Morgan was born on 25 September 1866 in Lexington, Kentucky, the son of a diplomat. He was educated at the State College of Kentucky, graduating in 1886, and then at Johns Hopkins University, from which he gained his PhD in 1890. In the following year he joined the staff of Bryn Mawr College, near Philadelphia, as associate professor of zoology and remained there until 1904, when he became professor of experimental zoology at Columbia University. In 1928 he was appointed director of the Laboratory of Biological Sciences at the California Institute of Technology, a post he held until his death in Pasadena on 4 December 1945.

Morgan's early work was in the field of embryology, investigating such phenomena as fertilization in nucleated and unnucleated egg fragments, the development of embryos from separated blastomeres, and the effect of salt concentration on the development of unfertilized and fertilized eggs. In about 1907, however, his interest turned to the mechanisms involved in heredity (following the rediscovery of Gregor Mendel's work), and in 1908 he began his famous research on the genetics of Drosophila - initially to test Mendel's laws, about which Morgan was sceptical. After breeding several generations of Drosophila, Morgan noticed many small phenotypic variations, some of which could not be accounted for by Mendel's law of independent assortment - he discovered, for example, that the Drosophila variant now known as white eye is confined almost entirely to males. From his findings he postulated that certain characteristics are sex-linked, that the X chromosome carries several discrete hereditary units (genes), and that the genes are linearly arranged on chromosomes. Morgan also demonstrated that sex-linked characters are not invariably inherited together, from which he developed the concept of crossing-over and the associated idea that the extent of crossing-over is a measure of the spatial separation of genes on chromosomes. (From these ideas A H Sturtevant - one of Morgan's student collaborators - drew up in 1911 the first chromosome map, which showed the positions of five sex-linked genes.) Morgan realized that his findings proved that Mendel's 'factors' have a physical basis in chromosomes and revised his earlier scepticism of Mendelian genetics. In 1915, in collaboration with Sturtevant and his other students A B Bridges, and Hermann Muller, Morgan published a summary of his work in The Mechanism of Mendelian Heredity, which had a profound influence in genetic research and evolutionary theory.

In the following years Morgan and various co-workers continued to elaborate the chromosome theory of heredity. Towards the end of his life, however, he returned to embryological investigations, trying to support with experimental evidence the theoretical links between
embryological development and genetic theory. But it is his early work that is the most important, providing one of the cornerstones of modern genetic theory. Moreover, largely as a result of Morgan's experimentation, *Drosophila* became one of the principal experimental animals used for genetic investigations.


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