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A multiple-Y-maze was used to select D.m. mutants lacking the optomotor response. The procedure for mutagenesis which yields sex-linked recessive mutations was the same as used by S. Benzer (Proc. Nat. Acad. Sci., 1967, 58: 1112), for the isolation of non-phototactic

mutants. From 60,000 flies tested, 17 mutants were obtained which belong to 5 complementation groups.

<u>Group</u>	<u>Mutants</u>	<u>Location on X-chromosome</u>
I	opm 3,4,5,9,10,14	7 ± 1
II	opm 8 (tan)	27.5 (tan)
III	opm 1,7,13,15,16	29 ± 1
IV	opm 6,11,12	v < X < f
V	opm 2,17	56 ± 5

All mutants have abnormal electroretinograms (ERG's) and belong most likely to the same complementation groups as the ERG mutants isolated by S. Benzer and co-workers (in preparation).

In Group I mutants de- and/or re-polarisation of the retinula cells seem to be disturbed. No ERG has been found in mutants opm 4 and 9; mutants opm 3, 10 and 14 show a comparatively small and extremely slow de- and re-polarisation. In mutant opm 5 depolarisation is fast but repolarisation is very slow. The ERG of this mutant consists of a large lamina potential in addition. In all mutants of this group the optical axes of the retinula cells as judged by the deep pseudopupil are properly oriented but in contrast to wild type no green reflecting screening pigment is observed at the rhabdomers 1-6 under strong illumination. The mutants opm 3 and 5 are not completely blind behaviorally.

The ERG's of Group II and V mutants show an altered lamina potential. The receptor potential, the orientation of the rhabdomers and the pigment migration mechanisms are about normal. Light sensitivity determined by slow phototaxis is diminished by a factor of 50. The optomotor response is not completely lost. (A detailed description is in preparation.)

Group III and IV: The ERG's range from less than 1/50 to about 1/5 the normal amplitude with the lamina potential missing. Mutants without a detectable ERG do not show any slow phototaxis nor an optomotor response. In most cases the deep pseudopupil is greenish-grey and less clearly visible than in wild type. No pigment migration is observed.

Young flies of mutant opm 12 have a normal pseudopupil which, however, does not show pigment migration. The optomotor response is normal at high light intensity but absent in dim light. The ERG has about 1/5 the normal amplitude and consists of the receptor potential only. More than 10 day old flies have no pseudopupil, no ERG and no optomotor reaction. The retinula cells of this mutant seem to degenerate.

Gvozdev, V.A., V.J. Birstein, L.G. Polukarova and V.T. Kakpakov. Kurchatov's Institute of Atomic Energy, Moscow, U.S.S.R. Expression of the sex-linked genes in the established aneuploid sublines of *Drosophila melanogaster*.

A number of aneuploid sublines of embryonic cells of *Drosophila melanogaster* were obtained by cloning of the tetraploid subline. 70 - 90% cells in these sublines were characterized by their specific karyotypes remaining unchanged during at least 60 - 80 cell generations. The karyotypes of these aneuploid sublines may be represented as 4X+6A and 5X+5A as compared to

diploid karyotype 2X+4A (X-sex chromosomes, A-large autosomes without taking into account the microchromosomes of the fourth pair). The cell size and protein content per cell is equal for both aneuploid and diploid cells.

The increase in the number of X-chromosomes in both aneuploid sublines is not accompanied by the raising of the specific activities of the X-linked 6-phosphogluconate and glucose-6-phosphate dehydrogenases. However in flies with different doses of corresponding structural genes, due to the duplications or deletions of a part but not whole X-chromosome the specific activities of these enzymes have increased almost proportionally to gene dose (Seecoff et al., 1969; Gvozdev et al., 1969).