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The dynamics of gene duplication and transposons in microbial genome evolution[1] NICHOLAS CHIA, NIGEL GOLDENFELD, University of Illinois at Urbana-Champaign — Evidence indicates that new functional genes emerge from a process of gene duplication coupled with selection for a novel function. Recently, Bergthorsson et al. proposed a model of continuous selection in order to describe this process. Here, we examine their proposed evolutionary scheme, by modeling gene evolution using a stochastic simulation. Our results indicate that this model, and a related one that includes horizontal gene transfer, can account for the distribution of transposons in microbial genomes, and reproduce the observed environmentally-driven spatial dependence of transposon density in marine bacteria.

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