A Duration of cold period 2 wk 4 wk 6 wk H3K27me3 0 2 4 2 4 6 kb 2 4 6 kb 0 0 6 kb FLC Silencing nucleation site B Patterns of H3K27me3 H3K27me3 H3K27me3 FLC FLC +++++ Low H3K27me3 only at nucleation site Switch to locus-wide H3K27me3 Cell with locus-wide Cell with low H3K27me3 stable H3K27me3 C Degree of stochastic switching to stable locus-wide H3K27me3 6 wk

Figure 3. Stochastic switching mechanism underlies the quantitative nature of vernalization. (*A*) During cold, H3K27me3 quantitatively accumulates in the nucleation region of the *FLC* gene, indicated schematically below each graph, with increasing weeks of cold (*top* row of figure). (*B*) After cold, the nucleated H3K27me3 causes some cells to switch to a silenced state with high levels of H3K27me3 blanketing the gene. This epigenetic switch is cell-autonomous. (*C*) The quantitative nature of the vernalization response is due to an increasing number of cells switching to a silenced state after increasing cold exposure. Each cell is indicated by a square. (Figure courtesy of Dr. Jie Song.)

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