



**Figure 27.** Trithorax complexes and their biological function. In *Drosophila*, there are two Trithorax complexes, Trx and Trx-related (Trr), with distinct biological functions. Trr and its mammalian orthologs, MLL3 and MLL4, specifically mediate H3K4me1 at enhancers. In contrast, Trx and its mammalian orthologs, MLL1 and MLL2, are recruited to promoters, in which they catalyze H3K4me3. In the mammalian system, MLL1 activity has been associated with active genes, whereas MLL2 seems to be specific for bivalent promoters.