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NanoLuc as a tool to study infection with a plant virus

Marie Ducouso, Sylvaine Buissinot, Véronique Brault, Martin Drucker

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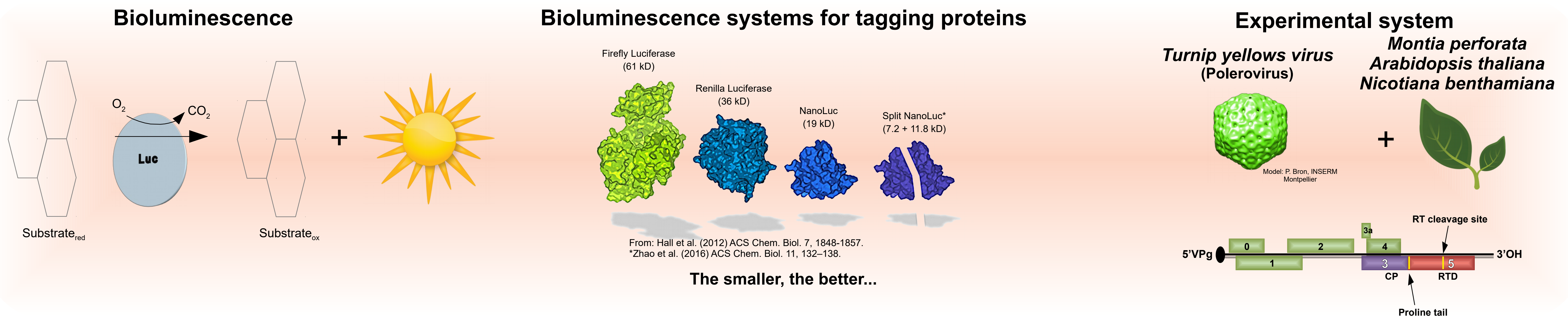
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NANOLUC AS A TOOL TO STUDY VIRUS INFECTION

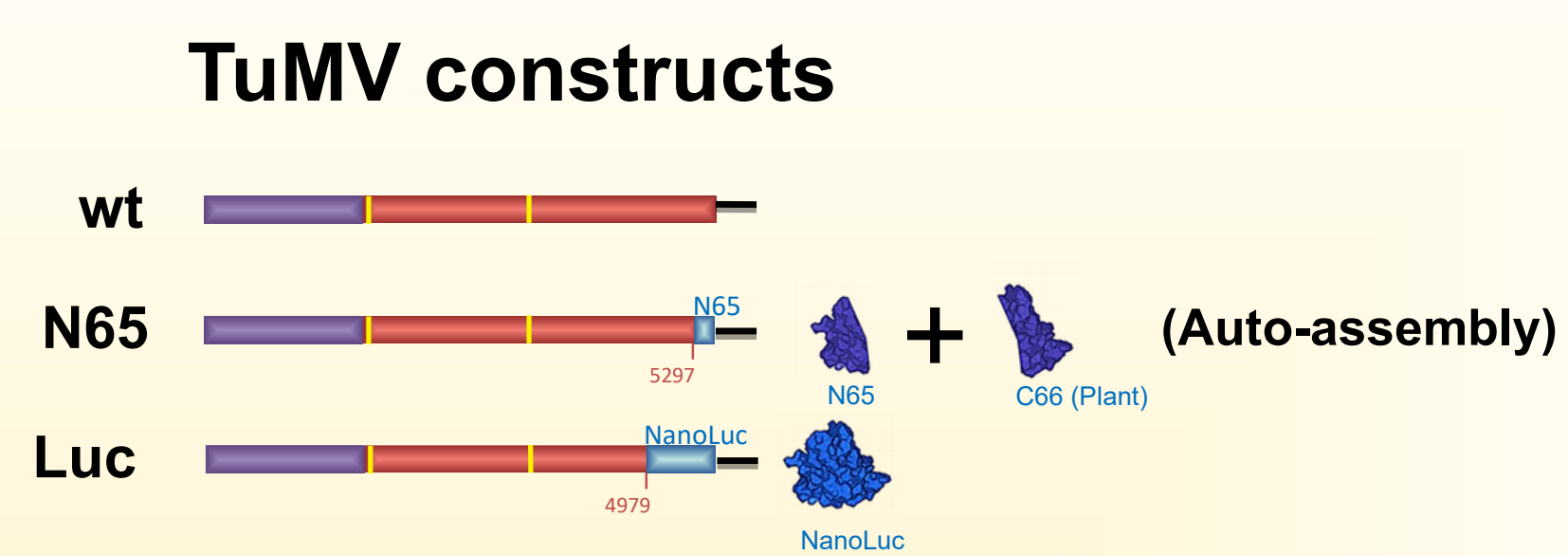
Marie Ducouso¹, Sylvaine Boissinot², Véronique Braut², Martin Drucker^{1,2}

