Mutation Notes

Displaced genital arch in a *Drosophila melanogaster* male.

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Drosophila melanogaster mutant *ebony (e)* is characterized by its pigmentation defects in the adult cuticle (Bridges and Morgan, 1923); *eyegone* (*eyg*) has been described as having head and eyes much smaller than normal (Ives, 1942); and the *vestigial* (*vg*) locus seems to be only involved in wing development (Bridges and Morgan, 1919). While analyzing the F_1 offspring from the parental cross between the *D. melanogaster* strains *e eyg* and *vg*, a particular fly was observed. It was a male, with no extended wings and normal color (although slightly darker because it was heterozygote for *e*). Interestingly, its genital arch was displaced from its normal position. It was not located in the ventral tip of the abdomen, instead it was displaced almost 90 degrees towards the end of the abdomen (Figures 1 and 2). The abdominal area where the genital arch should be was covered with a thin tegument (Figures 3 and 4). Sex combs were properly located. The animal died by accident nine days after emerging and left no progeny (he was caught in the culture medium).

Figure 1. Abnormal location of the genital arch in the *D. melanogaster* male.

Figure 2. Detail of the genital arch, located at the abdomen.

Figure 3. A thin tegument is located in the original place of the genital arch.

Figure 4. Detail of the ventral aspect of the abdomen.

References: Bridges, C.B., and T.H. Morgan 1919, Carnegie Inst. Washington Pub. 278: 123-304; Bridges, C.B., and T.H. Morgan 1923, Carnegie Inst. Washington Pub. 327: 1-251; Ives, P.T. 1942, Dros. Inf.. Serv. 16: 48-49.

A new spontaneous chromosomal inversion in a classical laboratory strain of *Drosophila subobscura*.

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Drosophila subobscura stands out for its rich chromosomal polymorphism in natural populations. Krimbas (1992) reviewed up to 66 spontaneous chromosomal inversions that combined into 79 arrangements. Some of these inversions are common in the whole range of the species distribution, but others are only present either at low frequencies across the species distribution area or in a restricted geographical area. In addition, a set of inversions should have been discovered shortly after its appearance in nature. This is the case of inversions E_{17}, E_{18}, E_{21} and O_{26} found after the New World colonization by *D. subobscura* (Balanyà *et al*., 2003), and also that of some inversions recorded only once in populations widely and repeatedly studied, such as E_{19}, E_{20}, and U_{12} in Zürich (Gosteli and Hauschteck-Jungen, 1989) and O_{25} in Barcelona (Orengo and Prevosti, 1992).

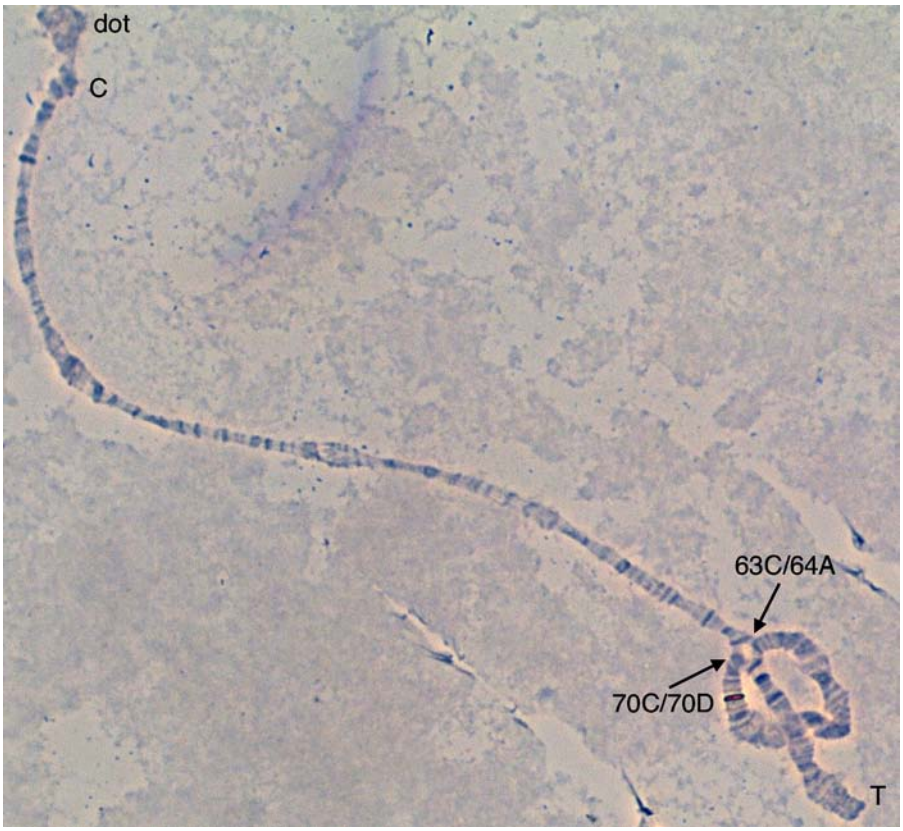

Figure 1. Polytene E chromosomes of an heterokaryotype for chromosomal arrangements E_st and E_{24} of *Drosophila subobscura*. Arrows indicate the cytological location of both inversion E_{24} breakpoints. C: Centromere; T: Telomere; dot: the small chromosome.

Here we report a new spontaneous inversion (Figure 1) that arose in the *ch cu* laboratory strain. This strain that was obtained in the Krimbas' laboratory over 40 years ago (Zouros and Krimbas, 1973) is homokaryotypic for its five long chromosomes (A_{st}, J_{st}, U_{st} , E_{st} and $O_{\underline{3+4}}$). The *ch cu* strain has been maintained and used in our department for over 35 years to determine the chromosomal polymorphism in natural populations samples by crossing wild males to *ch cu* virgin females and subsequently observing polytene chromosomes from F_1 larvae (*e.g.*, Prevosti *et al*., 1982; Orengo 1994). In addition, we have commonly used polytene chromosome preparations from this strain to map DNA probes by *in situ* hybridization (*e.g.*, Segarra and Aguadé, 1992; Orengo *et al*., 2015).