

found. There is some doubt, therefore, that this double-X carries that gene. Examination of ganglia show that the chromosome is very long at anaphase (and therefore is of the double type); at metaphase, the chromosome appears V-shaped, but a tip of the V rather than the apex is directed toward the center of the plate.

(2) The tandem double-X. Pairs by forming a spiral and, by crossing over, manufactures single rod chromosomes. This compound was derived by inducing a crossover between the short arm of the Y at the tip of the X·Y chromosome and the base of sc^4 . Structurally, the chromosome may be written as $sc^4 + EN: YLsc^8$; the raised dot indicates the position of the centromere. The sc^4 chromosome used carried $y\ car\ m\ wa$; the X·Y chromosome may be represented as $car^+ m^+ y \cdot y^+$. Crossover studies indicate that a striking excess of single chromosomes is recovered; it is presumed that crossing over is occurring with normal frequency but that nonrandom disjunction favors the inclusion of the single X in the egg nucleus. The long arm of the Y, present at the base, has been replaced by the duplication B^S . Such a chromosome should, with some low frequency, yield instances where crossing over has occurred between this duplicating fragment at the base, and the homologous region at the end of the sc^4 chromosome. This chromosome would be a double ring, of interest because the recovery of single rings from it by crossing over would have to depend on certain three-dimensional properties of this type of chromosome.

Novitski, E. Useful derivatives of the X·Y chromosome.

Among a large number of rearrangements involving the X·Y chromosome found while looking for a special type of inversion,

two may be of particular interest in experiments where the inverted sequence of the X·Y chromosome is troublesome because it gives either too much or too little, crossing over when heterozygous with a normal sequence. One of these, labeled X·Y In X·Y 26, has one break in the heterochromatin, the other in section 10A. No crossovers have been found when this chromosome is with sc^8 or a normal chromosome. Another, X·Y In X·Y 24, appeared to be an almost complete reinversion since it crosses over freely with a normal sequence. The crossover class with the left end of a normal chromosome and the base of In X·Y 24 is inviable in the male, however, indicating that some normally proximal genes, located distally in the X·Y chromosome, had not been shifted back into their normal position by the second inversion. To make a chromosome that would be free of this complication, In X·Y 24 was crossed to an attached-X detachment (A2) which carried the long arm of the Y chromosome. A single crossover replaced the deficient base by a normal base. The chromosome thus constituted has been tested by mating to $y^2\ su^{wa}\ wa\ bb/0$ females. F₁ males are fully fertile and viable, although there must still be a small duplication at the distal end. It is carried in stock as: $Ins\ 24L + A2R\ y/y^2\ su^{wa}\ wa\ bb$ and $Ins\ 24L + A2R\ y\ v/y^2\ su^{wa}\ wa\ bb$.

Oftedal, Per Genetics and histogenesis of a new tumor tu(2)49k.

A tumor stock developed spontaneously from a stock of ma^{49d} shows black aggregations in about 50%-60% of the flies in stock. The tumor may be located in any part of the fly, but usually in the abdomen. In outcrosses 2% incidence is obtained in F₂. In backcrosses the incidence is up to 10% and may rise to 34% when crossed to the stock from which it arose. The main gene is completely recessive and is located in the second chromosome, probably between c and px . It is not an allele of mt^A of Hartung (Hartung, J. Hered. 41:269). Modifiers have been located in the middle of chromosome 3, rather closely linked to ma , and in chromosome 1. The third-chromosome modifier is present in the Sb and H chromosomes of the Cy/Pm; H/Sb stock in this laboratory.