



Weismann germ plasm theory of animal genetics

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DESCRIPTION

Reproductive Plasma Theory, the concept of the physical basis of heredity expressed by the 19th century biologist. According to this theory, the germplasm, which is independent of all other somatic cells is the essential component of the germ cells, the genetic material that is passed down from generation to generation (Johnston, 1995). Weismann first proposed this theory in 1883. Lamarck's theory of acquired traits, which was the dominant theory of heredity at the time. Although the details of the reproductive plasma theory have changed, its premise of continuity of genetic material does not support physical inheritance (Stanford, 2005). It forms the basis of our modern understanding of processes. However, a careful reading of Weismann's work over the span of his entire career shows that he had more views. He insisted, like Darwin, that an environment was necessary to cause variation in the hereditary material (Pelling, 2013). Because genetic information cannot pass from soma to germ plasm, these external conditions caused different effects on the soma and the germ plasm. Somatic cells through somatic genome processing of animals, genetic information is easily lost. The best-known example is the nematode the phenomenon of chromatin depletion was first described by Theodor Boveri in his 1887.

CONCLUSION

In the first part of The Germ-Plasm, "The Material Basis of Heredity," Weisman describes the composition and structure of the germplasm

Weisman assumed that there were four hierarchical levels of matter within the cell, and he coined four terms to name them. Lowest to highest he four levels are biophore, determinant, ide and idant. At the first level are the biophores, the small units that make up the entire cell and Weisman postulated that they controlled the metabolism and growth of the cell at the second level are determinants, the main components of the genetic material. Biophore which determines the specific phenotypes and mutability of the cell. At the third level there is an identity or a collection of many determinants (Niklas, 2014). At the top level is IDANT, which is a collection of IDs. The concept of identifiers corresponded to the concept of chromosomes. Weismann argues that cells evolve to have only one phenotype because only one determinant remains active in somatic cells while the others remain inactive (Geison, 1969). Later in his book, Wiseman uses his four concepts of biophore determinant and describes genetic and developmental phenomena in various sexual and asexual organisms. In the second part of the book, "Relationship between Genetics and Unisexual Reproduction," Weisman describes the phenomenon associated with monogenic reproduction or asexual reproduction, which refers to the reproduction of new organisms from a single parent.

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