

(c) Heterogeneity between sets derived from different initial pair matings is indicated by ** if at the 1% level of significance, * if at the 5% level.

Clearly, offspring of Dp/Dp mothers are not consistently more often or more heavily pigmented than are Dp/+ offspring of Dp/+ mothers. In the two instances in which the compared values differ significantly, the differences are opposite in sense. The low penetrance of w^m in sons of $y w/Y, +$ Dp/Su-V Dp mothers is ascribable to a small number of unusually prolific sibships among a larger number of less fertile groups with high penetrance. The low penetrance in sons of Dp/+ mothers who were $y w/Y w y \cdot Y y$; Su-V/+ may have resulted from a preponderance of Su-V +/+ Dp among the mothers employed. Otherwise, the data are easily and satisfactorily interpreted in terms of the known maternal and direct effects of both extra Y-heterochromatin and genotype at the Su-V locus.

It seems reasonable that the earlier data interpreted as evidence for a maternal effect of homozygosity versus heterozygosity of the rearrangement may also be explained as due to segregation at the Su-V locus.

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Three phenotypically distinct dumpy lethals, olv, ol, lv, have been tentatively localized at two specific subloci (Carlson, 1959; Southin and Carlson, 1961). These alleles express extreme

phenotypes when heterozygous with the ov^1 mutant. The olv mutant shows a strong wing effect, oblique (o) and a thoracic effect, vortex (v), which causes pronounced disruption of the bristle pattern and thoracic pits or eruptions. The ol mutant is expressed as a strong oblique wing effect and lv is expressed as a strong vortex effect. The olv allele has been mapped between o^2 and cm^2 . The lethals ol and lv are located between cm^2 and ov^1 . They have not been separated as they are lethal when combined in the trans configuration.

Preliminary localization of dumpy lethals induced by ICR 100, a quinacrine mustard, suggests that these alleles all map within the particular subloci previously determined (table 1). The position of these alleles was determined by a "four-point" test with respect to one dumpy allele cm^2 or ov^1 and two outside markers echinoid, ed, at 11.0 and clot cl, at 16.5. Dumpy maps at 13.0.

Tests to determine the definite location are being carried out with other alleles of the dumpy series. The crossovers which have been confirmed lend support to the theory that the dumpy complex can be separated into discrete regions which affect a predictable dumpy phenotype.

Table I: Localization of dumpy lethals.

P ₁ Female	P ₁ Male	Verified Single Crossover	Total Progeny	Curly	Map-Order
lv ⁷⁸ /ed ov ¹ cl	ed olv ⁵⁷ cl/Cy	1	57,815	41,398	lv ⁷⁸ - ov ¹
lv ³⁵ /ed ov ¹ cl	ed olv ⁵⁷ cl/Cy	2	41,210	29,784	lv ³⁵ - ov ¹
ol ⁸⁸ /ed cm ² cl	ed olv ⁵⁷ cl/Cy	1	74,210	56,320	cm ² - ol ⁸⁸
ol ¹⁰⁹ /ed cm ² cl	ed olv ⁵⁷ cl/Cy	1	32,968	27,485	cm ² - ol ¹⁰⁹
olv ⁶⁹ /ed cm ² cl	ed olv ⁵⁷ cl/Cy	4	49,373	36,720	olv ⁶⁹ - cm ²

Recombination results of ICR induced dumpy lethals:

lv = thoracic vortices, homozygous lethal
 ol = oblique wings, homozygous lethal

olv = oblique wings, thoracic vortices, homozygous lethal
 cm² = thoracic comma