

Article

Fine-grained Evolutionary Dynamics in a Long-Term Evolution Experiment

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Abstract: For more than 20 years and 50,000 generations, we have evolved 12 replicate populations of *Escherichia coli* in the laboratory. This model system has immense power to illuminate many basic questions in evolutionary biology. In particular, we can examine the evolutionary dynamics of adaptation in real time. From one well-studied line in this long-term evolution experiment, we revived bacteria from whole-population samples frozen every 500 generations. These samples cover 30,000 generations of evolution. Using Illumina VeraCode technology, we genotyped each whole-population sample for 96 alleles of evolutionary significance. We observe both the fixation of beneficial alleles as well as significant bouts of clonal interference. To examine the diversity of genotypes produced under clonal interference, we genotyped 90 clones sampled at 7,500 and 10,000 generations. We compare these results to population genetic simulations.

Keywords: Experimental evolution; clonal interference; *Escherichia coli*

1. Introduction

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2. Results and Discussion

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3. Experimental Section

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2. Lastname, F.F.; Author, T. The title of the cited contribution. In *The Book Title*; Editor, F., Meditor, A., Eds.; Publishing House: City, 2007; pp. 32-58.

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