Border cells: The percentage of labelled border cells was very high (80% to 90%) until the second day after injection. Moreover, seven days after injection grains were detected in 12% of border cells.

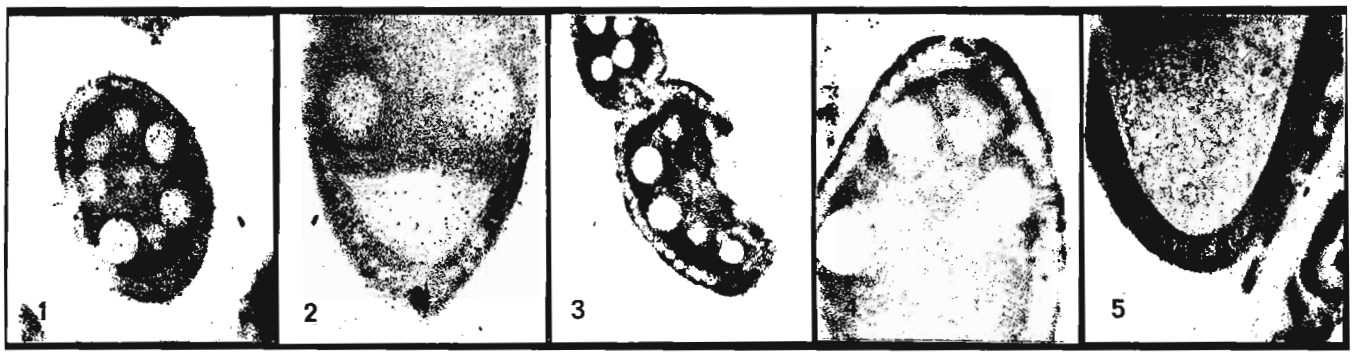

Photo 1: Stage 7 two days after injection with highly labelled follicle cells at the 2 poles.
Photo 2: Stage 9 two days after injection with a high density of silver grains at the posterior pole follicle cells.
Photo 3: Stage 7 four days after injection with labelled follicle cells at the 2 poles.
Photo 4: Stage 8 six days after injection with an isolated labelled follicle cell at the anterior pole.
Photo 5: Stage 10 six days after injection with an isolated labelled follicle cell at the posterior pole.

From these results four conclusions may be drawn:

1. Labelling of follicle cells in egg-chambers produced a long time after injection concurs with the hypothesis proposed by King (1970) that follicle cells derive from generative profollicle cells which must function as the stem-line oogonia.

2. Since labelled follicle cells were often found a long time after injection at the anterior pole and labelled border cells were subsequently found, the number of DNA doublings (mitoses and possibly endopolyploidy) was lower in these follicle cells. The specialization of the follicle cells was therefore determined as from egg-chamber formation.

3. The follicle cells of the posterior pole also have reduced mitotic activity. Like the anterior follicle cells, they may therefore have a specific function. This result corroborates the hypothesis of Koch and King (1969) who on the basis of morphological data suggest a role for these cells in oocyte induction.

4. Since during the first four days after injection the largest number of labelled follicle cells appeared at the two poles of the newly produced egg chambers it may be supposed that different profollicle lines exist in the germarium. Some cells form the majority of follicle cells, others specifically produce pole cells.

References: Brown, E.H. and R.C. King 1964, Growth 28:41-81; Calvez, C. 1978, Thèse 3ème Cycle, Lyon; Chandley, A.C. 1966, Exptl. Cell Res. 44:201-215; King, R.C. 1970, In Ovarian development in Drosophila melanogaster, Acad. Press N.Y. and London; King, R.C., A.C. Rubinson and R.F. Smith 1956, Growth 20:121-157; King, R.C. and E.G. Vanoucek 1960, Growth 24:333-338; Koch, E.A. and R.C. King 1969, Z. Zellforsch 102:129-152.

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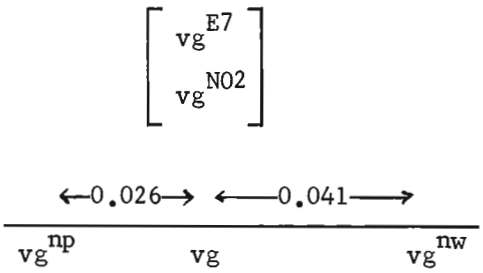
Pseudoallelism at the vestigial locus.

