

SÉMINAIRES ET CONFÉRENCES



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“ Harnessing Mycoviruses as Biological Control Agents Against Fungal Pathogens ”

Climate change is expanding the range of pathogenic fungal species affecting plants, animals, and humans. Understanding and developing new strategies to combat fungal infections and modulate fungal virulence will be critical in the coming years to ensure reliable crop production. The similarity between fungal cells and animal/plant cells has made the discovery of fungal-selective small molecules (fungicides) difficult. Widespread and indiscriminate use of existing fungicides has led to the emergence of resistant fungal strains that threaten the global food supply. Therefore, new control measures for fungi must be developed.

One promising source of “biological” control may be viruses that infect fungi (mycoviruses), including RNA viruses. RNA viruses are economically important pathogens of humans and other species, including plants and fungi. To exploit these RNA viruses for the control of fungal pathogens, it is imperative to establish techniques for reproducible fungal cell transformation, infection, and reduced fungal virulence.

We present a model mycovirus/host fungal system (Mitovirus 3a / Dutch elm disease fungus (DED)) in which we have satisfied the Koch postulates for RNA virus replication. Specifically, we demonstrate: (1) Identification of a minimal RNA sequence capable of causing sustained viral infection in DED. (2) Production of pure, infectious RNA sequences. (3) Induction of disease in a healthy, uninfected DED host fungus. (4) Reisolation of viral RNA from stably infected fungi.

We hope to use this simple RNA virus, Mitovirus 3a, not only to control the growth of agricultural pests but also as a model RNA virus from which we can extract basic principles relevant to all viruses, including those that cause human disease.



Faculté de médecine
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Le jeudi 30 avril, 12h30

Pavillon Joseph-Armand-Bombardier, Salle : 1035

et

[Zoom](#)

invitée de John Pascal
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