

Figure S1, Related to Figure 4

A Here we display the binding sites as colored boxes within the proximal and distal *Kr* enhancers from three species. We identified the binding sites using PATSER, as described in the Experimental Procedures, and visualized them using InSite (<http://www.cs.utah.edu/~miriah/insite/>). The box height corresponds to binding site strength, in arbitrary units.

B Here we display the transcription factor binding, as measured by ChIP-seq, in blastoderm-stage embryos. The *zld* data are from (Harrison M., et al. *PLoS Genetics*, 2011), and the *bcd* and *hb* data are from (MacArthur S., et al., *Genome Biology*, 2009), as processed in (Harrison M., et al. *PLoS Genetics*, 2011). The tracks were accessed via <http://eisenlab.org/data/ZLD>. There is no ChIP-seq data for Stat92E in blastoderm-stage embryos. These binding data generally agree with the computational analysis presented in Figure 4A. The distal enhancer is bound by *zld*, *bcd*, and *hb*, and the proximal enhancer is bound by *hb* (and weakly by *zld*).

C Here we show the p-values associated with the transcription factor binding site over-representation scores shown in Figure 4A. These values correspond to the likelihood of seeing at least the number of observed binding sites in each enhancer. We calculated them by comparing the expected number of binding sites in each enhancer to the observed number of binding sites with the binomial distribution. The number of trials equals the length of the enhancer.

D Using the shRNA-based system, we can knock down 88-96% of mRNA Stat92E expression. We plot the fraction of Stat92E expression remaining in Stat92E RNAi embryos from cages that are 3 and 5 days old. The error bars show standard error of the mean from three biological replicates. To measure the level of Stat92E knock down, we used qPCR. We collected 0-2 hour old Stat92E RNAi embryos and GFP RNAi embryos, as a control. We bleached the embryos for 2 minutes in 50% bleach and then snap-froze them in liquid nitrogen. Using the protocol described here [<https://dgrc.cgb.indiana.edu/files/CGB-TR-200610.pdf>], we extracted total RNA from 50-100 μ L of embryos. We generated cDNA using the SuperScript First-Strand Synthesis System for qPCR and 1 microgram of total mRNA. We performed quantitative PCR using the TaqMan Universal PCR Master Mix and TaqMan Gene Expression Assays for Stat92E and actin-5C as a housekeeping control. On an Eppendorf RealPlex2 real time PCR machine, we ran a PCR program as follows: 95°C for 10 minutes, followed by 40 cycles of 95°C for 15 seconds and 60°C for 1 minute. Ct values were determined automatically using the included Eppendorf software. We calculated the Δ Ct value by subtracting the actin Ct from the Stat92E Ct for both the Stat92E and GFP RNAi embryos and averaged this value for the three biological replicates. We then calculated the $\Delta\Delta$ Ct value as the mean Δ Ct(Stat92E) - Δ Ct(GFP). We converted this into fold change (fraction of Stat92E remaining) as $2^{(-\Delta\Delta$ Ct)}. Using the three biological replicates, we calculated the standard error of the mean (SEM) of Δ Ct and added these to get the SEM of $\Delta\Delta$ Ct. To calculate the error bars in fold-change-space, we then performed the same calculations with $\Delta\Delta$ Ct \pm SEM($\Delta\Delta$ Ct). The fraction of Stat92E remaining decreases between embryos collected from 3 day old and 5 day old cages, but the difference is not statistically significant.

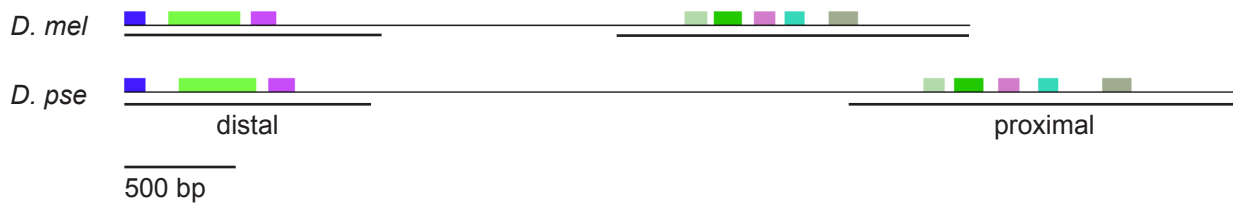


Figure S2, Related to Figure 1A

Using the TOUCAN workbench for regulatory sequence analysis, we searched for conserved regions in the sequences upstream of *Kruppel* in *D. melanogaster* and *D. pseudoobscura* (Aerts S., et al., *Nucleic Acids Research*, 2005). The colored blocks indicate regions of conservation, as identified by LAGAN, using default settings. These regions are only found within the proximal and distal enhancers (underlined regions), suggesting that we are not missing any conserved regulatory regions in our single enhancer reporter constructs.