Contributed equally

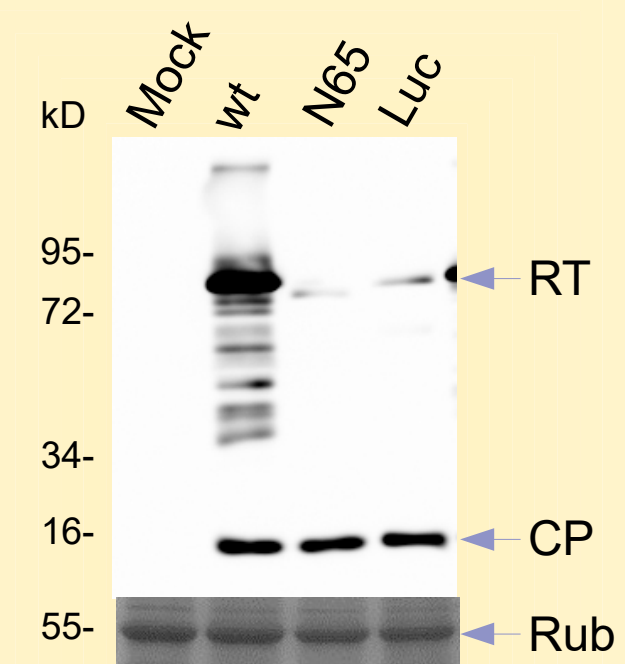
¹Virus Insect Vector Interactions, INRA UMR BGPI, Montpellier, France ²Virology Vection, INRA UMR SVQV, Colmar, France



