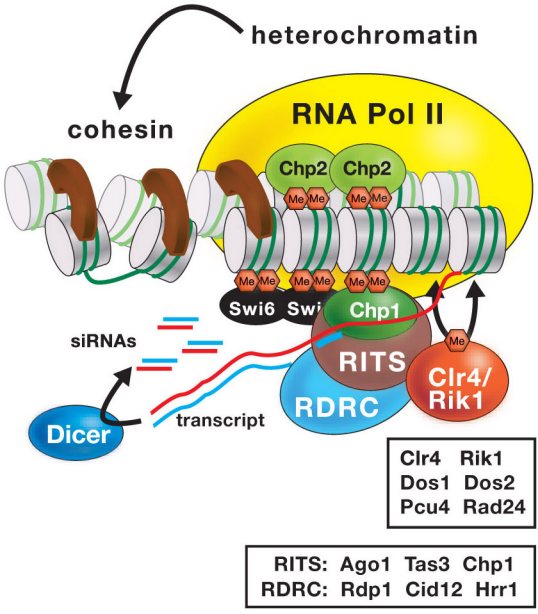

Figure 6. Centromere Repeat Transcription Links RNAi, Heterochromatin Formation, and Cohesion

Transcription of outer repeats by RNA pol II provides an initial substrate for RNAi and Dicer-dependent siRNA generation. Loading of Ago1 in the RITS complex (Ago1, Tas3, Chp1) with siRNA allows targeting of the homologous transcript. The action of the RDRC (Rdp1, Cid12, and Hrr1) would allow dsRNA production providing more substrate for Dcr1 to produce siRNA and perhaps amplify the signal. Interactions between the transcript, RNA pol II subunits, and RNAi components recruit Clr4, which methylates histone H3 on lysine 9, allowing binding of chromodomain proteins, recruitment of cohesin, and sister-centromere cohesion.