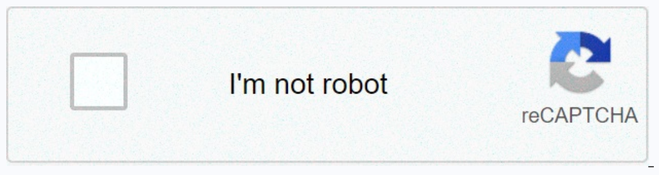

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Teoria cromosomica de sutton morgan

Explain what Sutton and Boberi's chromosome inheritance theory is. Also, how it is based on Mendel's law. Chromosome theory of genetic posints in which genes are contained in chromosomes. Sutton and Boberi's chromosomal theory of heredity or chromosome theory is a scientific explanation for transmitting certain characters through genetic codes, including living cells that occur between one generation of individuals and the next. The theory was developed in 1902 by scientists Theodor Bobelli and Walter Sutton. Despite the distance between them, Boveri (German, 1862-1915) and Sutton (American, 1877-1916) independently assumed the same conclusion based on existing knowledge of inheritance and cellular function. Until 1915, it was a controversial and controversial theory in which drosobae's Melanogaster flight experiment by American scientist Thomas Hunt Morgan (1856-1945) was fully confirmed. Genetic chromosome theory studied genes, DNA segments that code specific proteins, also known as genetic factors, in a study on Gregor-Mendel inheritance (1822-1884). Specifically, we tested that genes are located within cell chromosomes located in the cell nucleus. The presence of chromosomes was already known, and their replication was known during cell division, but from now on it was known who would come in pairs of mother and father, so germ cells and white cats would have to provide each individual with exactly half of the genetic material. This theory allowed us to understand why certain characters are inherited and others are not inherited, that is, why one aresle is independent of each other when placed on different chromosomes, so it is not transmitted. For example, chromosomes that contain information about an individual's gender differ from chromosomes that contain information about eye color, etc. It may help: The Mendel mutation found that not all genetic information appears. The main precedent for chromosome inheritance theory is the work of Gregor Mendel, who in 1865 managed to formulate Mendel's famous succession method and conducted a series of experiments and follow-ups between pea plants. Their experience helped them understand how genetic characters pass from generation to generation to generation. First, we found that there are two types of characters (genes): dominant (AA) or recessive (aa), whether they appear in individuals or not, in the latter case not the carrier of genesThus Mendel proposed the presence of pure (allodic) individuals (AA or aa) due to genetic mixing and transmission (Aa), and other hentholytic individuals due to genetic mixing and transmission (Aa) for each specific hereditary feature. This approach was the first human attempt to describe the laws governing genetics, and alcause the results were recognized much later, it is a revolutionary contribution to that time and the basis of everything that comes next. Continue: Genetics References: Final: October 11, 2019. How to quote: Chromosome theory of inheritance.Author: Maria Estella Rafino.Born: Argentina. To: Concepto.de. Available: . Acquired: December 02, 2020. Walter Sutton (left) Theodor Bobelli (right) and other scientists independently developed chromosome inheritance theory in 1902. Sutton and Boberi's chromosome theory suggests that Mendeliaares is located on chromosomes. This theory was independently developed in 1902 by Theodor Bobelli and Walter Sutton. It is also called chromosome theory of inheritance. This theory was controversial until 1915, when Thomas Hunt Morgan was able to universally accept it after his research at Drosoubae Melanogaster. The 19th-century biology research conducted this century provided three fundamental pillars for the subsequent development of modern biology, fundamentally affecting all scientific fields and creating a unified system despite its underlying complexity. These two ideas were: Cell theory thinks of cells as the smallest autonomous living unit. According to this idea, cells are a fundamental unit of both single-celled organisms (such as bacteria and protis) and multicellular organisms, and are also a means of transmission of organisms such as spores, sperm, and follicle bodies. A very important point is that cell theory believes that cells come from sun in units that are individual particles that pass from one generation to the next using reproductive mechanisms. These units exist in pairs (conflicts) where different variants exist. These variants coexist in hybrids and are passed on to the next generation as simple copies. In other words, Mendel established gene combination behavior (he called it a factor) and the separation of offspring. A fertility study conducted by Edouard Van Beneden in 1883 found that ascaris zygote's male and female acu nucleito the first cell split. Meanwhile, August Weissman, an influential cytologist at the time, proposed chromatin as a hereditary substance. He established a theory of germ lineage and predicted