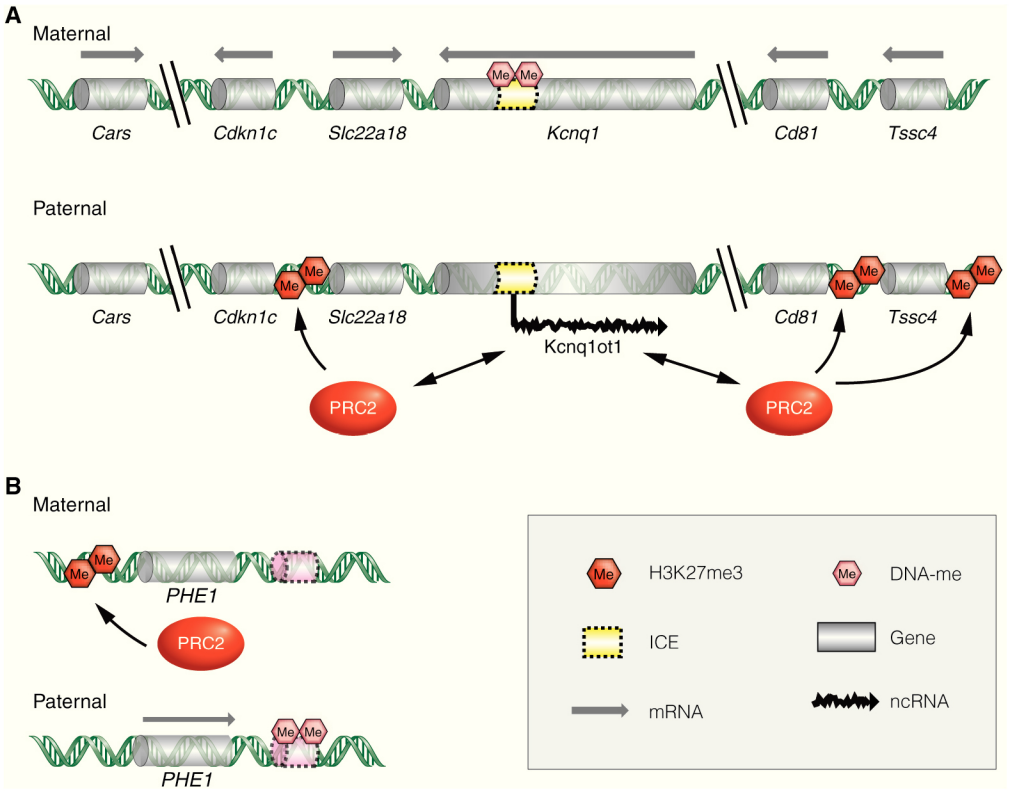

Figure 8. Interplay of PcG-mediated repression and DNA methylation regulates genomic imprinting in plants and mammals. (*A*) Regulation of genomic imprinting at the *Kcnq1* domain on distal chromosome 7. The imprinting control element (ICE) is maternally methylated and prevents the transcription of the lncRNA *Kcnq1ot1* from the maternal chromosome. The paternally expressed *Kcnq1ot1* associates with chromatin and recruits chromatin modifying complexes, such as PRC2, to mediate and maintain transcriptional silencing of several paternal, protein-coding alleles. (*B*) In *Arabidopsis* seeds, the paternally expressed *PHE1* gene is maternally repressed by the action of PRC2. A *cis*-regulatory element (shaded pink) downstream of the *PHE1* gene must be methylated for paternal expression, but demethylated for maternal repression.