

Fujii, S. and Kawabe, M.

On the development of some "bristle genes" in the pupal stage of D. virilis.

The formation of the bristles in wild flies begins about 48 hours after puparium formation. A study on singed¹⁴ showed that the formation of bristles is delayed several hours (60 hours after

puparium formation), but the time of bristle pigmentation is much the same as that in wild flies (about 100 hours after puparium formation). No difference was found between singed¹⁶ and wild-type in the formation and pigmentation of bristles.

Gowen, John W., and Statler, Janice Irradiation effects on viability of D. melanogaster.

Day-old male and female imagoes were exposed to X-rays in 0, 20, 100, 500, 2500, 5000, and 10,000 r doses. Repeated pair matings, representing the 49 combinations,

were made. Twenty-six different criteria described the physiological effects. Well-being of irradiated females was measured by total eggs laid, per cent of life devoted to egg laying, and days females lived. Eggs laid decreased linearly with dose until, at 10,000 r, less than fifty eggs or four per cent of control were metabolized and laid. Per cent of life given over to oviposition likewise decreased linearly from 75 to 34 per cent over the range of irradiations. Life spans for the irradiated females were irregularly decreased with higher doses. Duration of life for the males was increased by irradiation of 2500 r or more. Per cent of life during which the males were fertile decreased linearly with increasing dosage. Rate of decrease was similar to that for females. Quality of the progeny, as measured by hatchability of the eggs, decreased linearly with increasing irradiation, defective eggs being eight times as great at 10,000 r as with untreated females. Defective eggs, when sperm were irradiated, decreased linearly with dosage of X-rays. The decrease was comparable to that observed for the females. Effects were quantitatively similar for irradiation of eggs and sperm in these data. This observation is contrary to that ordinarily considered true when the measure of X-ray effects is sex-linked lethal mutations in eggs or sperm.

Imaizumi, T. and Kimoto, Y.

Cytoplasmic constituents of eggs in early developing stages, and their staining properties.

In developing egg cytoplasm we can recognize yolk granules of larger size and minute granules which disperse through hyaloplasm. These minute granules are 0.5 micron in diameter and

globular in shape, and never transform in any stage or medium. Because of their insolubility in acetic acid, they cannot be confused with mitochondria, and are distinguished from ultramicroscopic microsomes by their greater size. They stain with pyronin, toluidine blue, or Sudan III, but not with methyl green or the Feulgen technique. After treatment with ribonuclease or with a cold bath of 10% HClO₄, basophilia of the granules mostly diminishes. Contrary to these, the hyaloplasm is acidophile in neutral medium, so it may be surmised that most of the RNA of the cytoplasm is concentrated in these granules.

The staining properties of nuclei and other cytoplasmic constituents are shifted from basophila to acidophile or vice versa according to pH of the medium when stained with buffered double bath of toluidine blue and fuchsin S. The pH values of the shifting zone for each constituent are as follows:

Species	Stages	Nuclei (interkinesis)	Cytoplasm		Yolk granules
			Hyaloplasm	Minute granules	
virilis	preblasteme		4.4	2.4-3.0	5.4-6.0
	blasteme	4.0-5.4	3.4-4.4	2.4-3.0	5.4-6.0
	early blas-	3.4-5.0			
	todermal	(achromatic part)		2.4-3.0	5.4-6.0
melano- gaster normal	preblasteme		4.4	3.0-4.0	5.0-5.4
	early blas- todermal	4.0-5.0 (achromatic part)		3.0-3.4	5.0-5.4
melano- gaster lethal (with out X chromosome)	preblasteme		4.4	3.0-4.0	5.0-5.4

The details will be reported in another paper.

Ives, P. T. and Evans, Alice T. A probable simultaneous double mutation in the Cy sp² chromosome.

In DIS-19, page 46, it was reported that a Cy bw sp² was recovered from a stock of net b cn bw/Cy sp². In DIS-22, page 71, a curious allele, or series of alleles, of the bw of this chromosome was reported, and given the symbol bw^{47j}. In 1949 another allele was found which was bw-like when homozygous, but allelic only to Cy bw sp² and not to net b cn bw. On 51f5 we observed that orange (or) of Mossige, DIS-24:61, is also present in Cy bw sp² and that the 1949 bw-like mutant was an allele of Mossige's or and exactly like it in phenotype. At least one of the bw^{47j}-type alleles has proven to be an allele of Cy bw sp² or but not of net b cn bw, Mossige's orange, or the 1949 allele. Mossige's or is not present in other Cy chromosome of our stock list, including Cy al² lt² L⁴ sp², Cy pr, Cy sp², Cy L² sp², Cy al Bl lt² cn² L⁴ sp². Although of very similar phenotype, the mutant gene pd is not present in the Cy bw sp² or chromosome but cn² is. When In(2R)Cy crosses over from Cy cn² bw sp² or to its homologue and becomes homozygous the result is a bright yellowish-to-orange eye color, darkening with age, and sp² wings. The simplest interpretation seems to be that in 45a a double and simultaneous nonle mutation occurred at the bw and or loci of the standard Cy sp² chromosome. While technically it should be written as Cy cn² bw^{45a} sp² or^{45a}, it should be satisfactory and much easier to designate it only as Cy bw sp² or. The relation of the various bw^{47j}-type mutants of the local population to bw^{45a} and or^{45a} has not been investigated.

Janzer, Wolfgang Studies on cave animal characteristics.

In connection with studies on the evolution of cave animal characteristics, D. melano-gaster has been tested. Cultures raised in the dark for 10 generations showed no significant difference as to their photic responses when compared with those raised in the light. Further, stocks with dark body and eye color (se, e11) could be shown to exhibit significantly higher photophilous behavior than those with light body and eye color (w, y Hw). Of 8 different mutants tested (S/Cy, B, w, e11, se, y Hw, ar/ey^D, Berlin-normal), the mutant Bar (B) showed least photophily.