

Horton, T.D. and C.P. Wright. Western Carolina University, Cullowhee, N.C. Development of Tyrproless-2, 1(1)EN15, a lethal mutant of *Drosophila melanogaster*.

Tyrproless-2, 1(1)EN15, is a sex-linked, lethal mutant of *Drosophila melanogaster* which was X-ray induced by Novitski (1963). In this mutant death usually occurs in the pupal stage. The present investigation involved a study of developmental characteristics of this mutant. All

individuals were timed ( $\pm 1$  hour) and kept under the same controlled conditions. As a control y, w, spl, sn individuals, which came from the stock in which Novitski (1963) induced the lethal mutant, were used.

All control larvae formed puparia at about  $110 \pm 17$  hours after oviposition. About 92 percent of the 1(1)EN15 larvae formed puparia at about  $131 \pm 23$  hours after oviposition. The rest of the larvae remained in the larval stage until death. So, the mutants formed puparia about a day later than controls.

All controls emerged from the pupae as adults at about 90 hours after puparium formation. None of the 1(1)EN15 pupae ever emerged as adults. Instead, they remained in the pupal stage for a long period after the normal time of emergence. The peak of development in 1(1)EN15 pupae was at approximately 130 hours after puparium formation. After this point developmental changes were slight and confined to only a few pupae. At 130 hours some of the pupae showed adult structures such as head, legs, wings, and body hairs, but none of the pupae were completely developed. This peak of development might also be considered the beginning of a complete developmental breakdown, because after this point the pupae showed increasing amounts of desiccation and darkening. Some of the pupae showed little or no development for the entire observation period.

The 1(1)EN15 pupae were observed until about 400 hours after puparium formation. At this point none had emerged as adults. Most of the pupae had become darkened in color and almost completely dried out. This seems to indicate that all had died as pupae.

Reference: Novitski, E. 1963, DIS 37:51-53.

Schwinck, I. University of Connecticut, Storrs. Autonomy of the aurodrospterin fingerprint pattern in imaginal eye transplants between the mutants prune and garnet.

In earlier studies, the two-dimensional thin-layer chromatography revealed at least 5 separable drospterins (Schwinck, Genetics 68:s59, 1971). A survey of various eye color mutants showed quantitative differences of these patterns for 17 mutants and 5 alleles (Schwinck and

Mancini, Archiv für Genetik 46:41-52, 1973). In particular, the fingerprint fraction (d) - recently designated aurodrospterin - varied in the absolute amount as well as in the relative amount in reference to the sum of all drospterins. Recently, the response to phenylalanine crystal implantation was studied in a number of mutants with large amounts of aurodrospterin and in a number of mutants with very small amounts of aurodrospterin. Only the mutants which have a relatively large amount of aurodrospterin, i.e., garnet, pink-peach, orange, etc., responded with increased post-eclosion synthesis of all drospterins, whereas the other group of mutants, i.e., raspberry, prune, purple, etc., did not show any response to the phenylalanine implant (Schwinck, Genetics 74:s245, 1973 and unpublished). Two mutant stocks with the extreme drospterin fingerprint pattern, garnet<sup>50e</sup> and prune<sup>2</sup>, were chosen for surface transplantation of imaginal eyes, the technique of which has been described in DIS 49:96, 1972. An imaginal eye from a newly eclosed fly was transplanted onto an incision of the host abdomen, taking care that the "open" back of the transplant eye was exposed to the host hemolymph. Reciprocal transplants and controls, g<sup>50e</sup> cn eyes onto pn<sup>2</sup> cn hosts, pn<sup>2</sup> cn eyes onto g<sup>50e</sup> cn hosts, and the controls pn<sup>2</sup> cn eyes onto pn<sup>2</sup> cn, and g<sup>50e</sup> cn onto g<sup>50e</sup> cn, were carried out on a large scale, resulting in 40-65 survivors in each group. The eye color changes during aging appeared normal according to the genotype of transplant eyes and host eyes. After 10-12 days the transplant and host eyes were extracted and the drospterin fingerprint pattern was developed on thin-layer cellulose plates. For the transplants as well as the hosts, the fingerprint pattern was found to be autonomous according to the respective cell genotype.

(Supported by the University of Connecticut Research Foundation Grant.)