Gillespie.jl: Stochastic Simulation Algorithm in Julia

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Summary

Gillespie.jl (Frost 2016) is a Julia package for stochastic simulation using Gillespie’s direct method (sometimes called the Doob-Gillespie algorithm) (Doob 1945; Gillespie 1977), an approach widely used in many fields, including systems biology and epidemiology. It borrows the basic interface (although none of the code) from the R library GillespieSSA by Mario Pineda-Krch (Pineda-Krch 2008), although Gillespie.jl only implements the standard exact method at present, whereas GillespieSSA also includes other methods, such as tau-leaping, etc. Gillespie.jl is intended to offer performance on par with hand-coded C code, while maintaining a simple but flexible interface.

References


