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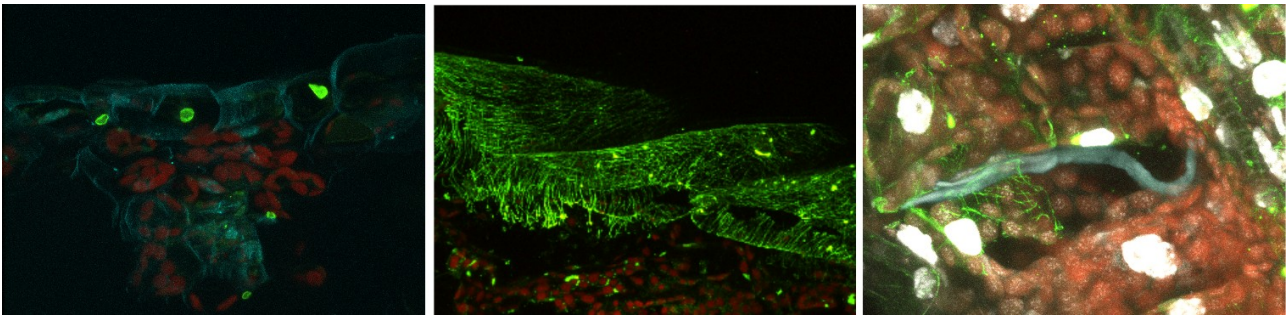
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Turnip mosaic virus is a second virus that responds to the presence of aphid vectors and activates transmission

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Turnip mosaic virus (TuMV) is transmitted by aphids and uses, like hundreds of other plant virus, the noncirculative mode, according to the molecular “helper” strategy. This indicates that the virus particles (virions) transmitted attach within seconds to the stylets and are transported to a new host plant. The connection between TuMV and the stylets is not direct; a transmission helper component (the viral protein HC-Pro) intervenes by creating the molecular link between virions and stylets. For cauliflower mosaic virus, another noncirculative virus using the helper strategy, but entirely unrelated to TuMV, the presence of vectors on the plant induces the passage from a state where the virus is not transmissible to a state where it becomes transmissible (Bak et al. 2013; Martinière et al. 2013). The transmission of TuMV has been tested in order to determine if this virus also follows this strategy, called “Transmission Activation (TA)”. The results of these tests showed that ROS (Reactive Oxygen Species) increases transmission, whereas calcium channel blockers inhibit it. Preliminary evidence suggests that oxidized forms of HC-Pro correlate with increased and reduced forms with decreased transmission. Taken together, the TuMV is a second example for TA.

References

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