

Dynamic interaction between transmission, within-host dynamics and mosquito density

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We link an epidemiological model for a vector-transmitted disease with a simple immunological process: the effective transmission rate from host to vector, modeled as a function of infected cell level within the host, and a virus inoculation term that depends on the abundance of infected mosquitoes. We explore the role of infectivity (defined as the number of host target cells infected), recovery rate, and viral clearance rate in the coupled dynamics of these systems.

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