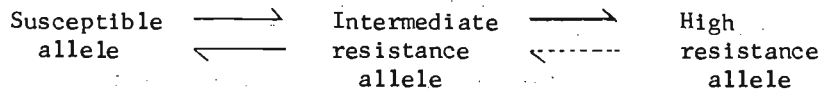


Kikkawa, H. Osaka University, Osaka, Japan. Induction of a parathion-susceptible gene from its resistance allele in *D. melanogaster*.

As reported in DIS 34: 89, and Botyu-Kagaku (Scientific Pest Control) 29: 37-42, 1964, a parathion-resistance gene (2-64.5) could be induced from its susceptible allele with the treatment of X-ray. In this case, the mutation took

place via an unstable intermediate allele as shown in the following process:



However, the step indicated by a dotted line, i.e., the step from a high resistance allele to an intermediate one has not yet been examined. Namely, the question remains whether a high resistance gene mutates to a susceptible one via an intermediate allele, or mutates directly to a susceptible one in one step.

In order to examine this point, males of the Hikone strain which showed the highest resistance to parathion in our laboratory were treated with X-ray (2000 R), and mated to susceptible females carrying two visible markers, *cn* and *bw*. The F<sub>1</sub> instar larvae were reared in a medium containing 3 mM phenylthiourea (PTU). As shown in DIS 34: 89, flies having a high parathion-resistance gene in homozygous or heterozygous state are unable to survive in such a medium because of the negatively correlating effect between an insecticide like parathion and PTU. However, if the mutation from a high resistance gene involved in the Hikone chromosome to a susceptible allele had been induced by the X-ray treatment, such a fly would survive even in the medium containing PTU.

In this way, we could obtain 7 adult flies from 5510 larvae tested. Two substrains derived from those 7 survivors showed intermediate resistance to parathion. Of interest is the fact that the intermediate resistance gene involved in these substrains is also unstable and often mutates to a complete susceptible allele spontaneously. The reason why the mutation from a high resistance gene to a susceptible one and vice versa takes place via an intermediate one is now being investigated.

Masterson, J. Iowa State University, Ames, Iowa. A method for procuring certain X-Y duplications.

A breeding method was devised in order to facilitate the recovery of duplications of the *y-sc* region on the Y-chromosome. It was thought that, if a "double lethal female" could be obtained which had in at

least one of its X-chromosomes a deficiency for this region, this would make it easier to select for duplications on the Y. The following breeding program was therefore set up:

1,v,car/Muller-5 X  $y^{3P}, In S, sc^{S1}; sc^{19i}/Cy$

1,v,car/ $y^{3P}, In S, sc^{S1}; sc^{19i}/Cy$  X X.Y(y,v,f)/Y (irradiated 4,000 r)

Score for *y,sc+* males

These males were tested against various markers on the distal portion of the X-chromosome and their Y was found to carry the wild-type alleles for *su-v*, *su-w<sup>a</sup>*(*su-apr*), *ac*, *sc* but not *pn*. This duplication was also found to be allelic to yellow. Since the irradiated X·Y chromosome carried *y,v,f*, it is presumed that the resulting duplication carries the mutant allele, yellow.

Utilizing the symbolism of Bridges and Brehme (1944) this X-Y duplication is designated Dp (1;Y) 1E. Another duplication using the same method was found and named Dp (1;Y) 2E. The two duplications are similar but not identical. (See descriptions under New Mutants).

Theoretically any sex-linked lethal could be covered by an insertion of a piece of the X into the Y. It has been found, however, that only areas on the X near the proximal and distal ends can be utilized. A possible explanation would be that in these areas only two breaks in the X·Y chromosome would be needed to give a 1;Y Duplication. To get a 1;Y Duplication covering loci near the vermilion locus, four breaks would be necessary.