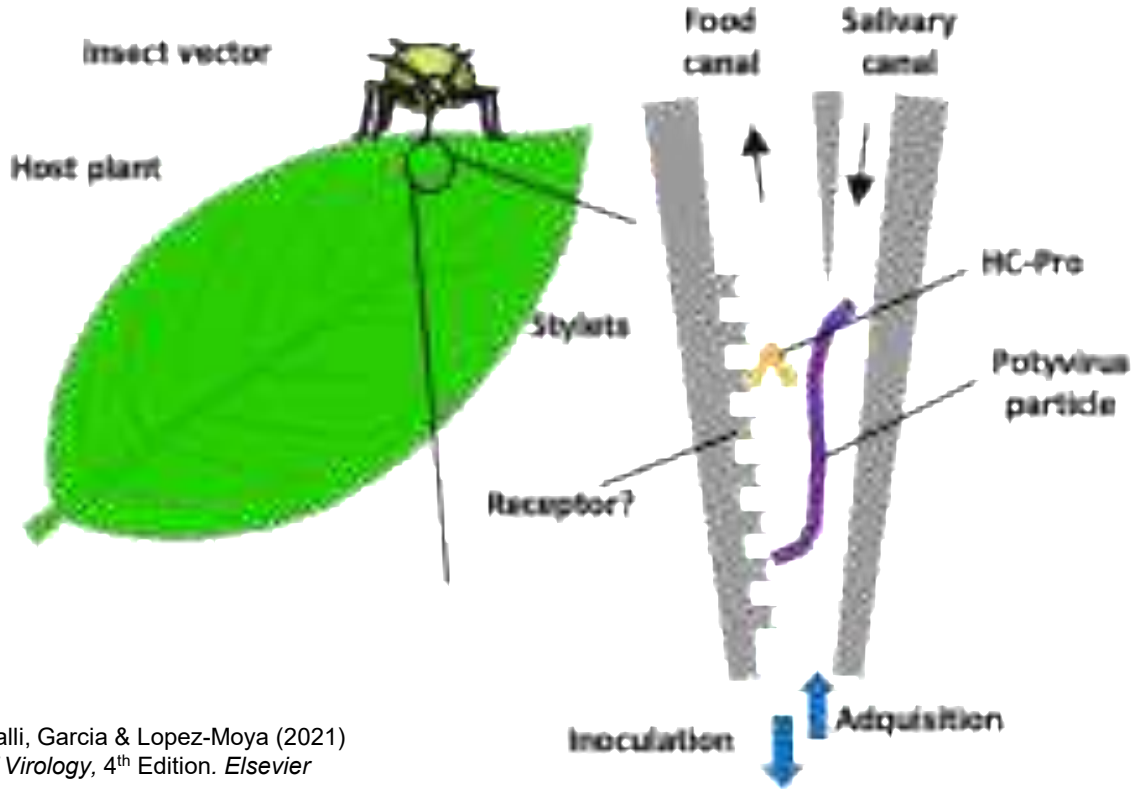
Companies:

vytrus biotech

fitó

Research topic: Virus transmission by insect vectors

Question: Can virus transmission be disrupted or prevented?

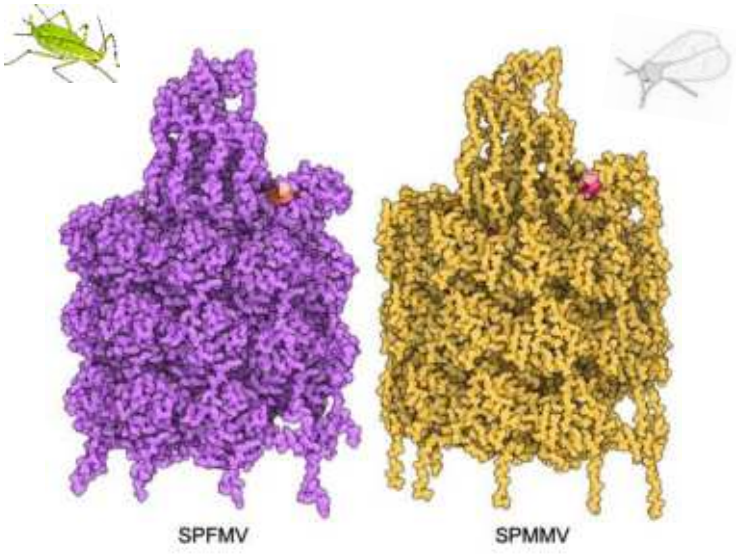


Adapted from Valli, Garcia & Lopez-Moya (2021)
Encyclopedia of Virology, 4th Edition. *Elsevier*

