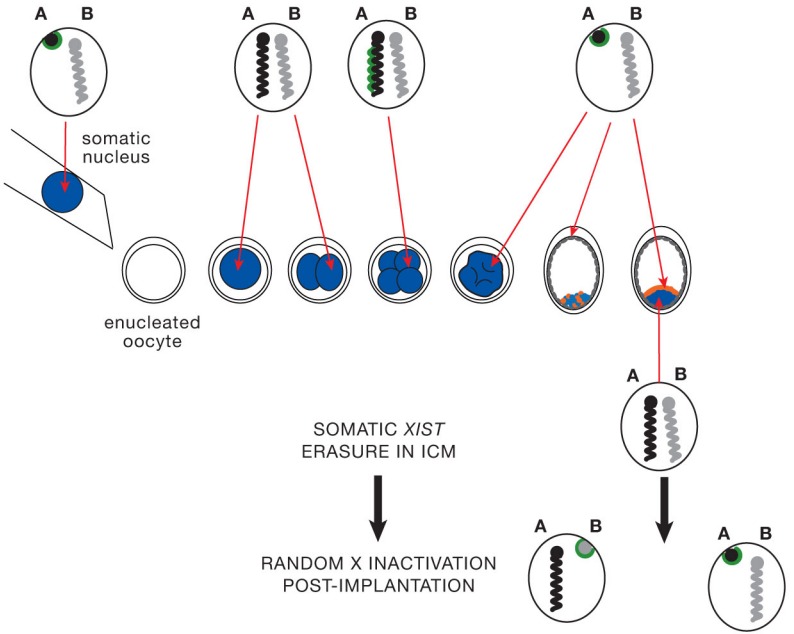

Figure 9. Regulation of X Inactivation in Cloned Mouse Embryos

The figure illustrates an XX donor cell with the inactive X chromosome (A) coated with *Xist* RNA (*green line*). In this model, transcription from the donor nucleus, including *Xist* RNA, is repressed by oocyte factors until the 2-cell stage, resulting in X reactivation. Recommencement of *Xist* expression then occurs at the 2-cell stage. *Xist* is then reexpressed, again from the inactive X allele from the donor cell. This would be attributable to retention of a mark such as DNA methylation at the *Xist* promoter. This pattern is maintained in cells allocated to the TE and PE lineages but not in pluripotent epiblast where *Xist* expression is again extinguished, leading to a second reactivation event. In the ICM, erasure of the epigenetic marks governing donor *Xist* expression allows subsequent random X inactivation in the embryo proper.