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Revisiting the representation of extrinsic incubation period: finding from modelling within-vector viral dynamics for major arboviruses: Dengue, Zika, and Chikungunya

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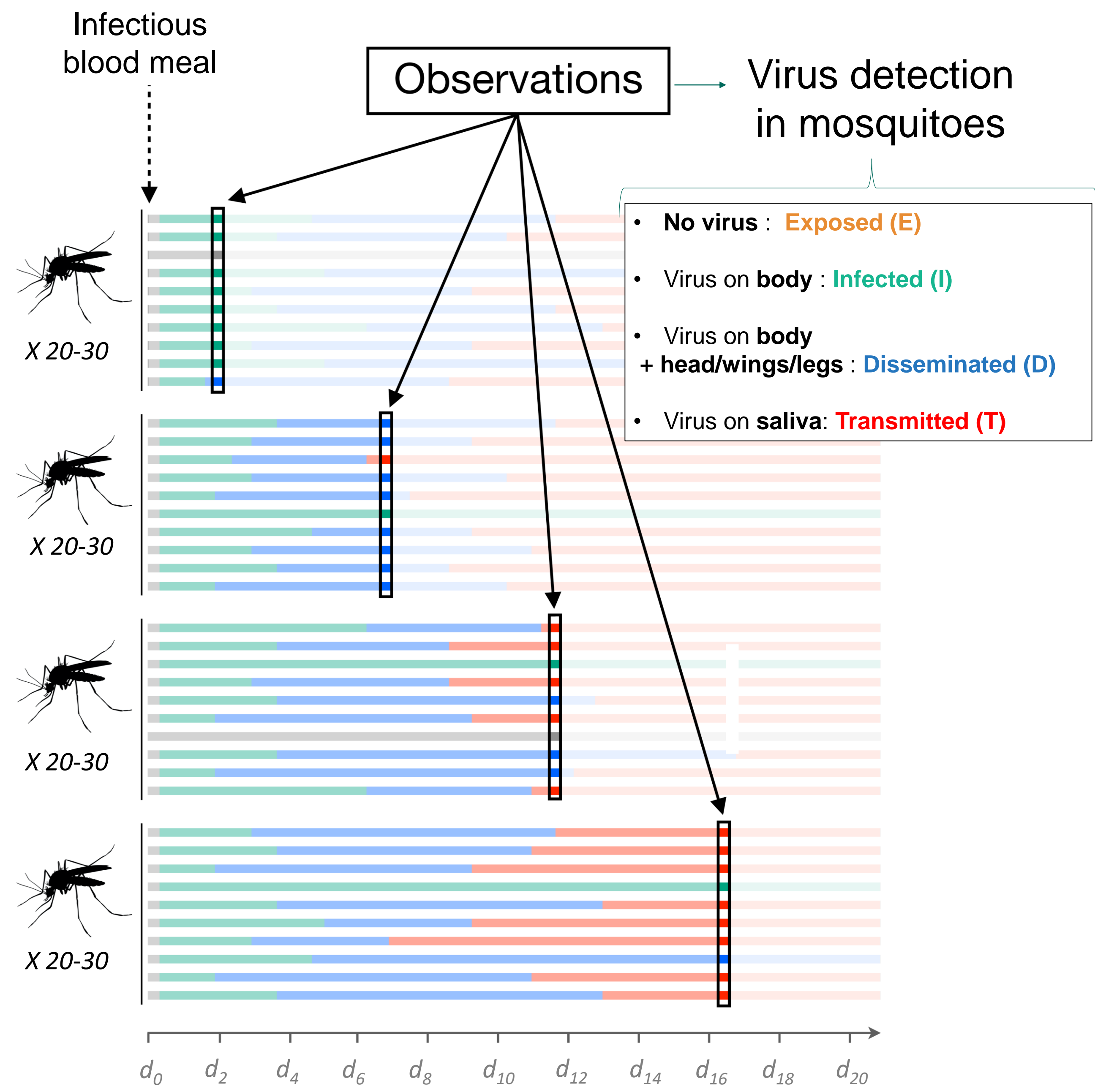
<https://hal.inrae.fr/hal-04684689v1>

