



## Why does HIV harm its host?

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Infections by human pathogens such as HIV or HCV often vary in their virulence. For instance, in absence of treatment, some HIV-1 infections progress to AIDS in a few years, whereas others remain asymptomatic for more than a decade. Similarly, HCV infections can be cleared from the within a few weeks, but also persist for life. Great successes have been achieved in identifying host genetic factors that explain this variance amongst infections but until recently, half of the story was largely missing. I will show how several methods involving virus phylogenies have the power to detect and quantify virus control over a trait such as the virulence of an infection. I will also present more conceptual mathematical models that allow us to predict how this virulence can evolve in response to environmental perturbations such as co-infections or public health policies.