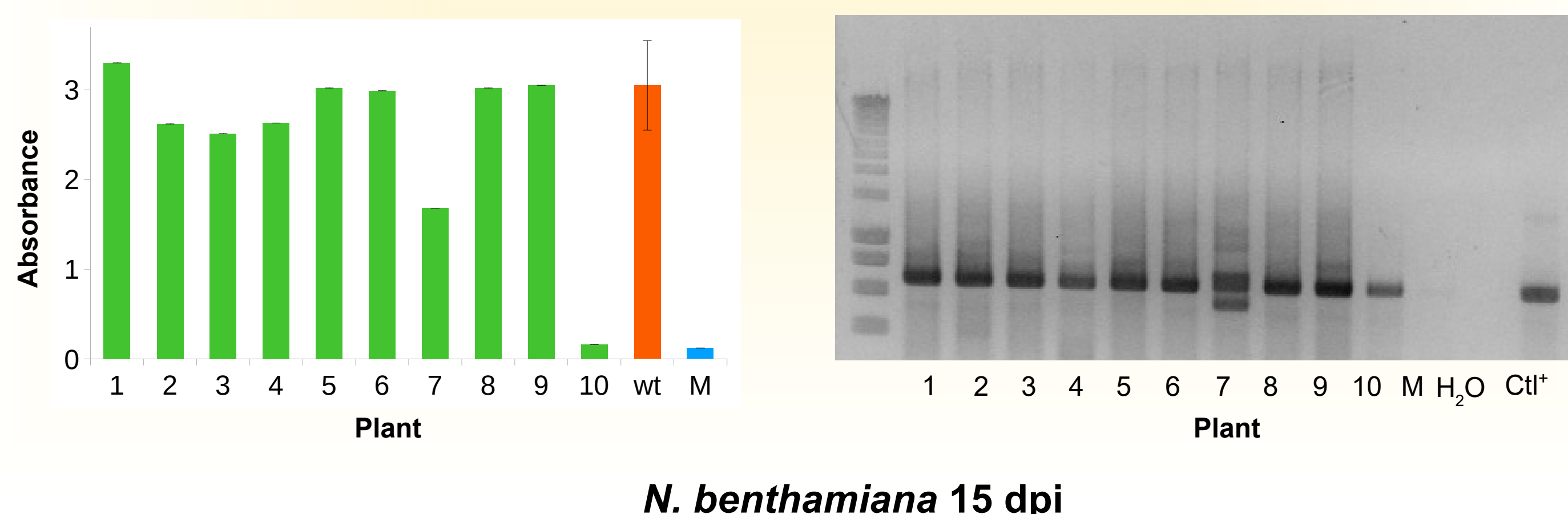
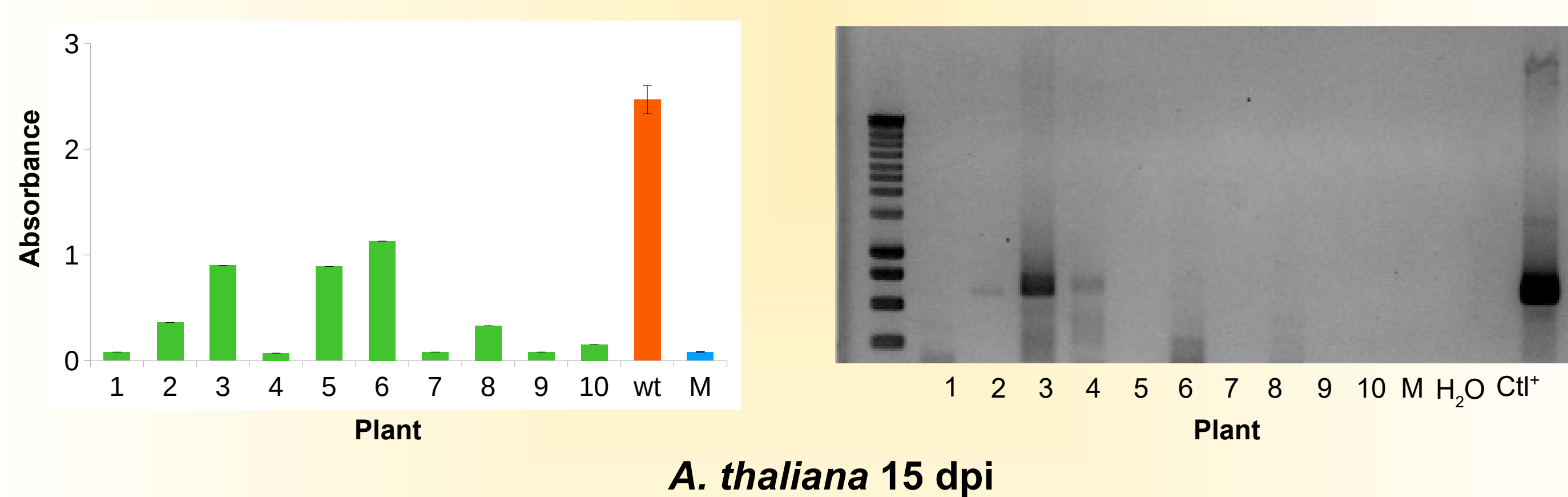
