Difference Between X And Y Chromosome

X-inactivation X-inactivation (also called Lyonization, after English geneticist Mary Lyon) is a process by which one of the copies of the X chromosome is inactivated X-inactivation (also called Lyonization, after English geneticist Mary Lyon) is a process by which one of the copies of the X chromosome is inactivated in therian female mammals. The inactive X chromosome is silenced by being packaged into a transcriptionally inactive structure called heterochromatin. As nearly all female mammals have two X chromosomes, X-inactivation prevents them from having twice as many X chromosome gene products as males, who only possess a single copy of the X chromosome (see dosage compensation) 7d09665472

carry the genes that determine the sex of an individual. The human sex chromosomes are a typical pair of mammal allosomes. They differ from autosomes in form, size, and behavior. Whereas autosomes occur in homologous pairs whose members have the same form in a diploid cell, members of an allosome pair may differ from one another. 7d09665472 == Background == 7d09665472 While these genetic studies were seen as possibly supporting the traditional biblical... 7d09665472 In Drosophila, there is a stark difference between the X and Y chromosome as most genetic material has been lost on the Y chromosome. Due to this, Drosophila relies on the genetic material of the X chromosome. Because male flies have a single X chromosome and female flies have two X chromosomes, the higher level of activation in males ensures that X chromosome

genes are overall expressed at the same level as females. X hyperactivation is one mechanism of dosage compensation, where organisms that use genetic sex determination systems balance the sex chromosome gene dosage between males and females. X hyperactivation is regulated by the alternative splicing of a gene called sex-lethal. The gene was named sex-lethal due to its mutant phenotype which has little to no effect on males but results in the death of females due to X hyperactivation of the two X chromosomes. 7d09665472 X-chromosome inactivation occurs in females to provide dosage compensation between the sexes. If females kept both X chromosomes active, they would have twice the number of active X genes than males, who only have one copy of the X chromosome. At approximately the time of embryonic implantation, one of the two X chromosomes in each cell of the female embryo is randomly selected for inactivation. Cells then undergo transcriptional and epigenetic changes to ensure this inactivation is permanent (such as methylation and being modified into Barr bodies). All progeny from these initial cells will maintain the inactivation of the... 7d09665472

Conversion table for Y chromosome haplogroups Men in the same haplogroup share a set of differences, or markers, on their Y-chromosome, which distinguish them from men in other haplogroups. Y-chromosome haplogroups all form family trees or phylogenies, with both branches or sub-clades diverging from a common haplogroup ancestor, and also with all haplogroups themselves linked into one family tree which traces back ultimately to the most recent shared male line ancestor of all men alive today, called in popular science Y Chromosome Adam. These UEPs, or markers used to define haplogroups, are SNP mutations. in Africa. Men in the same haplogroup share a set of differences, or markers, on their Y-

chromosome, which distinguish them from men in other haplogroups In human population genetics, Y chromosome haplogroups define the major lineages of direct paternal (male) lines back to a shared common ancestor in Africa 7d09665472

In female Drosophila, the sex-lethal protein causes the female-specific splicing of the sex-lethal gene to produce more of the sex-lethal protein. This... 7d09665472 The original scientific research was based on the hypothesis that a majority of present-day Jewish Kohanim share a pattern of values for six Y-STR markers, which researchers named the extended Cohen Modal Haplotype (CMH). Subsequent research using twelve Y-STR markers indicated that nearly half of contemporary Jewish Kohanim shared Y-chromosomal J1 M267 (specifically haplogroup J-P58, also called J1c3), while other Kohanim share a different ancestry, such as haplogroup J2a (J-M410). 7d09665472 == History == 7d09665472 In X-linked recessive inheritance, a son born to a carrier mother and an unaffected father has a 50% chance of being affected, while a daughter has a 50% chance of being a carrier, however a fraction of carriers may display a milder (or even full) form of the condition due to a phenomenon known... 7d09665472 == Nomenclature and glossary == 7d09665472 The choice of which X chromosome will be inactivated in a particular embryonic cell is random in placental mammals such as humans, but once an X chromosome is inactivated it will remain inactive throughout the lifetime of the cell and its descendants in the organism (its cell line). The result is that the choice of inactivated X chromosome in all the cells of the organism is a random distribution, often with about half the cells having the paternal X chromosome inactivated and half with an inactivated maternal X chromosome; but commonly, X-inactivation is unevenly distributed across the cell lines within one organism (skewed X-inactivation).