a decrease in some information before the formation of teguete. However, Weissmann believed in his 1892 chromosome inheritance theory that each mythological chromosome contained the complete genome of the germ line. Theodor Bobelli study accepted during Theodor Bobelli's time that cells would come from binary divisions in stem cells, but it was unclear how chromatin present in the nucleus (which Weissman called germ plasma in August) was transmitted to daughter cells so that they were the same as the original cells. Following the nuclear metamorphosis observed by Walter Fleming, it converts the nuclear mass into a defined chain (chromosome) that moves through the cell and returns to its original state. These chains were supposed to carry hereditary substances, but the mechanism remained unclear until Boveri demonstrated that chromosomes were permanent organelles that condensed during thread splitting and remained diffused between interfaces. In addition to establishing the personality and permanence of chromosomes, Boveri would give a modern description of the first thread splitting device that identified hematomas and defined the role of the filamentous spindle in the distribution of chromosomes at the opposite poles of stem cells, giving the daughter cells. Boberi's work in ascaris and sea urbonia embryos allowed him to observe defective cell divisions such as multi-polar filamentous division, monodetic yarn division or spindle medium, which he was able to experimentally induce. This allowed him to define three rules (1888,1904): [3][4] chromosomes during thread splitting are double (have two chromatssets), and each part has a side facing the spindle pole. This law means the idea that chromosomes can only be known between two daughter cells, and the presence of a yet-to-be-discovered relative, faced with two chromatses for fixing the tubal tubes. Boveri also distinguished between two types: a locally located centromer (on a sea uroni) and a chromosome with fuzzy (ascaris). Chromosomes are connected to both poles of the spindle via microtubules (MT). Each chromatide is attached to one of the two poles, only one. Boveri, on the other hand, identified a double chromatide during the interface (1904)[4] and inferred a very accurate correlation between the number of chromosomes (the amount of chromatin) and the size of the nucleus (1905). From [5]The morphology is a description that perfectly fits with the current view of chromosome events during the cell cycle, which, due to the chromosome cycle, established three important events: replication of chromatin during the hiatus period (interface), individualization of chromatization during chromosomal condensation, and distribution of chromosomes in anaphasal. Boberi also first described the central tumor of Ascaris in 1887,[6] defining it as organelles specialized in cell division. Boveri clearly identified the central tumor as a pair of centriores surrounded by special materials, and was able to assemble an archiplasma sphere containing all these elements, temporarily producing an astosphere. In 1900, Boberi established that the heart tumor was a single copy cell organelle. [7] Through observation of chromosome dynamics, he concluded that the typical bipolar yarn composition actually consists of two spindle media, each held together by a set of double chromosomes attached to the ends of each aster, and each chromosome attached to both poles. , and only one per chromatide. Therefore, he speculated that during the formation of metaphor plaques, there is a chromosomal force that cancels out the repulsion between asters. However, because the chromosomes of the akaris germ cell line are so multi-shaped, Boveri was unable to distinguish the presence of corresponding chromosomes in paraskari equoram, thread splitting or meotic synaptic states. In grasshopper sperm, it was Walter Sutton[8] who recognized the presence of individual chromosomes identifiable by their size and indicated that two similar chromosomes always mated between physiological diets. However, the fact that there are morphologically different chromosomes does not prevent them from containing similar genetic information. In 1902, Boveri ruled out this possibility through an ingenious analysis of sea urn dyspemy (fertilization with multiple sperm) and demonstrated that chromosomes do not amount to embryonic development. Boveri estimated the number of attributes corresponding to the number of haproids in chromosomes through a quantitative analysis published in 1907. Based on data from all his cytogenetic studies, Boveri concluded that meotic devices do not distinguish between corresponding chromosomes based on their patermal or mother's origin. Thus, this department can generate multiple combinations of multisomes (2) to create new haploid games. [4] In addition to the existence of recombiningBoberi also proposed a membrane re-binding between synaptic phases in myosis. Boberi summarized his research with results on the constitution of pigmented materials in the cell nucleus, combining observed