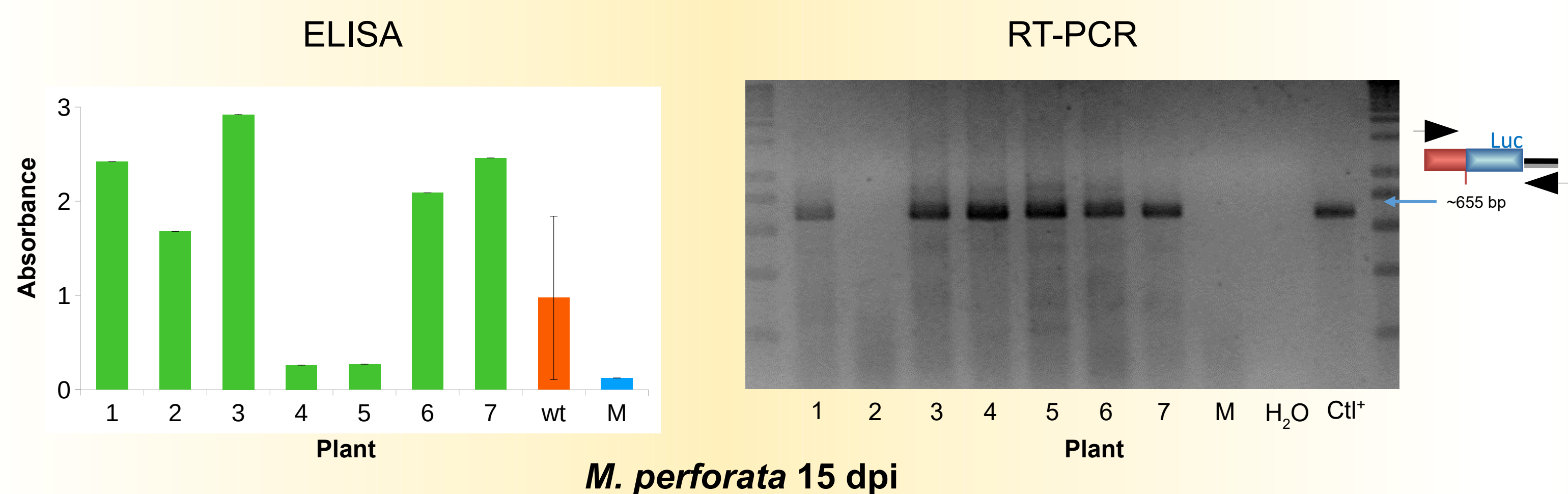
Validation of TuYV-N65 and -Luc