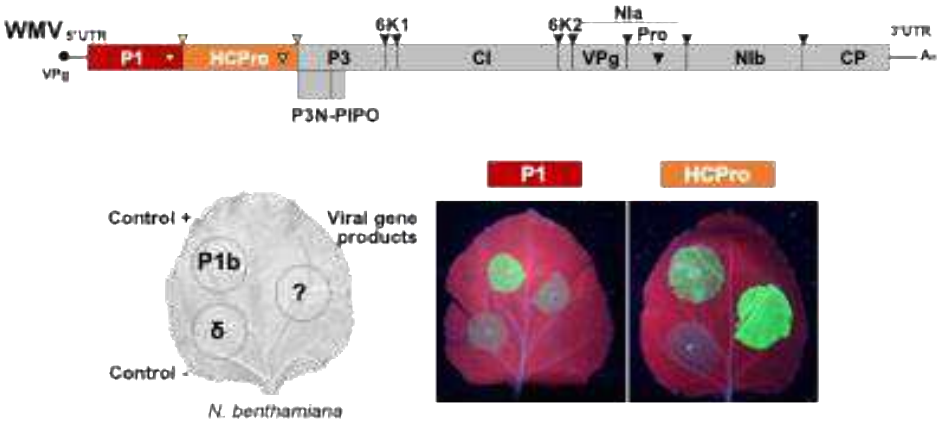
We propose strategies for interfering with viral dissemination during vector-mediated transmission processes

Research topic: Biotechnology and plant viruses

Question: Are viral components and functions be useful in biotechnology?



Chase et al. (2023) *Communications Biology* 6: 433

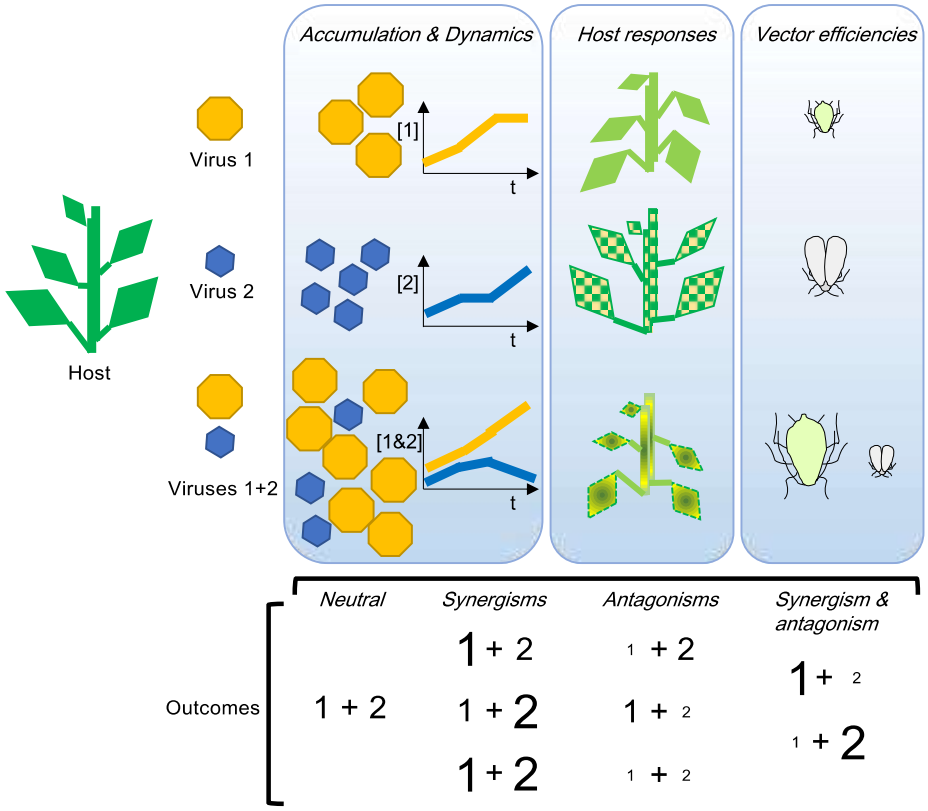


Domingo-Calap et al. (2021) *Frontiers in Virology* 12: 645530

We are exploring production of VLPs for nanobiotechnology and characterizing functions like RNA-silencing suppression

Research topic: Mixed viral infections

Question: How do plants manage co-infections involving multiple viruses?



Metagenomics reveals that mixed infections are common, and we aim to explore how interactions between viruses impact disease outcomes