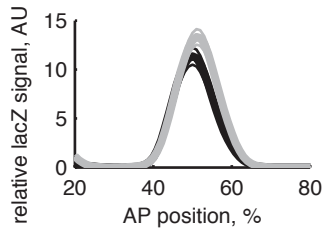
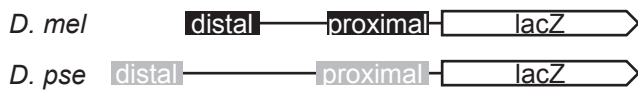
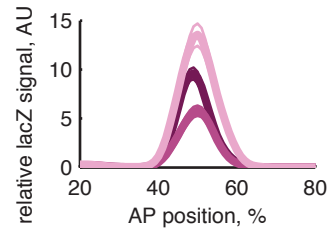
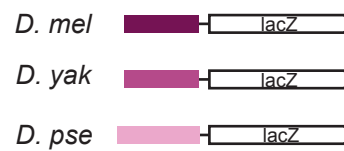
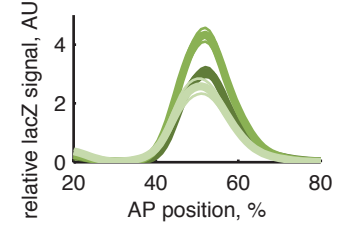
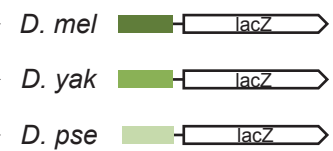
A combined reporters**B** proximal reporters**C** distal reporters

Figure S3, Related to Figures 1 and 2.

Here we show the expression along the anterior-posterior axis driven by the combined and individual enhancer reporters for older blastoderm-stage embryos (26-100% membrane invagination). Each measurement was made using 14-37 embryos. The combined constructs still drive a conserved level of expression, while the individual constructs do not.

Table S1. Numbers of embryos measured for each experiment

Construct	Background	<i>n</i>
<i>D. mel</i> proximal & distal	WT	13
<i>D. yak</i> proximal & distal	WT	12
<i>D. pse</i> proximal & distal	WT	14
<i>D. mel</i> proximal	WT	14
<i>D. yak</i> proximal	WT	24
<i>D. pse</i> proximal	WT	17
<i>D. mel</i> distal	WT	19
<i>D. yak</i> distal	WT	16
<i>D. pse</i> distal	WT	13
<i>D. mel</i> lambda spacer	WT	14
<i>D. pse</i> lambda spacer	WT	18
Chimera 1	WT	25
Chimera 2	WT	26
<i>D. mel</i> proximal	<i>Stat92E</i> RNAi	23
<i>D. pse</i> proximal	<i>Stat92E</i> RNAi	12
<i>D. mel</i> distal	<i>Stat92E</i> RNAi	15
<i>D. pse</i> distal	<i>Stat92E</i> RNAi	12
<i>D. mel</i> proximal	<i>bcd</i> RNAi	10
<i>D. pse</i> proximal	<i>bcd</i> RNAi	10
<i>D. mel</i> distal	<i>bcd</i> RNAi	15
<i>D. pse</i> distal	<i>bcd</i> RNAi	17
<i>D. mel</i> proximal	WT (Fig. 4D)	13
<i>D. mel</i> proximal	<i>hb</i> mis-expression	14
<i>D. mel</i> distal	WT (Fig. 4D)	16
<i>D. mel</i> distal	<i>hb</i> mis-expression	9

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Supplemental File 2 – PWMs for the TFs used in this study, Related to Figure 3

Frequency matrices used in Figure 3A
Columns correspond to A C G T
Rows correspond to binding site positions
Data is from FlyFactorSurvey

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0.10824742268	0.314432989691	0.10824742268	0.469072164948
0.211340206186	0.10824742268	0.00515463917526	0.675257731959
0.932989690722	0.00515463917526	0.00515463917526	0.0567010309278
0.984536082474	0.00515463917526	0.00515463917526	0.00515463917526
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0.00515463917526	0.881443298969	0.00515463917526	0.10824742268
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>Stat92E

0.003289474	0.003289474	0.003289474	0.990131579
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0.069078947	0.694078947	0.134868421	0.101973684
0.134868421	0.463815789	0.365131579	0.036184211
0.101973684	0.134868421	0.661184211	0.101973684
0.003289474	0.003289474	0.990131579	0.003289474
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0.189256632519	0.156422379827	0.307459942212	0.346861045443
0.152482269504	0.278565799842	0.311400052535	0.257551878119
0.0710533228264	0.00013133701077	0.62792224849	0.300893091673
0.00932492776464	0.983845547675	0.00013133701077	0.00669818754925
0.993039138429	0.00144470711847	0.00144470711847	0.00407144733386
0.00013133701077	0.00013133701077	0.960204885737	0.0395324402417
0.00144470711847	0.00013133701077	0.985158917783	0.0132650380877
0.00538481744156	0.00013133701077	0.00407144733386	0.990412398214
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0.186451956348	0.302235826457	0.222384881554	0.28892733564
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0.988636363636	0.00378787878788	0.00378787878788	0.00378787878788

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Supplemental References

Aerts S, Van Loo P, Thijs G, Mayer H, de Martin R, Moreau Y, De Moor B. (2005). TOUCAN 2: the all-inclusive open source workbench for regulatory sequence analysis. *Nucleic Acids Res* 33, W393-W396.

Harrison, M. M., Li, X. Y., Kaplan, T., Botchan, M. R., and Eisen, M. B. (2011). Zelda binding in the early *Drosophila melanogaster* embryo marks regions subsequently activated at the maternal-to-zygotic transition. *PLoS Genet* 7, e1002266.

MacArthur, S., Li, X. Y., Li, J., Brown, J. B., Chu, H. C., Zeng, L., Grondona, B. P., Hechmer, A., Simirenko, L., Keranen, S. V., Knowles, D. W., Stapleton, M., Bickel, P., Biggin, M. D., and Eisen, M. B. (2009). Developmental roles of 21 *Drosophila* transcription factors are determined by quantitative differences in binding to an overlapping set of thousands of genomic regions. *Genome Biol* 10, R80.