Western blot: agroinoculated *M. perforata* leaves 15 dpi

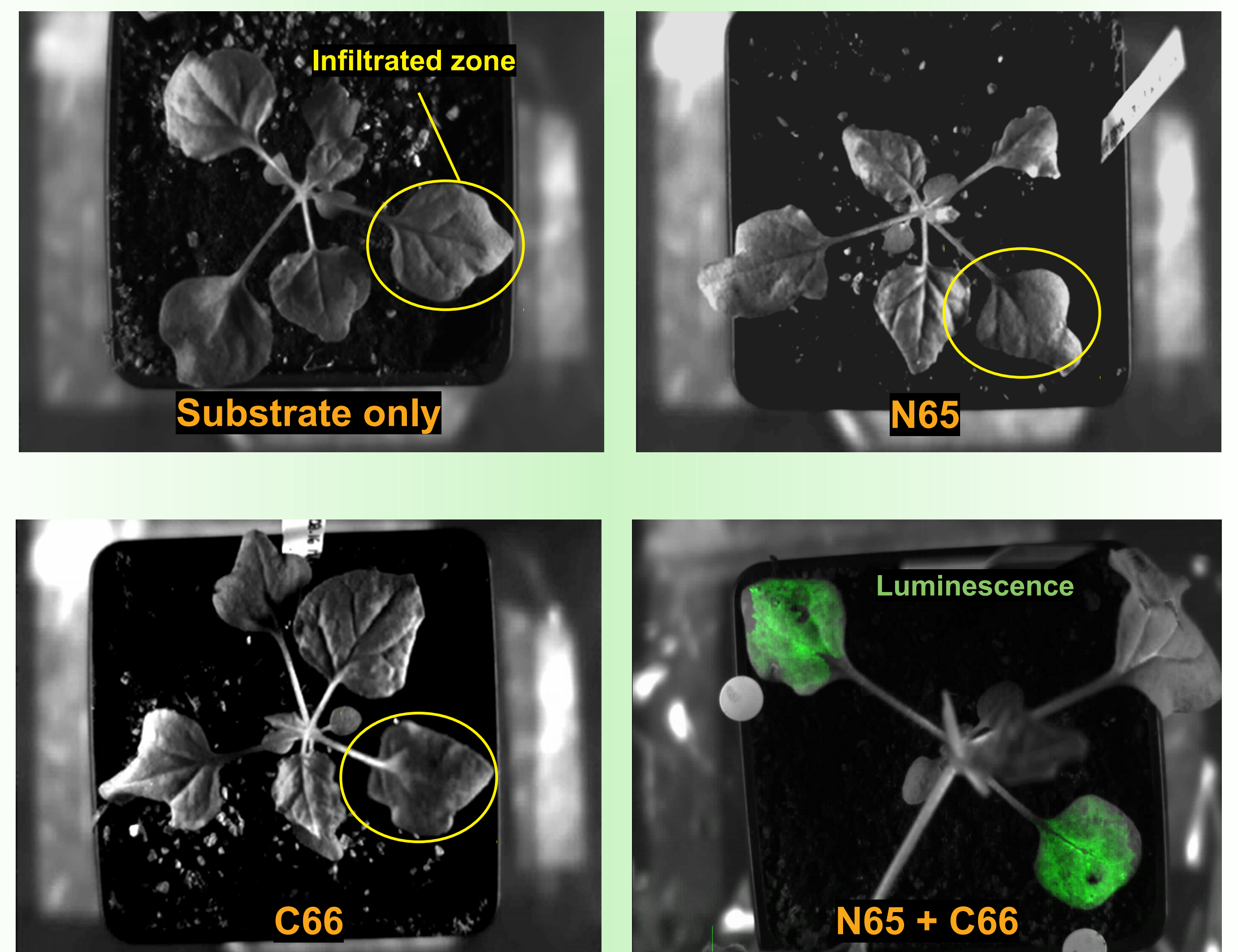
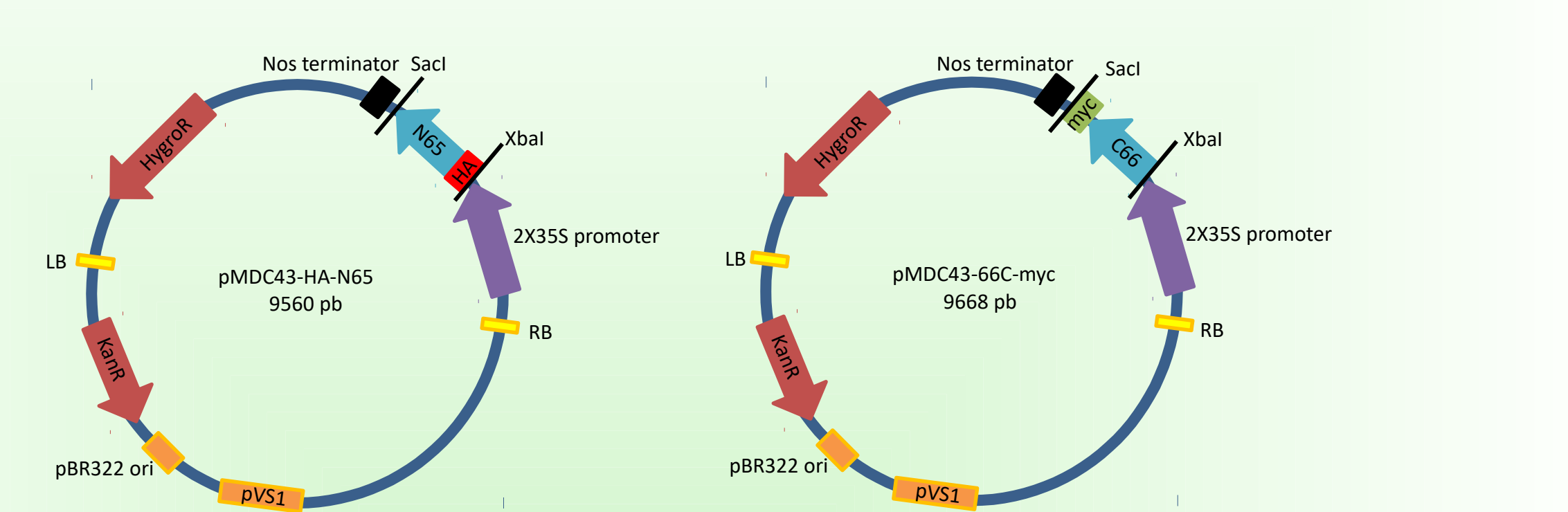


