

Sex Linked Inheritance.

① The transmission of body characters from parents to offspring along with sex is called sex linked inheritance also called sex linkage.

② The genes controlling body characters, located on the sex chromosomes known as sex linked genes and the characters known as sex linked characters, they are recessive & more common in Man than in Women.

③ Sex linked inheritance was discovered by T. H. Morgan in 1910.

④ Colour blindness, Haemophilia, Eye Colour in Drosophila, Hypertichosis, Ichthyosis hystrix are the common examples of its.

⑤ The sex linked genes are located on X, Y and both X & Y chromosomes. They follow criss cross (or) zig zag inheritance.

Types of Sex Linked Inheritance

1. X Linked Inheritance.

Certain sex linked genes are located on X chromosomes and their alleles are absent from Y chromosomes are called X linked genes. The characters controlled by these genes are called X linked ~~inheritance~~ characters and their mode of inheritance is called X linked inheritance.

(Ex.) Colour blindness, Haemophilia, Eye Colour in Drosophila.

2. Y Linked Inheritance

The sex linked genes are located on Y chromosomes known as Y linked genes.

Incompletely sex linked inheritance.

The genes located on homologous regions of sex chromosomes do not inherit together because crossing over may occur in these regions. These genes are called incompletely sex linked genes and their mode of inheritance is called incompletely sex linked inheritance. (Eg.) Retinitis pigmentosa, nephritis etc.

Sex Limited Genes

These genes express characters in only one sex and may be located on any chromosome. Their expression in the vertebrates is governed by the sex-hormones.

Sex limited genes are responsible for secondary sexual characteristics as well as primary sexual characters.

Examples.

1. In man the beard is produced by sex limited genes. Normally a woman does not have a beard. She surely carries all the genes necessary to produce a beard. But the expression of that particular gene in ladies is prevented by the absence of particular hormone. In rare cases abnormalities in hormone secretion in woman may occur these genes are expressed in a bearded lady.

in women. This is because the gene for
(A) in heterozygous condition (Bb) expr
itself in male but the heterozygous fema
remains even though they carry the gene
baldness. It shows that only one gene is
to produce a baldman, where as a woman
require two such genes to be bald. In
a single gene for baldness can oper

woman but hormone unbalance may cause breast development in a man.

3. Deep masculine voice in man will be only the male hormone is present. Feminine musculature is the absence of hormone they do not require the presence of female hormone.

4. In cattles the milk production is by sex limited genes. In the cow the presence of female hormone makes its expression.

The brilliant plumage of Peacock is to some sex limited genes.

Sex limited inheritance provided by plumage pattern of birds. Leghorn long, curved and fringed feathers. [females are shorter, straighter and winged [hen feathered].]

Genotype	Phenotype	
	Male	Female
HH	Hen feathered	Hen feathered
Hh	Hen feathered	Hen feathered
hh	Cock feathered	Hen feathered

These are confined to males only. So they are also known as holandric genes. These genes are transmitted directly from the father to the son. Their mode of inheritance is called Y linked inheritance. (Eg.) Hypertrichosis, Ichthyosis hystrix etc.

Hypertrichosis — The presence of hair in the pinnae occurs man only.

Ichthyosis hystrix — The presence of scales on the body.

3. XY linked inheritance :

Certain sex linked genes are located on both X and Y chromosomes are called XY linked genes and their mode of inheritance is called XY linked inheritance (Eg.) Xeroderma Pigmentosum, hemophilia.

4. Completely Sex linked inheritance

The X and Y chromosomes are not similar. X chromosome is larger and straight and Y chromosome is smaller and one end is curved. The lower part of X chromosome is similar to that of Y chromosomes these two parts are homologous regions. The remaining parts of X and Y chromosomes are not similar are non-homologous regions (or) differential regions. The genes located on non-homologous regions inherit together because crossing over does not occur in these regions these genes are called