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Somatic cells vs gametes

Any biological cell that forms the body of a somatic cell organism (from the ancient Greek σμα sôma, meaning body), or plant cell, is any biological cell that forms the body of an organism; that is, in a multicellular organism, any cell other than a mind, germ cell, gametocytes or undifferent stem cells. [1] Instead, aliases are cells that merge during sexual reproduction, germ cells are cells that give rise to minds, and stem cells are cells that can divide through mitosis and differentiate into various types of specialized cells. For example, in mammals, somatic cells make up all internal organs, skin, bones, blood and connective tissue, while mammalian germ cells result in sperm and eggs merging during fertilization to produce a cell called zygote, which divides and differs in cells There are approximately 220 types of somatic cells in the human body. [1] Theoretically, these cells are not germ cells (the source of the arems); they transmit their mutations, to their cell descendants (if they have one), but not to the descendants of the organism. However, in sponges, unso differentiated somatic cells form the germline and, in Cnidaria, differentiated somatic cells are the source of the germline. Myotic cell division is only seen in diploid somatic cells. Evolution As multicellularity evolved many times, sterile somatic cells did as well. [citation needed] The evolution of an immortal germ producing specialized somatic cells involved the onset of mortality, and can be seen in its simplest version in volvocine algae. [2] Those species with a separation between sterile somatic cells and a germ are called Weismannists. However, the development of Weismannist is relatively rare (e.g. vertebrates, arthropods, Volvox), as a large number of species have the capacity for somatic embryogenesis (e.g. terrestrial plants, most algae, many invertebrates). [4] Genetics and chromosome content Like all cells, somatic cells contain DNA arranged in chromosomes. If a somatic cell contains arranged chromosomes in pairs, it is called diploid and the organism is called the diploid organism. (The aliases of diploid organisms contain only unpaved chromosomes and are called haploids.) Each pair of chromosomes comprises a chromosome inherited from the father and an inheritance from the mother. For example, in humans, somatic cells contain 46 organized chromosomes in 23 pairs. On the contrary, the minds of diploid organisms contain only half of the In humans, these are 23 unpaved chromosomes. When two ecstasy (i.e. a sperm and an egg) meet during conception, they merge together, creating a zygote. Due to the fusion of the two almonds, a human zygote contains 46 chromosomes (i.e. 23 pairs). However, a large number of species have the chromosomes in their somatic cells arranged on all fours (tetraploids) or (hexaploid). Therefore, they may have diploid or even triplose germ cells. An example of this are modern wheat-grown species, Triticum aestivum L., a hexaploid species having somatic cells contain six copies of each chromatene. The frequency of spontaneous mutations is significantly lower in advanced male germ cells than in the somatic cell types of the same individual. [5] Female germ cells also show a lower mutation frequency than in the corresponding somatic cells and similar to that of male germ cells. [6] These findings appear to reflect the use of more effective mechanisms to limit the initial occurrence of spontaneous mutations in germ cells than in somatic cells. These mechanisms probably include elevated levels of DNA repair enzymes that improve potentially mutagenic DNA damage. [6] Cloning In recent years, the cloning technique of entire organisms has been developed in mammals, allowing the production of nearly identical genetic clones of an animal. A method for doing so is called somatic cell nuclear transfer and involves removing the nucleus from a somatic cell, usually a skin cell. This nucleus contains all the genetic information needed to produce the organism from which it was removed. This nucleus is then injected into an egg of the same species that has had its own genetic material removed. The egg now no longer needs to be fertilized, as it contains the correct amount of genetic material (a diploid number of chromosomes). In theory, the egg can be implanted in the uterus of an animal of the same species and can be developed. The resulting animal will be an almost genetically identical clone to the animal from which the nucleus was taken. The only difference is caused by any mitochondrial DNA preserved in the egg, which is different from the cell that gave the nucleus. In practice, this technique has so far been problematic, although there have been some high-profile successes, such as Dolly the Sheep and, more recently, Snuppy, the first cloned dog. Somatic cells have also been collected in the practice of cryoconservation of animal genetic resources as a means of preserving animal genetic material, including the cloning of