The vestigial series of alleles involves several quantitative variations in wing size and shape and some qualitatively distinct pleiotropic traits (including scutellar bristle position, body size, and viability). The vestigial alleles are difficult to work with because some complement, some are phenotypically normal as homozygotes, and some show a nicking or notching of the wings in the heterozygous condition. Furthermore, vestigial is sensitive to temperature, lower temperatures (about 18°C) having more mutant phenotypes and higher temperatures (about 28°C) having more normal phenotypes.

Cross used (x cn vg sf^2 ♂)	Total counted	Confirmed non-vg	Distance (map units)
vg^{np}/cn vg sf^2	30,389	4 cn+++	0.026
vg^{nw}/cn vg sf^2	9,813	2 +++sf	0.041
vg^{E7}/cn vg sf^2	14,567	0	-
vg^{NO2}/cn vg sf^2	7,145	0	-
vg^{np}/cn vg^{E7} sf	4,402	0	-
vg^{nw}/cn vg^{E7} sf	13,257	0	-
vg^{NO2}/cn vg^{np} sf	16,234	0	-



Stocks of cn vg sf^2 were made to provide suitable markers for a four-point test (cn = 2,57.5; vg = 2,67.0; sf^2 = 2,71.5). The alleles vg, vg^{np}, vg^{NO2}, vg^{nw}, and vg^{E7} were used in a series of crosses utilizing the cn and sf markers. The results so far establish the pseudoallelic nature of the vestigial region with three sites mapped. Two alleles, vg^{NO2} and vg^{E7}, have not yet been separated. The vg^{E7} allele shows a strap allele when heteroallelic with vg. It was induced by ethyl methane sulfonate and it is phenotypically normal as a homozygote. Its failure to undergo pseudoallelic crossing-over with vg, vg^{np}, and vg^{nw} suggests that it might be a minute intragenic rearrangement. Similarly, vg^{NO2} does not crossover with vg or vg^{np} and may be a minute rearrangement. When vg^{nw} is crossed to vg^{NO2} the heteroallele, vg^{nw}/vg^{NO2}, does not appear and is thus inviable at both 18°C and 25°C.

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Choo, J.K. Chungang University, Seoul, Korea. Genetic change of Korean natural population of Drosophila melanogaster.

The frequency of recessive lethal genes on the second chromosomes concealed in natural populations of D. melanogaster has been analyzed annually. Surveys have been made since 1971 in Anyang City, since 1975 in Ulsan City, and since 1977 in the Banweol area. The frequency of lethal plus semilethal second chromosomes had been about 28.2% in the 1971-1973 period at Anyang City. It then increased directly through three years and the population maintained 48.6% of L+Sl content in 1977. In the natural population of Ulsan City, the L+Sl content has been 65.7% to 53.4% in the 1975-1977 period. On the other hand, the frequency in the Banweol population was 26.0% in 1977, low compared to other populations.

All second homozygote viability consisting of lethal genes had been 22.3% in the Anyang population in 1971, and then its rate decreased annually to 14.6% in 1977. On the contrary, the Ulsan population maintained about 15.0% on the average in 1975-1977, and 24.8% occurred at Banweol in 1977.

The allelism rate between lethals isolated from the Anyang population has maintained unchanged at about 1-2% during the past six years. However, allelism rate of the Ulsan population decreased from 5.66% in 1975 to 1.47% in 1976.

The frequency of individuals eliminated by deleterious genes in the natural population was estimated to be IQ^2, where I and Q are the L+Sl frequency and allelism rate for successive years. The elimination rate in the Anyang population increased by two times during six years, from 0.04% to 0.08%. Moreover, in the Ulsan population it occurred 2.44% in 1975.

Clyde, M. University of Queensland, Brisbane, Australia. The chromosomes of Drosophila rubra Sturtevant.

D. rubra, a member of the D. immigrans subgroup (Wilson et al. 1969) was described by Sturtevant (1927) from the type specimen collected at Mt. Maquiling, Luzon, Philippines. The flies are yellowish with a reddish tinge. The dull reddish color occurs on the frons, antennae, mesonotum, scutellum and abdomen. The pleurae and legs as well as face, cheeks and mouthparts are yellow.

Five isofemale lines, from Hidden Valley Springs, Luzon (adjacent to the original collection site at Mt. Maquiling) were analyzed. The salivary chromosome configuration of D. rubra comprises four long arms and one short arm (Fig. 1). In one isoline a small, simple inversion in the central region of chromosome III was detected (Fig. 2).