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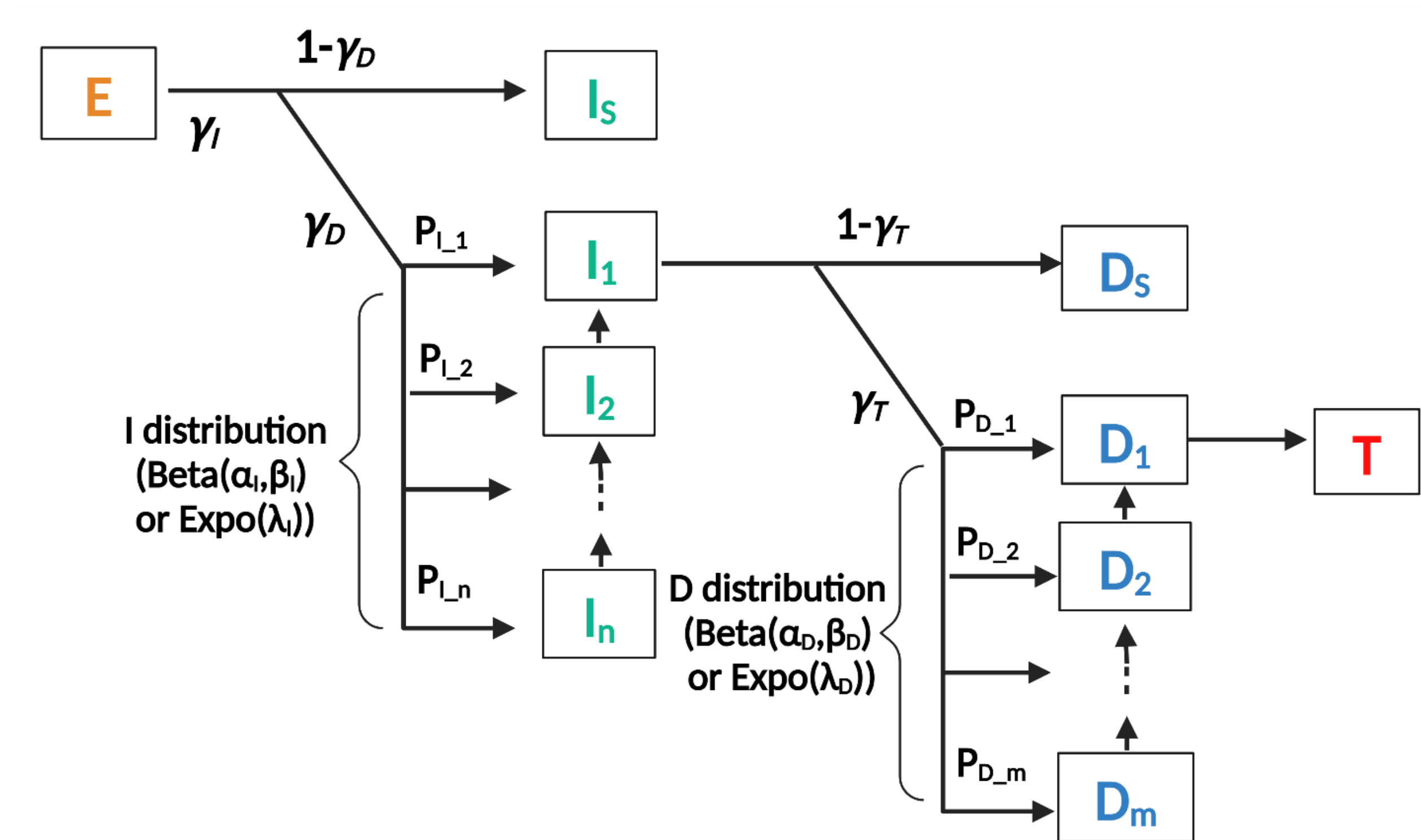
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Revisiting the representation of extrinsic incubation period: finding from modelling intra-vector viral dynamics for major arboviruses.