Example of virus synergism in melon

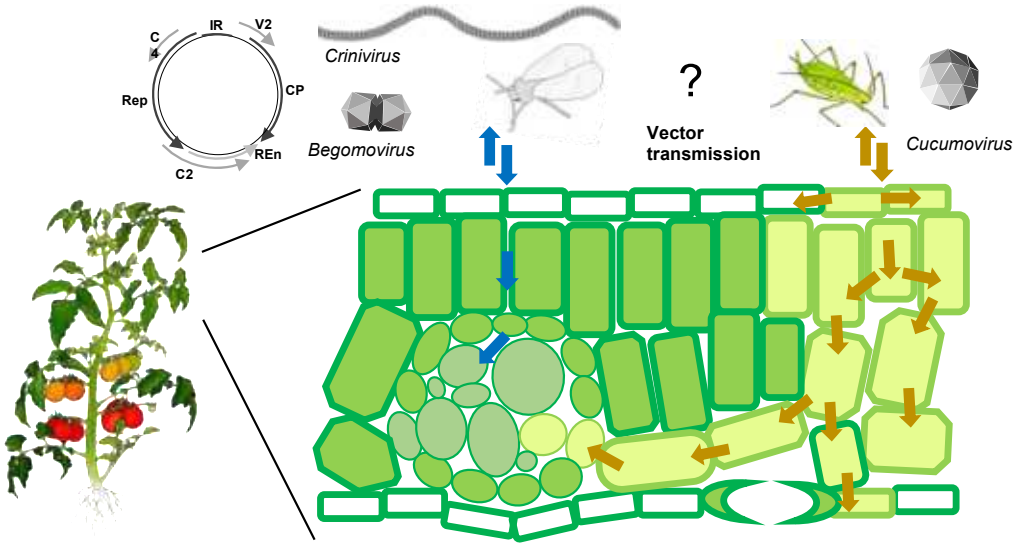
Uninfected **CYSDV** **WMV** **CYSDV+WMV**

Domingo-Calap, M. L., Moreno, A. B., Díaz Pendón, J. A., Moreno, A., Fereres, A., & López-Moya, J. J. (2020). Assessing the Impact on Virus Transmission and Insect Vector Behavior of a Viral Mixed Infection in Melon. Phytopathology, 110(1), 174–186.

Current project

PID2022-139376OB-C33

Conceiving and improving resistance to insect-transmitted viruses in tomato: genetic and innovative approaches related to host-pathogen-vector interactions



A coordinated project with teams at Universidad de Málaga and IHSM-CSIC (Subtropical & Mediterranean Horticulture and Fruticulture Institute)

Current project

Virtigation

EU Horizon 2020
(GA No 101000570)

Protecting tomatoes and cucurbits in Europe and the Mediterranean basin from emerging viral diseases

Co-creation with stakeholders

Innovative diagnostic tools

Plant-virus-vector interactions

Viral disease spread under climate change

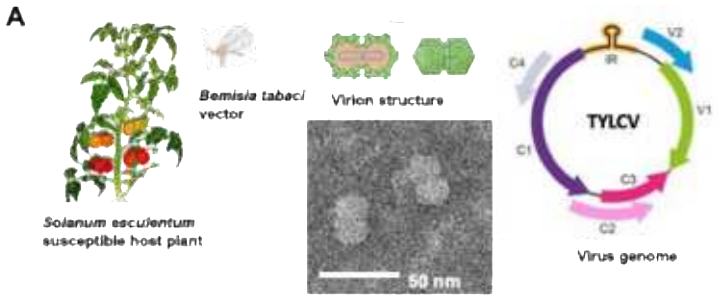
Integrated pest management (IPM)

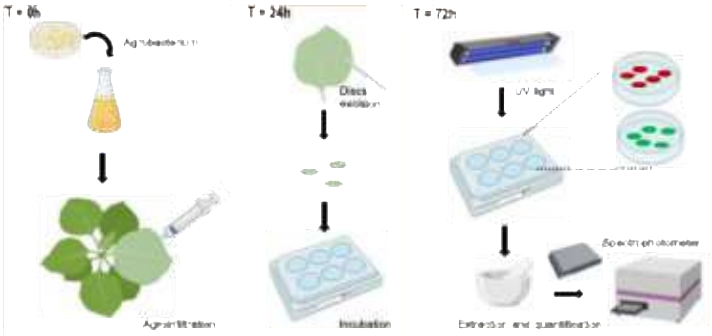
Train the value chain

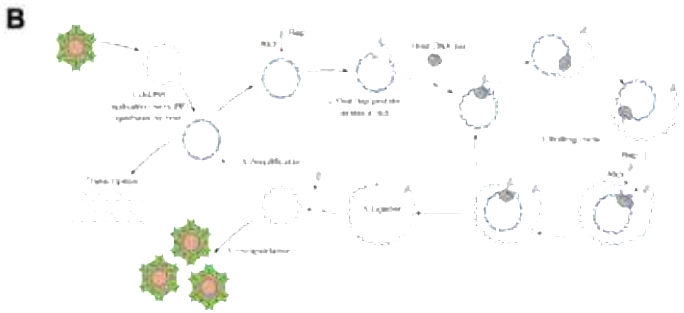
A EU-funded Horizon2020 project coordinated by KU LEUVEN with > 20 institutional partners from >12 EU countries + companies & international partners

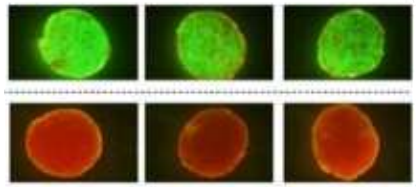
Transference topic: Search for antiviral compounds

Question: Can virus infections be controlled with treatments?









Expression of Rep + GFP reporter

Control (Rep alone)

Quantification of Rep activity in plants could be used for high-throughput antiviral drug discovery targeting the replication of ssDNA viruses

2025 LLAV 00111

Moltes gracièss

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