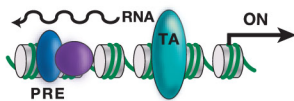


Activation of PRE regulated gene



PcG repression at PRE regulated gene

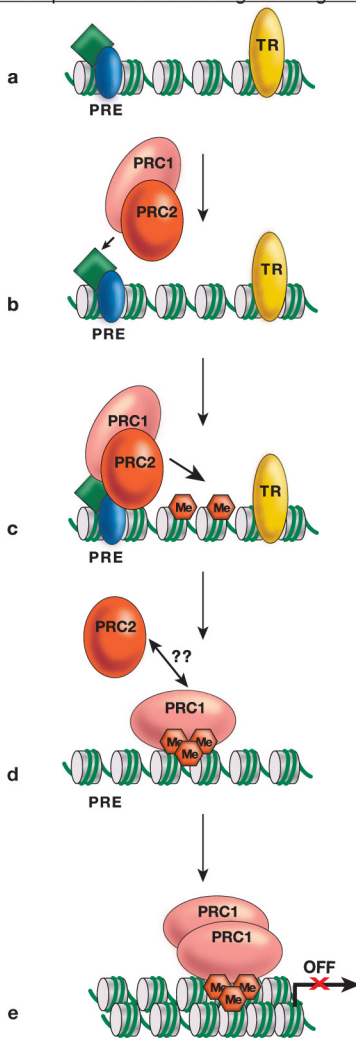


Figure 5. Sequence of Events Leading to the PcG-dependent Repressed State of Gene Expression in *Drosophila* Embryos

The original gene expression state of a PRE-regulated gene is determined by the activity of transcriptional regulators, either transcriptional repressors (TR) or activators (TA). Transcription through the PRE prevents the establishment of the "OFF" state and leads to the *trxG*-dependent "ON" state (for details, see Fig. 8 in Chapter 12). (a–b) A nontranscribed PRE binds specific DNA-binding proteins (e.g., PHO, PHOL, DSP1, or GAF) that are involved in the recruitment of the early PcG complex containing proteins of both PRC1 and PRC2. (c) This early PcG complex marks chromatin by E(Z)-dependent histone methylation. (d) Maintenance of the silent state occurs through interactions of the two distinct complexes, PRC1 and PRC2, in the absence of the original transcriptional repressor. Maintenance of PRC1 is stabilized through binding of H3K27me3 via the chromodomain of PC. (e) PRC1 can compact chromatin, further establishing tightly condensed, silent chromatin.