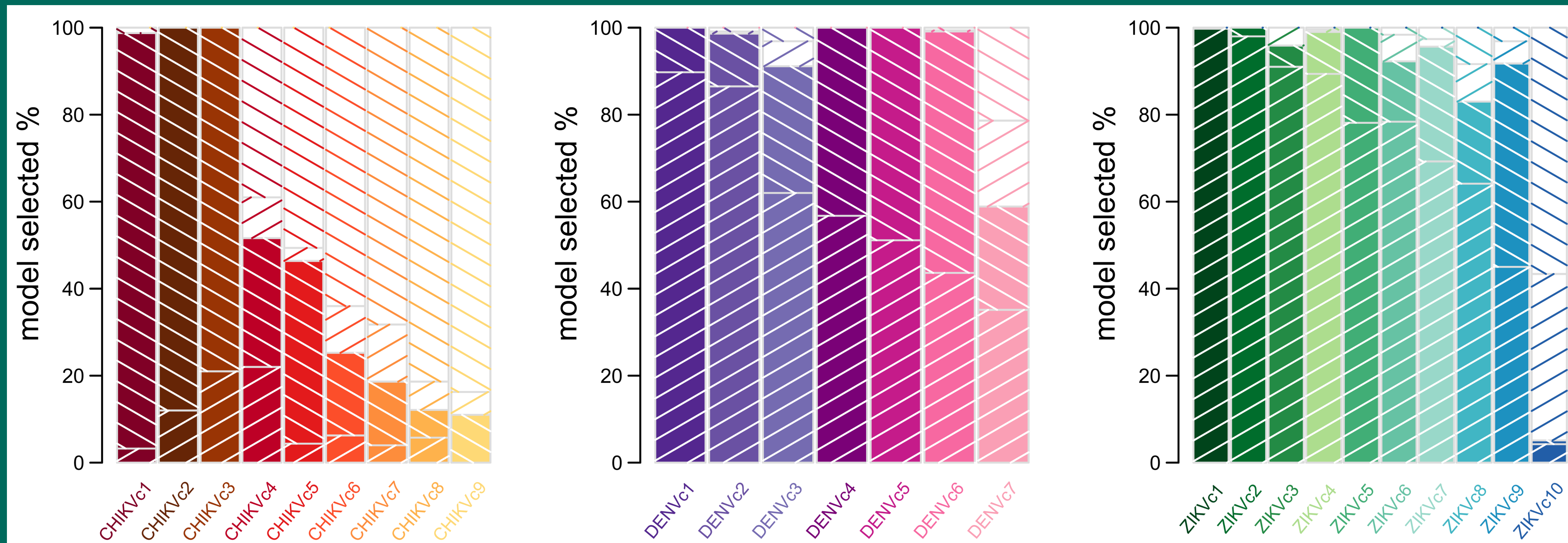
→ Systematic review to find vectorial competence experimental data.



→ Building a compartmental mechanistic model of intra-vector viral dynamics.

Inference and model selection with Approximate Bayesian Computation (ABC-SMC)

