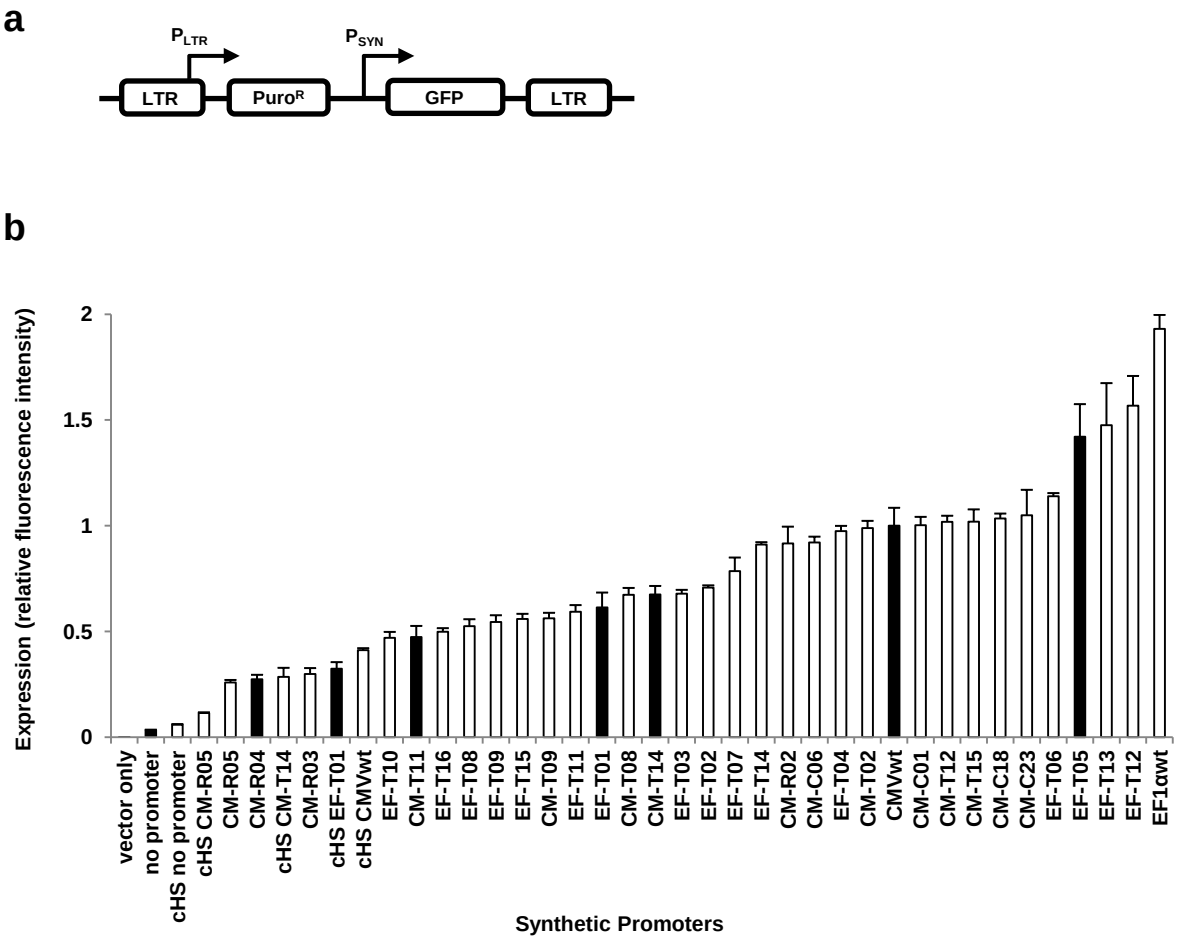

Fig. S1 Expression range achieved by a library of synthetic promoters. (a) Retroviral expression vector. Synthetic promoters (P_{SYN}) were evaluated through expression of green fluorescent protein (GFP). LTR, long terminal repeat; P_{LTR}, LTR promoter; $Puro^R$, puromycin resistance gene. (b) Expression of GFP using the retroviral vectors equipped with synthetic promoters. PD-31 cells were transduced with vectors at single-copy levels. One vector contained GFP but no synthetic promoter (no promoter). One vector contained neither a synthetic promoter nor transgene (vector only). For this study, a subset of promoters (expression indicated by black bars) was chosen to cover a range of expression. Promoter identification numbers are given below bars. Values are arithmetic means ± s.d. (n=3) calculated from geometric means of each sample population. Expression by the synthetic promoter library was previously described by Ferreira *et al.*, Systems and Synthetic Biology, 2011.