facts about chromosomes with the laws of succession in Mendelia. As he said: We can see that two independently developed areas of study produce harmonious results as if theoretically derived from the other. Today, we can understand Boberi's conceptual progress, but in his day, Bobelli's ideas (what we know together as Sutton and Boberi's chromosome theory) were full of strong skepticism. The main reason, as a rule, seemed to be that there was no conclusive evidence linking hereditary features to specific chromosomes. For Boberi, it was sexual decisions that provided such evidence. Walter Sutton: Walter Sutton's contribution to biology was multifaceted, and despite his death at the age of 39, he did a wide range of activities throughout his life. For example, he began his engineering studies and then dropped out to study biology, first at the University of Kansas, where he earned both a bachelor's and master's degree in 1901. As a master's degree study conducted in Dr. E. McClung's lab.C I studied spermatoplasty of Bratistra Magna, a large grasshopper derived from the land where Sutton grew up. He then moved to Columbia University, where he continued his zoology research in Dr. Edmund B. Wilson's lab. It was the morphology and genetic chromosomes of bratistramagn's chromosome group that Sutton wrote two important works of genetics. However, he did not earn a Ph.D. in zoology and spent two years working in the field of oil extraction in Kansas, where he developed a machine dedicated to this activity [he went on to study at Columbia University, and in 1907 received his Doctorate in Medicine in his upper grades.] From this moment until the end of his life, he worked as a surgeon in different hospitals and made interesting contributions in medical devices and surgical protocols. During his time in McCrun's lab, Sutton began studying sperm in bratistra magna grasshopper. His first publication[12] was his dissertation to obtain a master's degree, and thatIn 1901. In this study, Sutton established that during sperm maturation, chromosomes maintained their personality against the main idea at the time, which assumed that all chromosomes were equivalent. Sutton observed that chromosomes -- initially identified as nucleoro but later called accessory chromosomes by McClung in 1989 -- behaved differently from the rest of chromosomes. The following year (1901), McClung identified chromosomes as determining factors for sex, indicating that erythrations (sexual decisions) were associated with specific chromosomes. Sutton then moved to Edmund B. Wilson's lab at Columbia University in New York to complete his Ph.D. study in zoology as a continuation of his research in Kansas. According to Wilson's writings: His work in my lab was primarily devoted to extending his previous observations. These studies led him step by step to the identification of the cytological mechanisms of Mendel's inheritance method, the discovery of the first line. (Wilson, family memorial). These studies were published in two papers, Biological Bulletin. The first is dedicated to demonstrating that chromosomes maintain individuality throughout the life of an organism, according to the size relationship between 11 chromosomes across different cell generations. Attached chromosomes can be identified in half of sperm, providing additional evidence for studies on chromosome individuality. McClung later identified the accessory chromosome as giving the sexual identity of the offspring, so Sutton expanded on the first theme, suggesting that not only the size of the chromosome but also the physiological characteristics were different. At the end of this publication, Sutton presented his hypothesis: Finally, I draw attention to the association of patermal and maternal chromosomes in pairs and the possibility that subsequent separation during reduction division, as described above, forms the physical basis of the Mendelia inheritance method (Sutton, 1902). The publication was written by renowned heritage researcher William Bateson during a visit to New York. Bateson published a translation of Mendel's principles of succession that year (1902), and Sutton was able to observe that these principles were relevant to his work. Based on a letter from Sutton, McClung wrote .. It is said. A year before it was moved by a recital on Mendel's results, the bud of that idea was already on his mind (McClung, Family Publications). Originality ofSutton's is most impressive when he admits that he himself did not initially recognize all the meaning of Sutton's conception. (Wilson, family memorial). Thomas Morgan Thomas Hunt Morgan's confirmation received a PhD from Johns Hopkins University in 1890 for his research on the development of sea spiders, a specialized group of invertebrates, and trained development biologists who accepted teaching positions at Bryn Maua College in 1891. In 1904, Columbia University announced the creation of a new position in laboratory zoology and offered it to Morgan, a longtime friend of E.B Wilson, director of the Zoology Department. Wilson