

	Female or hermaphrodite		Male	
Human	↑ X _x	AA	↑ XY	AA
Fly	XX	AA	↑ X ² Y	AA
Worm	↑ xx	AA	↑ X	AA
Effective dose	XX	AA	XX	AA

Figure 7. Coordinated up-regulation and DCC-mediated down-regulation of X-linked gene expression. Dosage compensation between the sexes is accomplished differently in the three well-studied systems shown. In mammals, one of the X chromosomes in females is inactivated (small x). In fruit flies, transcription from the single X in males is increased by a factor of 2 (larger X). In worms, transcription from both of the X chromosomes in hermaphrodites is decreased by a factor of 2 (smaller Xs). In all three systems, transcript levels from the X chromosome(s) and autosomes are similar in both females/hermaphrodites and males, suggesting that there is a mechanism to increase X transcription approximately twofold in both sexes (red arrows).