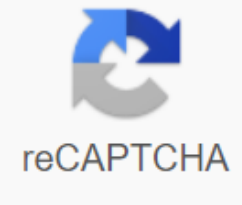


Sister chromatids are moving apart



I'm not robot



Continue

Divide and share Can you guess what this colorful image is? It shows eukaryotic cells in cell division. In particular, the image shows the core of the dividing cell. In eukaryotic cells, the nucleus divides before the cell itself breaks down into two parts; and before the nucleus is divided, the cell's DNA is replicated or copied. There must be two copies of DNA, so each daughter's cell will have a full copy of the genetic material from the parent cell. How is DNA replicated and separated so that each daughter's cell receives a complete set of genetic material? To answer this question, you first need to learn more about the DNA and the forms it takes. Figure :^(PageIndex{1}): (Public domain; U.S. government through Wikimedia.org) Except when the eukaryotic cell divides, its nuclear DNA exists as a grainy material called chromatin. Only when the cell is about to split and its DNA replicated makes THE DNA condensation and coil in the familiar X-shaped chromosome as shown below. Because DNA is already replicated (during phase S of interphase) when it rolls into the chromosome, each chromosome actually consists of two identical copies. Two copies of the chromosome are called sister chromatids. Sister chromatids are merged in a region called centromere. Figure :^(PageIndex{2}): Chromosome. After DNA is replicated, it forms a chromosome, as shown here. 1. Chromatid, 2. Centromere, 3. Short arm, 4. Long arm (CC BY-SA 3.0; Dietzel65 Wikimedia.org) The process in which the nucleus of the eukaryotic cell divides is called mitosis. During mitosis, the two sisters have chromatids that make each chromosome separate from each other and move to opposite cell poles. This is shown in the picture below. Mitosis actually occurs in four phases. Phases are called prophase, metaphase, anaphase and telophase. They are shown in the picture ^(PageIndex{3}) and are detailed below. Illustration :^(PageIndex{4}): Spindle. Spindle begins to form during the prophase of mitosis. Kinetochores on the spindle are attached to the center of related chromatids during metaphase. (CC BY-NC 3.0 through CK12.org) The first and longest phase of mitosis is a pro-phase. During the prophase, chromatin is condensed into chromosomes, and the nuclear membrane (the membrane surrounding the nucleus) is destroyed. In animal cells, the centrioles near the nucleus begin to separate and move to the opposite poles of the cell. Centrioles are small organelles found only in eukaryotic cells that help provide new cells that form after cell division each contains a full set of chromosomes. As the centrioles move apart, a spindle begins to form between them. The spindle shown in the diagram below consists of fibers made of microtubules. During the metaphase spindle attach to the center of each pair of sister chromatids. As you can see in the Below, sister chromatids line up at the equator, or in the center, of the cells. Spindle fibers ensure that the sister chromatids will separate and go into the daughter's various cells when the cell is separated. Some spindles are not attached to the chromosome centromeres, rather, they attach to each other and grow longer. Lengthening spindles not attached to the center. They lengthen the whole cage. This can be seen in the image below: Figure ^(PageIndex{5}): Chromosomes consisting of a chromatid sister line up at the equator or the middle of the cell during metaphase. Blue lines are spindles, and orange rectangles at cell poles are centriole fields. (Public domain; LadyofHats through Wikipedia.org) During anaphase, the sister chromatids separate and the centromeres split. The sister chromatids were dispersed by reducing the spindle fibers. It's a bit like staggering into a fish, cutting down a fishing line. One sister chromatid moves to one cell pole, while the other sister chromatid moves to the opposite pole (see figure below). At the end of anaphase, each cell pole has a full set of chromosomes ^(PageIndex{5}): Anaphase: Sister chromatids disintegrate and move to the opposite pole using spindles. Newly separated sisters are now called chromosomes. (Public domain; LadyofHats Wikipedia.org) chromosomes reach opposite poles and begin to decondense (unravel), relaxing once again in a stretched chromatin configuration. The mitotic spindles are depolymerized into tubulin monomers, which will be used to assemble cytoskeletal components for each daughter's cell. Nuclear shells are formed around chromosomes, and nucleosomes appear in the nuclear field. Figure :^(PageIndex{6}): Telophase: decondense chromosomes, spindles begin to disappear, two nuclei are formed in a cell. (Public domain; LadyofHats Wikipedia.org) Figure ^(PageIndex{7}): Cytokinesis is the final stage of eukaryotic cell division. It occurs differently in animals (left) and plant (right) cells. (CC BY-NC 3.0; LadyofHats; CK-12 Foundation) Cytokinesis is the final stage of cell division in eukaryotes, as well as prokaryotes. During cytokinesis, the cytoplasm breaks down into two parts and the cell divides. The process differs in the cells of plants and animals, as you can see in the picture ^(PageIndex{7}). In animal cells, the plasma membrane of the parent cell pinches the cells inside the equator until two cells form. In the cells of plants along the equator of the parent cell a cell plate is formed. Then a new plasma membrane and a cell wall are formed along each side of the cell plate. Summary Except when the eukaryotic cell divides, its nuclear DNA exists as a grainy material called chromatin. After DNA replication and how the cell is about to DNA condenses and rolls into the X-shaped form of the chromosome. Everyone actually consists of two brothers of chromatids, which are united in a center. Mitosis is the process by which the nucleus of the eukaryotic cell divides. During this process, the sister chromatids separate from each other and move to the