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Molecular Cell

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Sen1 functions in termination of transcription by RNA polymerase II (Pol II), but the spectrum of genes that requires this factor is unknown. In this issue of *Molecular Cell*, Steinmetz et al. (pp. 735–746) map sites of Sen1-dependent termination by comparing Pol II occupancy across the entire yeast genome in wild-type and *sen1* mutant strains. The trace on the cover shows wild-type (blue) and *sen1* mutant (green) Pol II occupancy for a 50 kb segment of chromosome 12. The analysis reveals Sen1-dependent termination on many noncoding RNA genes and some short protein-coding genes. In addition, Sen1-dependent attenuation (upstream termination) was found to regulate several protein-coding genes. Unexpectedly, Sen1 appears to influence the efficiency of silencing at some loci. (Artwork by H. Adam Steinberg; molecular graphics rendered with PyMol: http://www.pymol.org.)