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## **Program and Abstracts**

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## Is the assistance of satellites by TYLCV strictly cell autonomous?

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### Abstract

Begomoviruses are circular single stranded DNA (css) plant viruses with bipartite (A and B) or monopartite (A-like component) genomes. They are sometimes associated with satellites, cssDNA molecules, namely alphasatellites and betasatellites. Like the B component of bipartite begomoviruses, satellites depend on the A or A-like component for their replication (betasatellite) and encapsidation (alphasatellites and betasatellites). Although Tomato yellow leaf curl virus (TYLCV) was only rarely reported with satellites, alphasatellites and betasatellites of various geographic origins are readily assisted by TYLCV in experimental conditions. This result was consistent with the observation that satellite DNA contents were mostly higher than that of TYLCV (Conflon et al., 2018). The ease with which satellites can be assisted with TYLCV was supported further by FISH observations, which showed that the frequency of TYLCV-infected cells that were co-infected with a satellite exceeded 85% for an alphasatellite, and 95% for a betasatellite. Interestingly, a substantial number of cell nuclei were positive only for the satellite, suggesting that the assistance seems to be possible, even with a low amount of TYLCV DNA, and possibly no TYLCV DNA. This later possibility that need to be confirmed with further tests, is according to the “multicellular way of life” theory proposed recently for Faba bean necrotic stunt virus, a multipartite nanovirus with eight separately encapsidated components (Sicard et al., 2019).

Conflon, D., Granier, M., Tiendrébéogo, F., Gentit, P., Peterschmitt, M., Urbino, C., 2018. Accumulation and transmission of alphasatellite, betasatellite and tomato yellow leaf curl virus in susceptible and Ty-1-resistant tomato plants. *Virus Research* 253, 124-134.

Sicard, A., Piroles, E., Gallet, R., Vernerey, M.-S., Yvon, M., Urbino, C., Peterschmitt, M., Gutierrez, S., Michalakis, Y., Blanc, S., 2019. A multicellular way of life for a multipartite virus. *eLife* 8, e43599.