Ehrman, L., J. Leonard and A. Lewis. State University of New York, Purchase, New York. On the mechanism of selective mating between two D. paulistorum semispecies.

Sexual isolation between the Centro-american and the Amazonian semispecies of D. paulistorum has been shown to be almost complete (Koref-Santibanez, 1972a and 1972b; Perez-Salas and Ehrman, 1971). Tests in Elens-Wattiaux (Elens and Wattiaux, 1964) direct observation chambers in these laboratories produced no intersemispecific matings when Belem, Brazil, (Amazonian) ♀♀ (hereafter = B) were courted by Lancetilla, Honduras, (Centroamerican) ♂♂ (hereafter = H) or when the reciprocal cross was attempted. But 5% intersemispecific matings occurred when ♀♀ and ♂♂ of both semispecies were present simultaneously.

Extracts of Belem ♂♂ were prepared by grinding 1000 of them in chilled dichloromethane in a tissue grinder. The crude extract was painted on H ♂♂ and crosses with B ♀♀ attempted unsuccessfully in two trials involving 25 ♂♂ and 25 ♀♀ each trial. Although the numbers of intersemispecific matings were not enhanced in this way, the rate of mating (matings/unit time) could be reduced between H ♂♂ and H ♀♀ by painting this B ♂♂ extract on the H ♂♂ (that is relative to flies painted with only CH_2Cl_2). It was further found that this negative assay was possible even when strips of filter paper, coated with the CH_2Cl_2 extract and allowed to dry, were added to the mating chambers (foam-stoppered 2 cm diameter vials containing 8 H ♀♀ and 6 H ♂♂). Subsequent chromatography of the extract on Quantum LQDF silica gel thin-layer plates indicated that the activity (measured by negative assay) is present in the fraction of R_f = o.77 to 1.0, when developed with CH_2Cl_2, indicating a relatively nonpolar compound. Illustrative times to 4 H ♀♀ x 4 H ♂♂ matings in these tests are:

Fraction (R_f):	0-0.23	0.23-0.35	0.35-0.53	0.53-0.77	0.77-1.0	CH_2Cl_2
Time (min.)	81	77	50	19	136	58

Variability of these preliminary results is high, but relative ordering appears to be consistent. Comments and suggestions on the proper treatment of the negative assay data are invited.

While determining baseline data, an interesting side observation was made. The effect of the pheromone of the common house fly (Musca domestica; Carlson, et al., 1972; the compound is 9-Z-tricosene commercially available from Hampstead Chemical Co.) on Drosophila mating behavior was measured. D. pseudoobscura, a North American species, was strongly inhibited by the presence of the pheromone, whereas the mating behavior of D. paulistorum (same two semispecies) was unaffected. Whether this difference is due to interspecific contact between D. pseudoobscura and M. domestica (and, inversely, the absence of such contact with D. paulistorum, a Neotropical species) or to some other factor (e.g., similarity of the Musca pheromone to other significant D. pseudoobscura sensory cues), has not been tested.

References: Carlson, D.A. et al. 1971, Science 174:76-78; Elens, A.A. and J.M. Wattiaux 1964, DIS 39:118-119; Koref-Santibanez, S. 1972a, Evolution 26:108; _____ 1972b, Evolution 26:in press; Perez-Salas, S. and L. Ehrman 1971, Genetics 69:63-70.

Supported by NIH Research Grant 1 R01 GM 18907-01.

Sang, J.H. University of Sussex, Brighton, England. Can ecdysones be fed to Drosophila larvae?

There are conflicting reports in the entomological literature on the effects of feeding ecdysones to insects. The following data suggest that both α- and β-ecdysone are ineffective when fed to D. larvae grown on Sang's (1956)[1] medium under germ-free conditions. The tu bw strain was used for these experiments to test if ecdysone suppressed melanotic tumor formation, and dihydrocholesterol was provided in place of the usual cholesterol since this raises tumor frequency and is itself unlikely to be converted to ecdysones[2]. The ecdysones were added at 45 hours of larval development, just prior to the

	Control	+ Tween 80	+ α-ecdysone	+ β-ecdysone	
Larval period	0.743	0.786	0.757	0.764	log. days
Tumor frequency	91.2	87.7	98.7	98.1	per cent