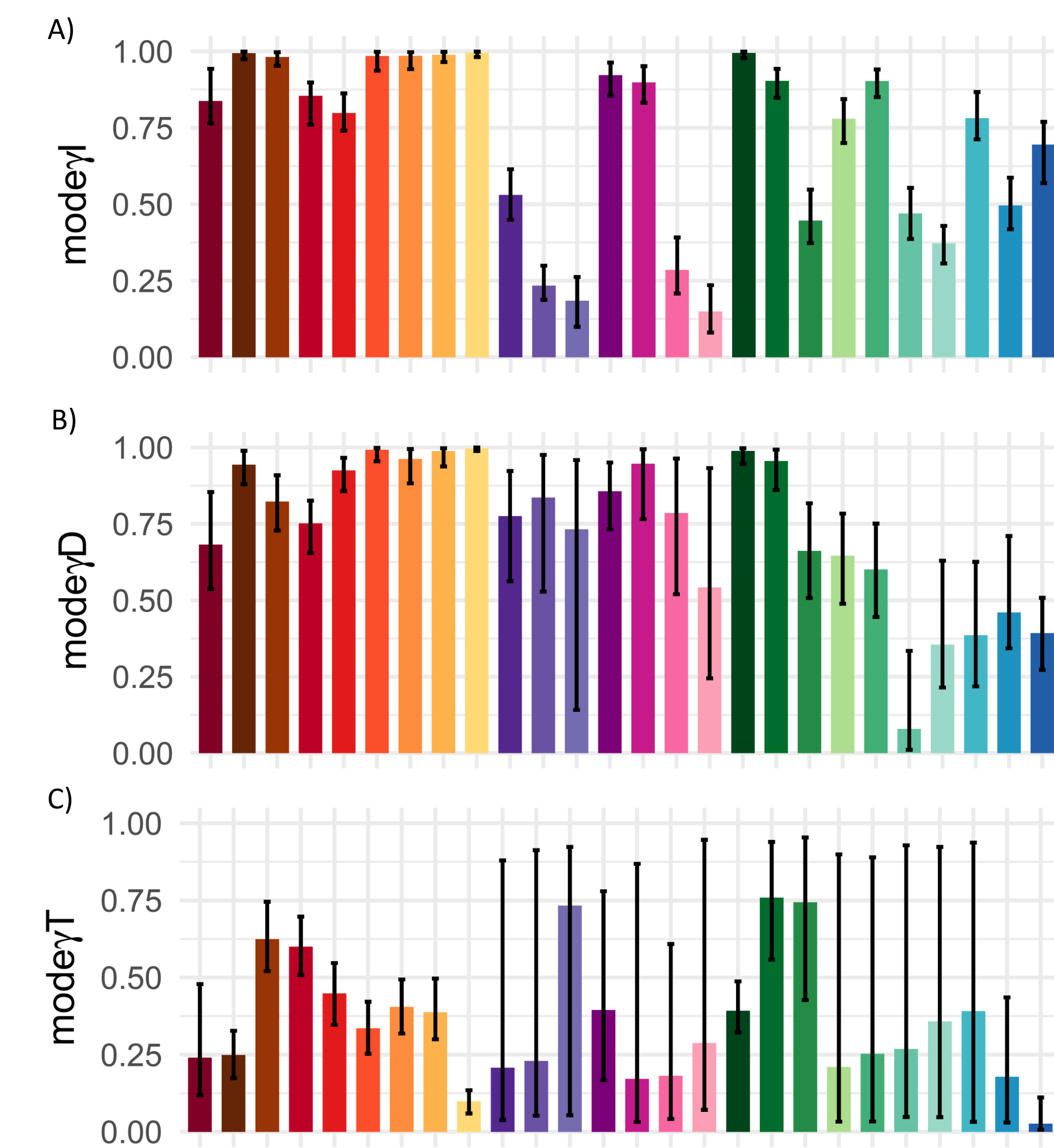
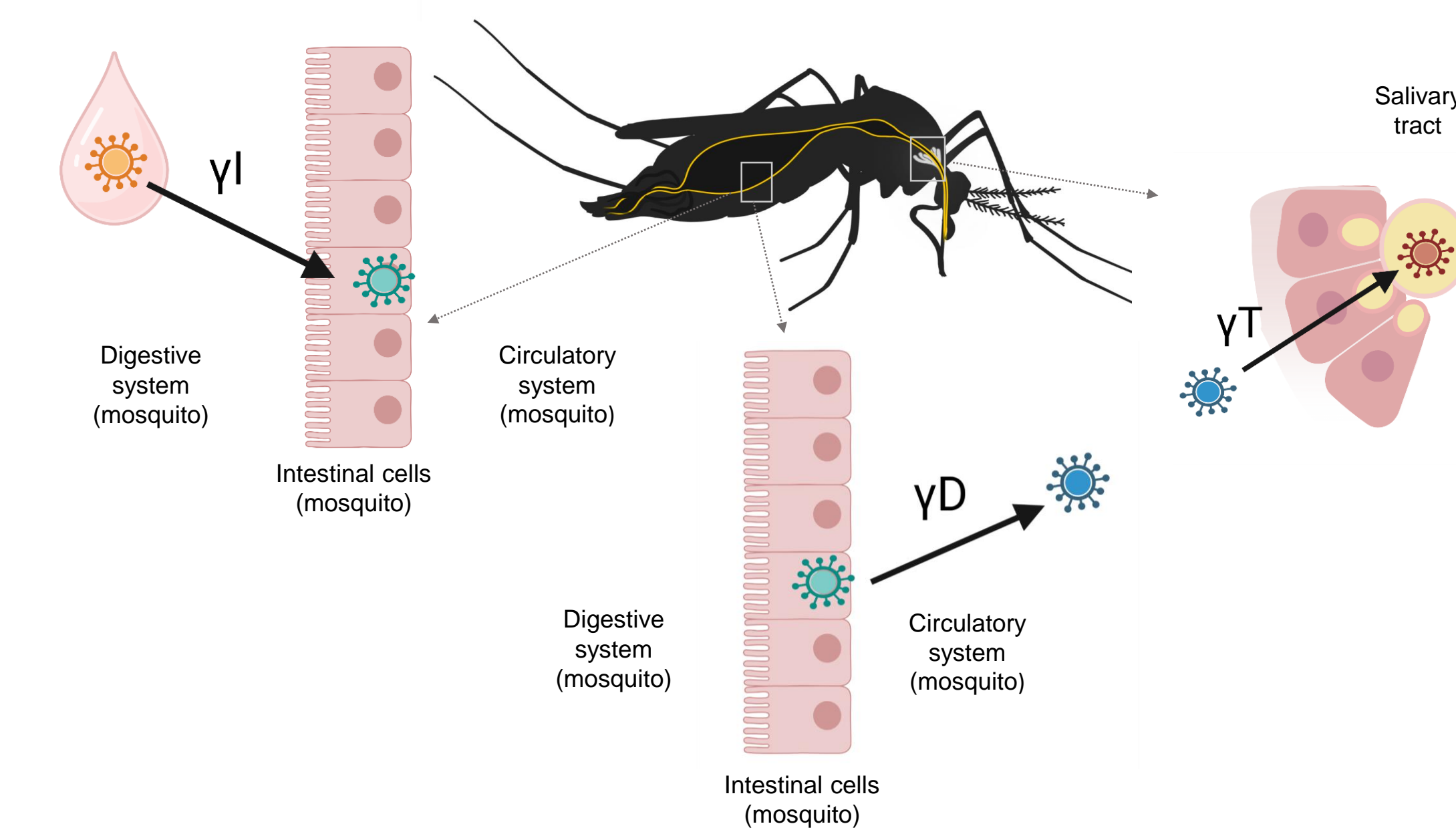
Extrinsic incubation period of mosquitoes is not always exponentially distributed



→ Selected proportion of each model (modBetaExpo, modBetaBeta, modExpoExpo, modExpoBeta) for chikungunya (CHIKV), dengue (DENV) and Zika (ZIKV) viruses in different experimental conditions.

Legend for model selection: IbetaDexpo, IbetaDbeta, IexpoDexpo, IexpoDbeta

→ Values of the crossing barrier parameters inferred for all scenarios tested for CHIKV, DENV and ZIKV. A) Infection barrier. B) Dissemination barrier. C) Transmission barrier. Each bar represents the parameter mode for a given scenario, with one colour per scenario and with the 90% credibility interval represented by the error bar.



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