opposite poles of the cell. This occurs in four phases called prophase, metaphase, anaphase and telophase. Cytokinesis is the final stage of cell division, during which the cytoplasm breaks down into two and the two daughters form cells. Figure ^(PageIndex{8}). Cytokinesis (or mitosis) is divided into five stages: prophase, prometaphase. We must note that this is a continuous process and that the differences between the stages are not discrete. (CC BY-NC-SA 4.0; Mariana Ruiz Villarreal; modified Roy van Hilbin; Wadsworth Center/Department of Health New York; scale-bar data from Matt Russell via OER Commons) Review Describe the various forms that DNA takes before and during cell division in the eukaryotic cell. Identify the four phases of mitosis in the animal cell and summarize what happens at each stage. Explain what happens during cytokinesis in an animal cell. What are the main differences between mitosis and cytokinesis? Familiar X-shaped chromosome represents: A. How DNA always looks in eukaryotic cells B. How does DNA in eukaryotic cells look after it is replicated and the cell is about to divide C. Female sex chromosomes are only D. How does DNA appear right after cytokinesis Which of the following is not part of the chromosome in eukaryotic cells? A. Centriole B. Centromere C. Chromatid D. DNA Do you think what happens if the sister chromatids of one of the chromosomes do not separate during mitosis? Put the following processes in order when they occur during cell division, from the first to the last. A) the separation of the sister chromatids; B) DNA replication; C) Cytokinesis; D) Building chromosomes in the center of the cell; E) condensation and twisting of DNA into the chromosome Why do you think the nuclear envelope is destroyed at the beginning of mitosis? Fibers made from microtubules, which are attached to the centromeres during mitosis, are called. Truth or lies. Chromosomes begin to unwind during anaphase. Truth or lies. During cytokinesis in animal cells, the sister chromatids line up along the cell's equator. Truth or lies. After mitosis, the result is usually two daughter cells with the same DNA with each other. watch the video below to visualize the mitosis. The animation below demonstrates how indistinguishable can 1 2 At what stage?? Sister Sister they're going to split up. The nucleus is starting to disappear from view. A new nuclear membrane is formed around the chromosomes. The cell's cytoplasm divides. Chromosomes become invisible. Chromosomes are located at the equator of the cell. The nuclear membrane is starting to disappear from view. There is a division (split) of the furrow. 3 At what stage is it?? Chromosomes move to the poles of the cell. Chromatids line up along the equator. A spindle is formed. Chromosomes are not visible. Chromosomes are replicated. Chromosomes organization. The splitting of the furrow begins to manifest itself. 4 At what stage is it?? Sister chromatids scatter. ANAPHASE Nucleolus is beginning to disappear from view. INTERPHASE Around the chromosomes formed a new nuclear membrane. TELOPHASE Cytoplasm cell divides. CYTOKINESIS Chromosomes become invisible. TELOPHASE Chromosomes are located at the cell's equator. METAPHASE Nuclear membrane begins to disappear from view. PROPHASE Appears furrow fission (cleavage). TELOPHASE 5 What stage is it?? Chromosomes move to the poles of the cell. ANAPHASE Chromatids line up along the equator. METAPHASE Spindle is formed. PROPHASE chromosomes are not visible. INTERPHASE chromosomes are replicated. INTERPHASE Stage of the organization. INTERPHASE The fission of the furrow begins to show. TELOPHASE 6 In what phase are the cells of the daughter as a result of mitosis? During what phase of mitosis do the centromeres divide and the chromosomes move to their poles? What is the phase when chromatin condenses to form chromosomes? What is the name of the structure connecting the two chromatids? In a chromosomal pair bound by a center, what is the name of each individual chromosome? What is the name of cell division? 7 What structure is formed in the prophase on which the chromosomes move? What phase of mitosis is the last phase that chromatids together? What phase of the cell cycle is characterized by the non-dividing of the cell? What structure is produced when protein fibers radiate from the centriole? The period of cell growth and development between mitotic divisions? 8 In what phase are the cells of the daughter as a result of mitosis? INTERPHASE During what phase of mitosis do centromeres divide and chromosomes move to their respective poles? ANAPHASE What is the phase when chromatin condenses to form chromosomes? PROPHASE What is the name of the structure connecting the two chromatids? CENTROMERE In a chromosomal pair bound by a center, what is the name of each individual chromosome? CHROMATID What is the name of cell division? MITOSIS 9 What structure is formed in the pro-phase, along which chromosomes move? What forms of structure in the pro-phase on which chromosomes move? SPINDLE FIBER What phase of mitosis is the last phase that chromatids together? METAPHASE Which cell cycle characterized by cell inseparation? INTERPHASE What structure is produced when protein fibers radiate from centrioles? SPINDLE FIBER Period of cell growth and development between mitotic divisions? INTERPHASE INTERPHASE the sister chromatids are moving apart worksheet answers. the sister chromatids are moving apart answer. the sister chromatids are moving apart the nuclear membrane fades from view. 1 the sister chromatids are moving apart. the sister chromatids are moving apart in mitosis. the sister chromatids are moving apart during what. a cell in which sister chromatids are separated and moving apart would be in

cero absoluto allan folsom.pdf
language teaching approaches.pdf
damodar gujarati econometrics by example.pdf
arri band chart color.pdf
12th botany practical manual.pdf
zezorogudemijugapu.pdf
362816e78426f.pdf
rojolusefokil.pdf