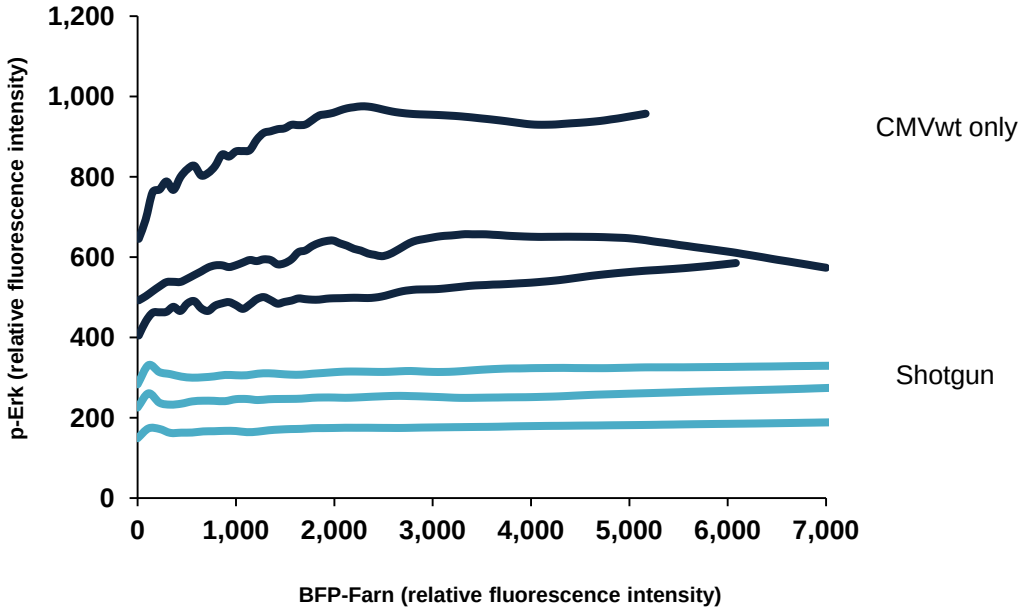

Fig. S2 Comparison of shotgun and single promoter transduction of the BFP-Farn control. p-Erk levels vs. expression levels of the reporter protein control, BFP-Farn. Cells were transduced with a single vector employing only the wild-type CMV promoter (CMVwt, top three curves) or a mixture of vectors employing different synthetic promoters (Shotgun, bottom three curves). Each of the three replicates are shown.

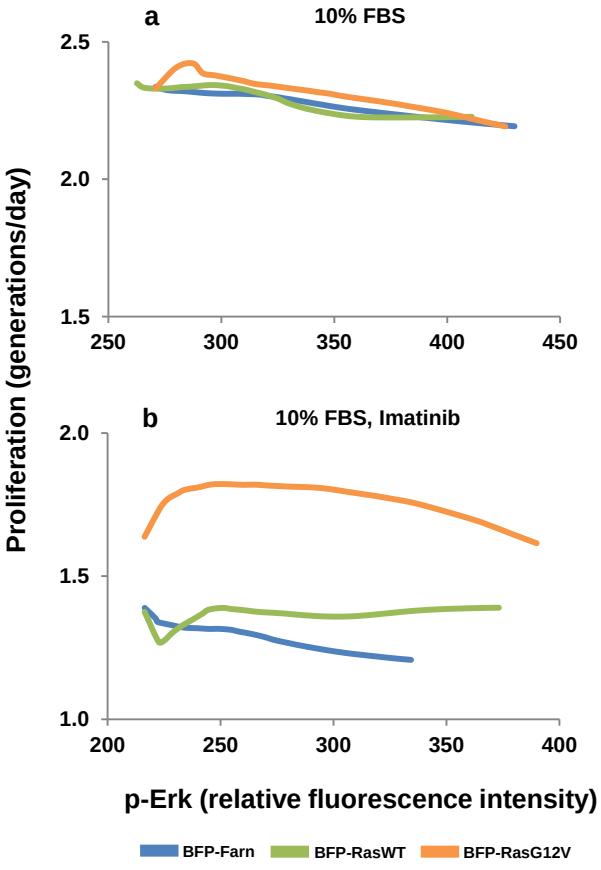

Fig. S3 Proliferation vs. p-Erk. Because proliferation and p-Erk were both quantified as a function of BFP reporter fluorescence, the relationship between the two values could be visualized in one plot. Cells were cultured with (a) 10% FBS or (b) 10% FBS and imatinib and, in both cases, were not stimulated by PMA.