2. None of fly of the all four species has mated under which set 30 minutes observation period in a dark condition. The flies tested, however, came to mate when they were shifted from a dark to a light condition with only 3 lux illumination. This implies a small amount of illumination is substantially permissible for beginning of mating in these flies.

3. Another experiment using a larger observation chamber (50x50x4mm) in which 10♀♀ and 15♂♂ were placed together revealed that the male flies behaved to show orientation to the females by means of their "sight". Furthermore, we could examine a critical distance which they could notice females was only 20mm. This fact indicates the more interesting subject of "sight" is characteristically used for partner recognition in this group.

4. After successive observations we could recognize 13 different but consecutive components belonging to mating behavior in this complex. All or almost all of male flies of D.auraria and D.quadraria similarly did not represent "wing vibration" while those of D.biauraria and D.triauraria did it. At the stage of attempted copulation, males of all four species consistently showed "wing display" and simultaneously the females spread both wings, following copulation. Just before copulation, males of D.triauraria postured at right rear of females, those of D.auraria and D.biauraria postured at a diagonal rear of females, and those of D.quadraria behaved both ways mentioned above. A tapping of females by males was intensely observed in D.triauraria.

Pascual, L. and R.deFrutos. Universidad de Valencia, Espana. Heat shock puffs in Drosophila subobscura polytene chromosomes.

It is well known that heat shock causes a response in larvae or early prepupae gene activity of Drosophila. Thus, a characteristic puffing pattern was described in the salivary gland chromosomes from several Drosophila species (Ritossa 1962; Berendes & Holt 1964; Ashburner 1970; etc.).

D.subobscura larvae, cultured at 19°C and synchronized for "prepupa 0h." stage (moment of eversion of the anterior spiracles), showed 93 active loci after heat shock (37°C during 10, 20, 30, 45 or 60 min).

Four different groups of chromosome regions reacting to the heat shock could be distinguished:

GROUP I: Puffs "induced" by heat shock and not normally observed at 19°C in this strain: 14AB, 27A, 31C/D, 54C/D, 60C/D, 89A and 94A. The loci 14AB, 54C/D and 60C/D are small and variable in their response (see Figure 1).

GROUP II: Puff which became highly active after the heat treatment when they were not seen to be active in normal development at this stage: 15DE and 18C (see Figure 1).

Figure 1. Principal heat shock puffs in Drosophila subobscura.

GROUP III: Puffs active during normal development at this stage which tended to maintain or to increase their activity. A total of 38 loci belong to this group. The loci 5D, 16B, 40D-41A, 63BC, 65B, 74A, 85AB, 86A and 98C could be distinguished as significantly increasing their activity after the shock.

GROUP IV: Puffs active during normal development at this stage which regressed markedly in their activity after the heat shock. A total of 20 loci belong to this group.

In addition to the puffs in these four groups several puffs were found which showed little or no activity either in the control individuals or in the shocked ones.

Finally, it must be mentioned that the length of time under heat shock does not seem to have a decisive effect on puff formation at the times investigated. The greatest development of puffs tends to appear between 20 and 45 min.

References: Ashburner, M. 1970, Chromosoma 31:356-376; Berendes, H.D. & Th.K.H.Holt 1964, Genen en Phaenen 9:1-7; Ritossa, F.M. 1962, Experientia 18:571-573.

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Passive anti H-Y immunization of Drosophila melanogaster females reduces progeny sex ratio.

Tissue grafts among members of highly inbred populations are accepted, in general, as readily as autografts. Eichwald & Silmser (1955) detected a weak rejection reaction of male skin grafts by female C57BL/6 mice; all other skin grafts were readily accepted. They hypothesized that the observed male to female rejection was governed by a male specific transplantation antigen, H-Y antigen. Serological identification of H-Y antigen was first demonstrated by Goldberg et al. (1971) who used serum from male grafted female mice to kill sperm in the presence of complement. Subsequent in vitro studies provide further support for the hypotheses of H-Y antigen male specificity and an early developmental role in sex determination: (1) in anti H-Y antibody cytotoxicity assays, male eight cell stage embryos are lysed; female embryos are not lysed (Krco & Goldberg 1976; Epstein et al. 1980; Ohno 1979). (2) When cultured testicular cells are lyso-stripped of H-Y antigen, they organize ovarian follicle-like aggregates (Ohno et al. 1978). Similarly, the addition of H-Y antigen to cultured ovarian cells induces the formation of testicular-like tubules (Zenzes et al. 1978). (3) XX bovine gonad primordia undergo testicular conversion in whole organ cultures which contain H-Y antigen (Ohno et al. 1979). Moreover, surveys of both vertebrates and invertebrates report the detection of H-Y antigen in heterogametic individuals (Wachtel 1983).

These reports suggest that similar effects should be detectable in vivo. For example, female mice producing H-Y antibodies should produce fewer male progeny than mothers who are not producing H-Y antibodies. Comparison of sex ratios between litters from H-Y antibody producing C57BL/6 mothers (40% male progeny) and non H-Y producing mothers (52% male progeny) supports this hypothesis ($t=2.35$; $P<0.05$; Pechan unpubl.). Given the ubiquity of H-Y antigen, we decided to attempt a similar in vivo test using passively immunized D.melanogaster females.

Three to four day old virgin females were injected with 0.5 µl of mouse monoclonal H-Y antibody, mouse monoclonal dinitrophenol antibody, 1/64 dilution of mouse monoclonal H-Y antibody (the antibody is not detectable at this dilution), polyclonal H-X serum from females previously injected with female spleen cells, and female mouse serum. Uninjected females were also used. Two males were added immediately after injection and the first 24 h egg

Table 1. Progeny Sex Ratios.

Immunization	Number	Sex Ratio	Number	Sex Ratio
1. H-Y antibody	797	0.44 <.001	1524	0.48 ns
2. H-X	491	0.52 ns	1309	0.46 <.01
3. DNP antibody	226	0.52 ns	309	0.51 ns
4. 1/64 H-Y dilution	381	0.50 ns	334	0.49 ns
5. female serum	301	0.51 ns	252	0.47 ns
6. uninjected	2344	0.48 ns	2707	0.50 ns
pooled 2-6	3743	0.49 ns	4911	0.49 ns