

As apparent in the Table, lysosomal precursor has appeared already in the 48 hour discs. However, in the case of the acetamide-treated Bar eye discs, relative values of various lysosomal frequencies were highly decreased during the development of 70 hour to pre-pupal stage. Moreover, in the case of the wild type discs, these frequencies were also less than that of the untreated Bar eye discs.

These results suggested that acetamide acts to inhibit the appearance of lysosomes on the metabolic process of the mutant Bar eye disc during development.

References: Fristrom, D. 1969, Molec. Gen. Genet. 103:488-491; \_\_\_\_\_ 1972, Molec. Gen. Genet. 115:10-18; Kaji, S. and M. Michinomae 1973, Genetics 74:Suppl. 22,2:130; Michinomae, M. and S. Kaji 1973, Japan. J. Genetics 48:297-300.

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Gerresheim, F. Universität München, Germany. An attempt to induce and select mutants with abnormal chemotactic behavior.

A search was made for mutants which do not show the avoidance reaction of normal flies toward an insect repellent, i.e. for mutants which behave indifferently or at least show a significantly lower sensitivity. Wild-type Berlin males were fed with EMS and crossed to attached-X females.

F<sub>1</sub> males with abnormal behavior were selected and then, in order to determine whether an X-chromosomal mutation had actually been induced, their male progeny in the F<sub>2</sub> were tested.

In order to distinguish the abnormal flies from the normals, a Y-maze, described by Becker (M.G.G. 107:194-200, 1970), was used (Figure). In each of ten consecutive Y's the flies choose between, on one side, the repellent (primarily N,N-Diethyl-meta-toluamide) and, on the other side, a neutral control liquid. After ten choices, the exit vial a fly arrives at tells how often the repellent containing arms of the Y's have been avoided. And the mean of the distribution of a group of animals in the exit vials reflects the average orientation behavior of the group.

Large groups of F<sub>1</sub> males showed in general a strong asymmetric distribution. In 35 test series, out of 13500 F<sub>1</sub> males 60 deviating ones were singled out, i.e. ones that ended up in one of the central exit vials. From each of them an F<sub>2</sub> was raised. None of these showed a significant

deviation from the controls. In 3 doubtful cases the test was repeated in the F<sub>3</sub>. They, also, did not differ from the controls.

Of all the possible explanations for the lack of success two seem to be most prominent.

(1) The success depends on the degree to which the distribution is asymmetric. Among my test series there were too many in which normal flies arrived at one of the central exit vials. Under such conditions the selection for possible mutants was not sufficiently effective. More important is probably (2) that the chemical sense in insects is generally based on a number of different sensory receptors, some being excitable by only specific substances, others being less specific. Correspondingly, some chemical compounds excite only a single receptor type, others excite several types or all of them. The former, specific type of compound is probably suitable for a study of the kind described; the repellent, however, probably belongs to the latter, non-specific type of compound. Although mutants insensitive to such non-specific compounds are conceivable, mutants insensitive to specific compounds seem more probable. - Investigations which take these considerations into account are under way.