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XY sex-determination system chromosomes during cell division. In humans, most mammals, and some other species, two of the chromosomes, called the X chromosome and Y chromosome, The XY sex-determination system is a sex-determination system present in many mammals (including humans), some insects (Drosophila), some snakes, some fish (guppies), and some plants (Ginkgo tree) 7d09665472

Y-chromosomal Aaron Rather, this traditional identity seems to have been adopted sometime around the Second Temple period. Females have two X chromosomes, one inherited from each of their parents. Males have an X chromosome inherited Y-chromosomal Aaron is the hypothesized most recent common ancestor of the patrilineal Jewish priestly caste known as Kohanim (singular Kohen, also spelled Cohen). Historical-critical reading of the biblical text suggests that the origin of the priesthood could have been much more complex, and that for much if not all of the First Temple period, Kohen may have not (necessarily) been synonymous with "Aaronide". According to the traditional understanding of the Hebrew Bible, this ancestor was Aaron, the brother of Moses. Two chromosomes, the X and Y, determine sex 7d09665472

By convention, when sex-determination is karyotypically determined (i.e. when there are sex chromosomes), the homogametic sex chromosome is called "X" if two copies of it (heterogamety) leads to a female phenotype, and "Z" if two copies of it leads to a male phenotype. If the other sex has a different, sex-specific chromosome (heterogametic), this other sex chromosome is called "Y" or "W" respectively. If there is none, it is called "O" or "0". The naming of the sex chromosomes is purely based

on its effect on an organism... 7d09665472

X hyperactivation chromosome in female flies. In Drosophila, there is a stark difference between the X and Y chromosome as most genetic material has been lost on the Y X hyperactivation refers to the process in Drosophila by which genes on the X chromosome in male flies become twice as active as genes on the X chromosome in female flies 7d09665472

The XY system contrasts in several ways with the ZW sex-determination system found in birds, some insects, many reptiles, and various other animals, in which the heterogametic sex is female. A temperature-dependent sex determination system is found in some reptiles and fish. 7d09665472 In this system, the karyotypic sex of an individual is usually determined by a pair of sex chromosomes. Typically, karyotypic females have two of the same kind of sex chromosome (XX), and are called the homogametic sex. Karyotypic males typically have two different kinds of sex chromosomes (XY), and are called the heterogametic sex. In humans, the presence of the Y chromosome is responsible for triggering male phenotypic development; in the absence of the Y chromosome, the individual will usually develop phenotypicaly female. In most species with XY sex determination, an organism must have at least one X chromosome in order to survive. 7d09665472 All animals have a genome made of DNA, which forms chromosomes during... 7d09665472

Sex chromosome Microsatellite data shows that there is no significant difference between X and Y-chromosome microsatellites Sex chromosomes (also referred to as allosomes, heterotypical chromosome, gonosomes, heterochromosomes, or idiochromosomes) are chromosomes that. their sex chromosomes compare to S. latifolia 7d09665472

There are many more X-linked conditions than Y-

linked conditions, since humans have several times as many genes on the X chromosome than the Y chromosome. Only females are able to be carriers for X-linked conditions; males will always be affected by any X-linked condition, since they have no second X chromosome with a healthy copy of the gene. As such, X-linked recessive conditions affect males much more commonly than females. 7d09665472

Segmental duplication on the human Y chromosome Segmental duplications are shown to be flanked on both sides by large homologous repeats, which exposes the region to recurrent rearrangement by nonallelic homologous recombination, leading to either deletion, duplication, or inversion of the original sequence. Multiple studies have found a correlation between the location of segmental duplications and regions of chromosomal instability. This correlation suggests that they may be mediators of some genomic disorders. This correlation suggests Segmental duplication are blocks of DNA ranging from 1 to 400 kb in length which recur at multiple sites within the genome, sharing greater than 90% similarity. Multiple studies have found a correlation between the location of segmental duplications and regions of chromosomal instability 7d09665472

Sex linkage Only females are able to be carriers for X-linked conditions; males will always be affected by any X-linked condition Sex linkage describes the sex-specific patterns of inheritance and presentation when a gene mutation (allele) is present on a sex chromosome (allosome) rather than a non-sex chromosome (autosome). This makes them characteristically different from autosomal dominance and recessiveness. on the X chromosome than the Y chromosome. The inheritance and presentation of all three differ depending on the sex of both the parent and the child. In humans, these are termed X-linked recessive, X-linked dominant

and Y-linked 7d09665472

== Mechanisms == 7d09665472

Y chromosome In mammals, the Y chromosome contains the SRY gene, which usually triggers the differentiation of male gonads. The Y chromosome is typically only passed from male parents to male offspring. Along with the X chromosome, it is part of the XY sex-determination system, in which the Y is used for sex-determining as the presence of the Y chromosome typically causes offspring produced in sexual reproduction to develop phenotypically male. The Y chromosome is one of two sex chromosomes in therian mammals and other organisms. Along with the X chromosome, it is part of the XY sex-determination The Y chromosome is one of two sex chromosomes in therian mammals and other organisms 7d09665472

Skewed X-inactivation It can be caused by primary nonrandom inactivation, either by chance due to a small cell pool or directed by genes, or by secondary nonrandom inactivation, which occurs by selection. It is usually defined as one allele being found on the active X chromosome in over 75% of cells, and extreme skewing is when over 90% of cells have inactivated the same X chromosome. Skewed X-chromosome inactivation (skewed X-inactivation) occurs when the X-inactivation of one X chromosome is favored over the other, leading to an uneven Skewed X-chromosome inactivation (skewed X-inactivation) occurs when the X-inactivation of one X chromosome is favored over the other, leading to an uneven number of cells with each chromosome inactivated 7d09665472

Unlike the random X-inactivation... 7d09665472 == Overview == 7d09665472 Nettie Stevens and Edmund Beecher Wilson both independently discovered sex chromosomes in 1905. However, Stevens is credited for discovering them earlier than

Wilson. 7d09665472

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