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Inheritance of genes

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Chromosomes with their DNA make each type of living organism unique. The chromosomes get inherited from the parents to the offsprings, which vary in number and shape among living organisms. The human genome is composed of 23 pairs of chromosomes; it includes two alleles of every gene, i.e. one from the mother and one from the father that sum up to 46 chromosomes. Some gene versions are dominant, which means that they will always have an effect on the body no matter what the other version is. Others are recessive, which means that they have no effect when paired with a dominant gene. A recessive gene has no effect unless the individual possesses two copies, i.e. one from each parent. Two special chromosomes, namely the X and Y chromosomes also known as the sex chromosomes determine whether the foetus is male or female. X-linked genes are carried by the X chromosome. Since males have only one X chromosome, while females have two, faulty genes are more likely to cause problems in males than females. Such conditions are called X-linked disorders. A common example is colour blindness. It affects 8% of males of European descent but only 0.5 % of females. Each cell in our body contains a set of 46 chromosomes squashed into the cell nucleus, except red blood cells, which have no nuclei. However, the reproductive cells or gametes are the only human cells that do not contain pairs of chromosomes but just contain one copy of each chromosome, so that on fertilization they fuse to produce a zygote which contains both the copies and form a complete life. In this way, life transports one set of genes from the father and the other from the mother and makes a wonderful new set of the living being with basal inheritance.

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