10 Neat Facts About the X Chromosome

1. In the nucleus of each cell, DNA is packaged in thread-like structures called chromosomes.

2. Most human cells contain 23 pairs of chromosomes. One set of chromosomes comes from the mother, while the other comes from the father. The twenty-third pair is the sex chromosomes, while the rest of the 22 pairs are called autosomes.

3. Typically, biologically female individuals have two X chromosomes (XX) while those who are biologically male have one X and one Y chromosome (XY). However, there are exceptions to this rule.

4. Biologically female people inherit an X chromosome from their father, and the other X chromosome from their mother. Biologically male people always inherit their X chromosome from their mother.

5. The X chromosome is about three times larger than the Y chromosome, containing about 900 genes, while the Y chromosome has about 55 genes.

6. Female mammals have two X chromosomes in every cell. However, one of the X chromosomes is inactivated. Such inactivation stops transcription from occurring, hence making sure a potentially toxic double dose of X-linked genes does not occur.

7. An inactivated X chromosome gets condensed into a small, dense structure in the nucleus, and is called a Barr body. Barr bodies are commonly used to determine sex.

8. Changes in the structure or number of X chromosomes can lead to a number of diseases. For example, trisomy X syndrome is caused by the presence of three X chromosomes instead of two. Turner syndrome occurs when women inherit only one copy of the X chromosome.

9. Some women have a rare super color vision trait called tetrachromacy, which is linked to the X chromosome. These women can see up to 100 million shades of color because they have four types of cone cells in their eye instead of the usual three.

10. Contrary to popular belief, calico is not a breed of cats, but rather a distinctive coat color pattern linked to the X chromosome. Over 95% of calico cats are female. The patches of fur on a calico cat are orange and black, and the color depends on which X chromosome is inactivated within each patch of color.