

Abstract Submitted
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Regulatory Biophysics From Sequence Data ANAND MURUGAN,
Department of Physics, Princeton University, JUSTIN B. KINNEY, Cold Spring
Harbor Laboratory, CURTIS G. CALLAN JR., Department of Physics, Princeton
University, EDWARD C. COX, Department of Molecular Biology, Princeton Uni-
versity — We demonstrate a new technique for probing the function of a regulatory
sequence, using ultra-high-throughput sequencing to generate large data sets of the
activity of mutant sequences. An information theoretic data analysis technique is
then used to model the activity, avoiding assumptions about noise in the experiment.
We apply this technique to the well studied *lac* promoter in *E coli*. and characterize
the specificities of the DNA binding proteins in physical units and infer their *in vivo*
interaction energy.

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