Watson, W. A. F. State University, Leiden, Netherlands. Repair of premutational damage in spermatocytes as sampled from Drosophila pupae.

Earlier work (Sobels 1965, Mut. Res. 2: 168-191) showed that post-treatment with O_2, as compared to post-treatment with N_2 favors repair of genetic damage induced by irradiation under anoxia in spermatids and spermatocytes sampled from adult flies. Attempts to show that this repair occurred when pupae were irradiated, were unsuccessful when the same experimental procedure was followed. The results reported here show that when 24 hour pupae are pre-treated for 6 hours with N_2, irradiated in N_2 with 2500R X-rays, and post-treated with either N_2 or O_2 for two hours, then in the first one-day brood there is a consistent and significant decrease in mutation frequency (as measured by recessive lethals in a ring-X chromosome) after post-treatment with O_2. The results are given in Table 1. They show that the similar results obtained from earlier broods of adult flies did not originate from artefacts in the sampling technique, and support Sobels' conclusion that there is a repair system operating at this stage of development.

Table 1: Frequencies of recessive sex-linked lethals induced by 2500 R in one one-day brood from 24 hour male pupae of the genetic constitution $X^{C2}y$ B/sc^8,Y after post-treatment with N2 or O2.

Expt. No.	Post-treatment	No. chromosomes tested	% lethals
1	N_2	487	6.37
	O_2	466	3.64
2	N_2	304	6.25
	O_2	371	4.31
3	N_2	924	7.25
	O_2	836	5.26
4	N_2	614	6.35
	O_2	562	4.80

Total chromosomes tested = 4564
$P < 0.006$ (two-sided test) using combination of 2 x 2 contingency tables

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Mayeda, K. Wayne State University, Detroit, Michigan. Study of penetrance of the tu-h phenotype.

In the course of studying the penetrance of the tu-h phenotype in the tu-h stock maintained at this laboratory, the effect of parental age was investigated. Single pair matings of tu-h female by tu-h male were made and left in the vials for twenty-four hours. The female was then separated from the male and transferred to new vials every twenty-four hours for 14 consecutive days. The male was given a new virgin female every twenty-four hours for 14 consecutive days, the females being transferred to new vials every twenty-four hours as before. The penetrance of the trait was measured in the offspring and is presented in Table 1.

The results of these experiments indicate that there is a correlation between penetrance of the trait and the age of the female. Average penetrance in the offspring of twenty-four hours old females is 67% when all ages of males are combined. As it can be seen from the table, the penetrance gradually increases as the female becomes older. However, there seems to be no correlation between paternal age and penetrance. Further investigations are being conducted to determine if the increase in penetrance in the offspring of older females is due to lack of competition for food in the larval stages.

Table 1. Percent penetrance of the tu-h phenotype for various ages of parents.

	Age in days														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Female Parents (1)	67	62	67	65	70	73	76	75	76	76	81	84	79	77	94
Male Parents (2)	71	76	78	79	72	68	60	77	62	74	65	65	67	66	76

(1) For all ages of male (2) For all ages of female

Ling, Lee-Nien L., M. Horikawa, and A. S. Fox. University of Wisconsin, Madison. Aggregation of dissociated Drosophila embryonic cells.

A method for the in vitro culture of Drosophila embryonic cells was recently established by Horikawa and Fox (1965). By using this culture method together with the rotary shaker method for the formation of aggregates devised by Moscona (1961) it is now possible to establish the optimal conditions for the formation of aggregates by Drosophila embryonic cells and to characterize some of their properties.

Embryonic cells were obtained from eggs of a wild stock of Drosophila melanogaster (Oregon R-EL2). Eggs were collected after 6 hours of oviposition. The optimal conditions for the formation of aggregates were as follows: dissociation of the eggs by gentle homogenization, suspension of the embryonic cells together with the yolk material in H-5 culture medium supplemented with 10% newborn calf serum, and rotation of the primary cell suspension at 60 rpm at 30°C for 24 hours.

Two main types of aggregates were observed at the bottom of the culture dishes after 24 hours of shaking; (a) large, more or less spherical aggregates containing both the large and small cell types described by Horikawa and Fox and (b) small, irregularly shaped aggregates which seemed to consist primarily of the small cell type.

Factors that are detrimental to cells such as prolonged or high speed centrifugation and irradiation with ultraviolet resulted in a corresponding decrease in the ability of the treated cells to form aggregates. Cells grown in stationary cultures prior to shaking showed a decreasing ability to form aggregates as the length of stationary culture time increased.

Histological preparations were made of aggregates after 24 hours of shaking followed by 0, 6, 7, and 19 days of stationary culture. Signs of internal organization and cellular differentiation were observed within the aggregates, becoming more evident as the age of the aggregates increased. Although a number of new cell types could be recognized, arranged in characteristic manner, they could not be identified with certainty. (Supported by USPHS Grant No. GM 11777.)

Ménsua, J. L. University of Barcelona, Spain. Antagonistic temperature effect on average number of bristles in D. melanogaster.

Until the present, as far as we know, all workers in Drosophila have considered as true the fact that a temperature elevation in culture corresponds to a falling off in the average number of bristles. Previous tests were carried out on macrochaetae and sternopleural microchaetae (ex. gr. Plunkett, 1927; Beardmore, 1956 - quoted in Thoday, 1958).

The results reported here are an advance of a work, which is being carried out at present on temperature effect on bristles number in D. melanogaster. They prove that different bristle sets behave in different ways in respect to temperature. Three bristle sets were choosen - two of them very common in population research - lying on the three parts of the body: interocellar bristles on the head, both sides of sternopleural bristles on the thorax and abdominal bristles of 4th and 5th segment on the abdomen. An Oregon-R strain and a wild strain from Prat de Llobregat (Barcelona) were used, both kept at 17°C in population