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**Folding Kinetics of Riboswitch Transcriptional Terminators** BENJAMIN SAUERWINE, MICHAEL WIDOM, Carnegie-Mellon University — Riboswitches control the expression of genes in bacteria by halting gene transcription or allowing it to proceed based on the presence of ligands in solution. A key feature of every riboswitch is a transcriptional terminator in which the messenger RNA folds into a secondary structure with the stem-loop structure of a hairpin. Through kinetic Monte Carlo simulation we show that terminators have been naturally selected to fold with high reliability on the time-scale of gene transcription. This efficient folding behavior is preserved among two classes of riboswitch and among two species of bacteria.

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