ELISA and RT-PCR on systemic TuMV-Luc leaves



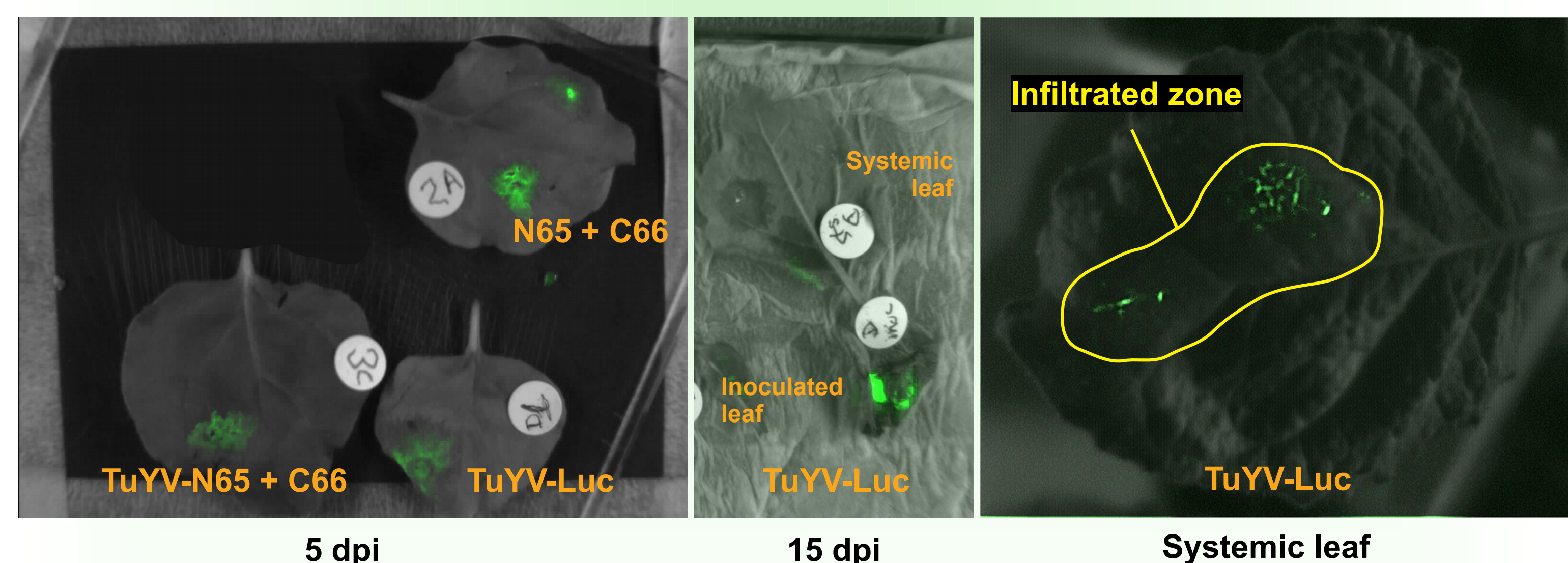
Validation of split NanoLuc in plants

Agroinfiltration of *N. benthamiana*



TuYV-Luc and TuYV-N65 in plants

Agroinfiltration of *N. benthamiana*



Conclusions

- The auto-assembling split NanoLuc system is functional in plants → Construction of transgenic *A. thaliana* expressing N65 and C66 in progress
- Insertion of N65 and NanoLuc to RTD yielded systemically infecting viruses, but RT accumulation decreased
- NanoLuc insertion stable for at least one generation in *M. perforata* and *N. benthamiana*, but not in *A. thaliana*
- TuYV-Luc and TuYV-N65 luminescent in plants
- NanoLuc vs. GFP: + lower background, + greater observation depth, - substrate application, - limited observation time, - exposure time

Funding:



SCIENCE & IMPACT