



Figure 4. *Xist* Gene Regulation in Early Development

The figure illustrates current knowledge and models for imprinted and random *Xist* regulation in early XX mouse embryos. The *Xm* *Xist* allele arrives in the zygote with a repressive imprint, possibly mediated through the antisense *Tsix* locus (*black square*). The *Xp* allele is primed to be active and is expressed as soon as embryonic gene activation occurs at the 2-cell stage. From 2-cell up until morula stage, *Xp* *Xist* is expressed in all cells (expression indicated by *open rectangle* and *arrow* at 5' end). This pattern is maintained at the early blastocyst stage and subsequently in TE and PE cells and their fully differentiated derivative tissues. In the late blastocyst ICM, *Xist* expression is extinguished, possibly by an ICM-specific repressor factor (*blue triangle*). *Xist* expression then commences subsequently at the time of gastrulation. Here the blocking factor (*black diamond*) ensures that *Xist* expression cannot occur on one of the two alleles (counting).