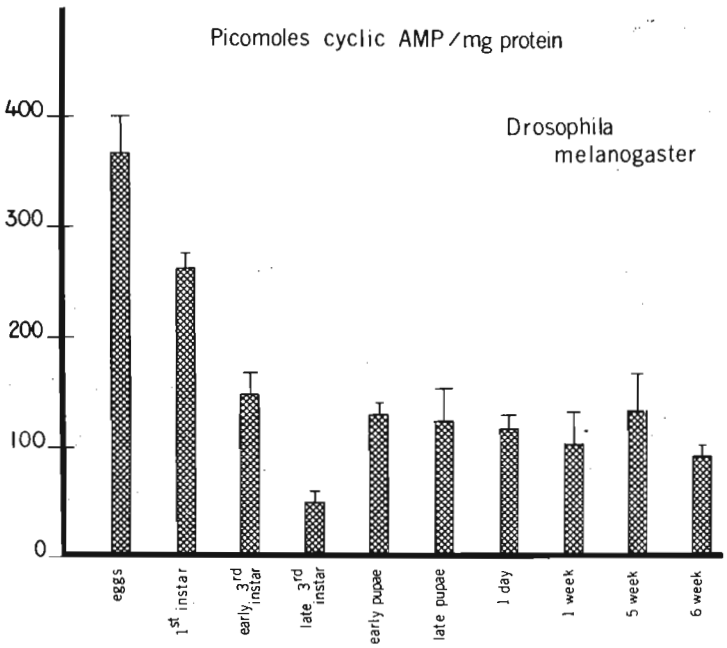
time when tumors form, and were soluabilised with Tween 80. Since none of the differences are significant the presumption is that the hormones are destroyed during absorption by the larvae

and that previous negative results are not a consequence of interactions with the flora of usual culture media.

References: 1) Sang, J.H. 1956, J. Exp. Biol. 33:45-72; 2) Cooke, J. and J.H. Sang 1972, Genetical Res. in press

Nicolosi, R.J., M.B. Baird, H.R. Massie, and H.V. Samis. Masonic Medical Research Laboratory, Utica, N.Y. Cyclic AMP levels in pre-adult and adult D. melanogaster.

Sustaining levels of Adenosine 3,'5'-cyclic monophosphate, (cyclic AMP) were measured in pre-adult and male adult Oregon-R, D. melanogaster. Pre-adult organisms at different stages of development were reared and collected as described elsewhere (1). All samples were homogenized in 0.32 M sucrose and adjusted to a final volume of 5 ml. Chitin was eliminated from the homogenates essentially as described in a previous note (2). An aliquot of the homogenate was then added to preloaded centrifuge tubes containing 1 ml of ice-cold 10% TCA. Following centrifugation at 17,000 x g for 10 minutes, at 0°C, the recovered supernatants were assayed for cyclic AMP by the method of Gilman (3).



Protein was determined on the homogenates according to the method of Lowry et al., (4).

No appreciable differences in sustaining levels of cyclic AMP were apparent in adult Drosophila which range in age from 1 day to 6 weeks, (Fig. 1). However, there appears to be considerable differences in the levels of cyclic AMP present in different pre-adult stages, (Fig. 1). It is evident that Drosophila eggs and 1st instar larvae possess levels of cyclic AMP which are 2 and 3 fold greater, respectively, than the remaining pre-adult Drosophila, as well as in those found in later stages. These preliminary results suggest that higher levels of cyclic AMP are present during those developmental stages of Drosophila in which there are high levels of mitotic activity.

References: (1) Samis, H.V.Jr., F.C. Erk and M.B. Baird 1970, Exp. Geront. V. 6:9-18; (2) Samis, H.V. and F.C. Erk 1969, DIS 44:132; (3) Gilman, A.G. 1970, Pro. Nat. Acad. Sci. 67:305-312; (4) Lowry, O.H., M.J. Rosebrough, A.L. Farr and R.J. Randall 1951, J. Biol. Chem. 193:265.

Malpica, J.M. Institute of Animal Genetics, Edinburgh, Scotland. Enzyme polymorphisms in four populations of D. melanogaster.

Four laboratory populations of D. melanogaster were characterized at seven loci on the third chromosome controlling biochemical polymorphisms. The populations - Kaduna, Pacific, Canberra and Stellenbosch - differ in origin being from Nigeria, the Pacific coast of the U.S., Australia and South Africa respectively. The four stocks have been maintained for 23, 17, 13 and 3 years respectively since their capture in large population cages in the laboratory. The foundation stocks for all of them were above 100 females except Kaduna where the number is not known. The number of individuals analyzed and the frequencies of the different alleles are given in the following Table, A standing for the fastest anodic migrating form and the others in this order within each locus. (Table on next page).