convinced Morgan that the key to understanding development (i.e., as cells, eggs produce complete individuals) is to understand heredity because this is a means by which eggs and sperm transmit individual characteristics from generation to generation. Morgan began his research in rats and mice, but these regenerate so slowly that they were not suitable for inheritance research. In search of a more suitable organism, it was determined for drosobae melanogaster, fruit fly, its properties: it is small organism (3 mm), easy to maintain in the laboratory (can collect thousands in a quarter-liter bottle), it is fertile and very multi-production all year round (produces generations every 12 days, or 30 generations per year). In addition, males and females are easy to distinguish, embryonic development occurs on the outside, making it easier to study developing mutations. Finally, drosobae has only four pairs of chromosomes, all of which are very suitable organisms for inheritance research. Morgan's drosoubace study began in 1907. Initially, his intention was to keep a few generations, hoping for something that occasional mutants would appear and hugo de Friess had just observed in the plant. But two years after keeping flies, their efforts remained banos. But Morgan persisted, and in April 1910, a man with white eyes appeared in one of his bottles, rather than his usual color (red). This led him to start discussing some important issues, and how was this man generated? In the first generation (F1), red-eyeed offspring (males and females) are gained, red eyes dominate, and whitesTo prove it, he crossed F1 men and women and got the second generation (F2) at an expected rate according to Mendel's Law for recessive character: three red-eye flies for each white-eyeed one. However, while Morgan expected the same proportion of men and women with white eyes, he observed that all women had red, and among men, there were red-eyeed and white-eyeed women. This meant that the color of the eyes was somehow related to sex. Two other spontaneous mutations (the color of the mesothical wing and yellow body) then appeared and were also associated with sex. All this suggested that these three genes may be on the same chromosome, a sex chromosome. Morgan, who studied drosomal chromosomes under a microscope, observed that four pairs were not the same, that women had two different X chromosomes, and in men, X was paired with the Y chromosome, which looked different and did not appear in women. Therefore, the male must receive the X chromosome from the mother and receive the Y chromosome from the father, explaining the separation observed in the color of the eyes: if the mother is a homozyglyzable with red eyes (she has two alle alle right genes of that gene), her male child will only have red eyes, even if the father had white eyes. For a man with white eyes to appear, the mother must carry at least one copy of the white eye gene on one of the X chromosomes, and only the child who receives the X with the mutated gene will have white eyes. For white-eyeed women to appear, parents need to provide the white-eye gene to the X chromosome, which is a less frequent occurrence. That is, from these observations, Morgan infers that a gene that codes the color of the eye must be present on the X chromosome, providing the first correlation between a particular character and a specific chromosome. These studies, published in Science in July 1910, were titled Sexually Limited Inheritance in Drosoubace[14] and in April 1911, titled Drosoubacean Eye Color Mutations and Their Mode of Succession, he summarized three basic conclusions. : Genes must exist on chromosomes where each gene must be on a specific chromosome, the letter eye color must be on the X chromosome, and red must be present on the dominant color, the Y chromosome. Morgan later reasoned that chromosomes are a collection of genes, as characters found on certain chromosomes tend to separate together. But Morgan said that theseLinks are sometimes separated. From here, Morgan speculated on the concept of chromosome recombination: he tested that two pair chromosomes could exchange information, and suggested that the recombination frequency depended on the distance between the two. The closer the two genes close to chromosomes are, the more likely they are to inherit together, and the longer the distance between them, the more likely they are to separate due to the crossing process. In short, Morgan suggested that the strength of ligation between the two genes depends on the distance between them on chromosomes. Based on these observations, a student in Morgan's group, Alfred Henry Sturteverant, concluded that variations in ligation intensity could be used to map genes on chromosomes and define distances relative to each other: a year after Morgan identified white-eye flies, Sturtevant established a genetic map of the sex-binding gene. Today, Morgan is a unit of measure of distance along the chromosomes of flies, mice and humans. 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