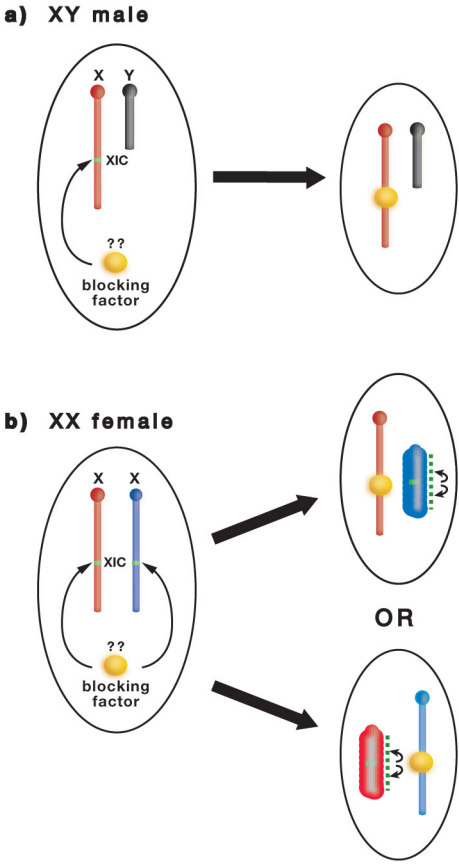

Figure 5. The Blocking Factor Model for Random X Inactivation

The blocking factor model proposes that there is a factor (*yellow circle*) that blocks a single *Xist* allele (*green box*) in all cells such that at the onset of X inactivation that chromosome is protected from undergoing X inactivation. In male cells (*a*) there is only one allele present and the blocking factor always binds. In female cells (*b*) there is an equal probability that the blocking factor will bind either the Xm *Xist* allele (*red*) or the Xp *Xist* allele (*blue*). At the onset of X inactivation, only the unblocked allele will express *Xist* RNA (*green dashed line*). Different alleles of the X-inactivation center may have a greater or lesser affinity for the blocking factor such that in heterozygous females the factor preferentially binds one X chromosome. In some cases, this may underlie skewing in primary nonrandom X inactivation (see Fig. 7).