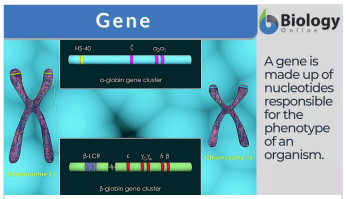
Gene



n., dʒiːn
The fundamental, physical, and functional unit of heredity

Table of Contents

A **gene** is the fundamental, physical, and functional unit of heredity. The genes make up the sequences of DNA (genotypes). The genotypes, together with the other factors (e.g. environmental factors), determine the phenotypic trait of an organism. These changes in the genes drive evolution and natural selection. The gene was formerly called a factor. The existence of a gene as an independent heritable *factor* was first identified by Gregor Mendel who is now credited as the *father of genetics*. Mendel formulated the laws of heredity based on his careful breeding experiments on garden pea plants. Later, it was called *gene* as introduced by Wilhelm Johannsen, a Danish botanist and plant physiologist, in 1905. Prior to Mendel's work, the popular belief is that male and female parents provide *fluids* that blend or mix during fertilization. Charles Darwin referred to the particles that mix at fertilization as *gemmule*. Mendel's work was published in 1886. However, it was in the late 1900s that it was accepted as it was supported by the same results from the works of Hugo de Vries, Carl Correns, and Erich von Tschermak. [(1)]

Further study in the next century led to an understanding of the molecular structure and function of the gene. It was found out that the gene is comprised of expressed DNA. The works of Rosalind Franklin and Maurice Wilkins and later on of James D. Watson and Francis Crick identified DNA structure. The scientific study of the patterns of inheritance of specific traits, relating to genes and genetic information and heredity is referred to as *genetics*.