livestock. [citation needed] Genetic modifications The development of biotechnology has enabled the genetic manipulation of somatic cells, either for the modelling of chronic diseases or for the prevention of diseases of discomfort. [8] Genetic engineering of somatic cells has generated some controversies, although the International Human Gene Editing Summit has released a statement in support of genetic modification of somatic cells, as modifications of are not transmitted to the offspring. [9] See also Somatic Cell Count List of Biological Developmental Disorders References ^ a b Campbell, Neil A.; Reece, Jane B.; Urry, Lisa A.; Cain, Michael L.; Wasserman, Steven A.; A.; Peter V.; Retrieved December 19, 2019. Biology (9th ed).) Modify score: 229. ^ a b 4.0 4.1 4.2 4.3 4.4 4.4 4.4 4.4 4.6 4.6 4.6 4.6 4.6 4.6 ↑ Hallmann A (2011). The evolution of reproductive development in volvocine algae. Sex. Floor Reprod. 24 (2): 97–112. 0497-010-0158-4. Modify your web reservation Modify your web reservation ↑ Ridley M (2004) Evolution, 3rd edition. Blackwell Publishing, pp. 1999 ^ Niklas, K. J. 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Multicellular eukaryotic organisms have many different types of cells that perform different functions as they combine to form tissues. However, there are two main types of cells within the multicellular organism: somatic cells and almonds, or sex cells. Somatic cells make up the majority of the body's cells and represent any regular type of cell in the body that does not perform a function in the sexual reproductive cycle. In humans, these somatic cells contain two complete sets of chromosomes (making them diploid cells). Minds, on the other hand, are directly involved in the reproductive cycle and are more often haploid cells, meaning they only have one set of chromosomes. This allows each cell to contribute to transmit half of the complete set required for reproduction. Somatic cells are a regular type of body cell that is not involved in any way in sexual reproduction. In humans, these cells are diploid and reproduced using the mitosis process to create identical diploid copies of themselves when divided. Other types of species may have haploid somatic cells, and in these individuals, all cells in the body have only one chromosomes. This can be found in any type of species that has haplontic life cycles or follows the alternation of life cycles of generations. Humans start as a single cell when the sperm and egg merge during fertilization to form a zygote. From there, the zygote will undergo mitosis to create more identical cells, and finally, these stem cells will undergo differentiation to create different types of somatic cells. Depending on the differentiation and cell exposure to different environments as they develop, cells will begin on different vital paths to create all the functioning cells of the human body. Humans have more than three trillion cells as an adult, with somatic cells commenting on most of that number. Somatic cells that have differentiated can become adult neurons in the nervous system, blood cells in the cardiovascular system, liver cells in the digestive system, or any of the many other types of cells found throughout the body. Almost all multicellular eukaryotic organisms that undergo sexual reproduction use minds, or sex cells, to create offspring. Since two parents are needed to create individuals for the next generation of the species, the alms are typically haploid cells. In this way, each parent can contribute half of the total DNA to the offspring. When two haploid alms merge during fertilization, each contribute a set of chromosomes to make a single diploid zygote. In humans, aliases are called sperm (in the male) and egg (in the female). These are formed by the process of meiosis, which can convert a diploid cell into four haploid devices. While a human male can continue to make new almonds throughout his life starting with puberty, the human female has a limited number of minds that she can make in a relatively short period of time. Sometimes, during replication, mistakes are made, and these mutations can change the DNA in the body's cells. However, if there is a mutation in a somatic cell, it most likely does not contribute to the evolution of the species. Since somatic cells are in no way involved in the sexual reproduction process, changes in the DNA of somatic cells will not be transmitted to the mutated father's offspring. Since the offspring will not receive the changed DNA and no new traits that the parent may have will be transmitted, mutations in the DNA of somatic cells will not affect evolution. If there is a mutation in a mind, however, it can drive evolution. Errors can either happen during meiosis that can change DNA in haploid cells or create a chromosomal mutation that can add or remove portions of DNA on various chromosomes. If one of the offspring is created from a liment that has a mutation in it, then this offspring will have different traits that may or may not be favorable to the environment. Environment.