Figure Legend

(Top) A transcriptionally silent, compacted mitotic chromosome (left) with bookmarking transcription factors bound (green shades) and other factors not bound (red and purple). During mitotic exit, the bookmarking factors facilitate the rapid activation of the genes to which they are bound in mitosis. (Bottom) A transcriptionally silent, compacted gene with pioneer transcription factors bound in early development. During cell type specification, pioneer factors facilitate the binding of other factors (red, purple) and the activation of genes to which they are bound. The text discusses the recently discovered similarities between bookmarking and pioneer transcription factors.

Table S1

A. Features of Mitotic Chromatin. The list below describes general features of chromatin structure and dynamics that have been studied in mitosis.

Chromatin feature	Mitotic behavior	Caveats/notes	References
Higher order chromosome structure	Essentially lost		Naumova et al. 2013
Histone acetyltransferases	Virtually lost from chromatin	Partial histone retention at loci Kouskouti 2005	Kruhlak et al. 2001
H3K9me3	Retained		McManus et al.
H3K27me3	Retained		Follmer et al. 2012
Histone exchange	Lower than in interphase		Chen et al. 2005
Nucleosome positioning	Lost/altered		Komura & Ono 2005
H2.AZ positioning	Shifted to cover transcription start		Kelley et al. 2010

B. Features of mitotic bookmarking factors. The following transcription factors are among the subset that is retained on chromosomes during mitosis. Knock-down of the following has been shown to result in delayed post-mitotic reactivation of genes to which they remain bound in mitosis.

Bookmarking factor	Relevant cell tested	Interphase binding sites occupied in mitosis	Binds target sites on nucleosomes	Reference
BRD4	Hematopoietic	n.d.	n.d.	Zhao et al., 2011
FoxA1	Liver	15%	yes	Cirillo et al. 1998 Caravaca et al., 2013
GATA1	Hematopoietic	5.3%	yes	Boyes et al. 1998 Kadauke et al., 2012
MLL	Hematopoietic	37%	n.d.	Blobel et al., 2009
Runx2	Osteogenic	n.d.	n.d.	Young et al., 2007

Table S1 References:

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