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genetic localization of Pc in
Drosophila melanogaster.

Attempts at exact genetic localization of the
"extra-sexcomb" genes, Pc and Scx, in the third
chromosome of *D. melanogaster* have yielded un-
satisfactory results (Hannah-Alava 1969, DIS 44:
75-76). It was only determined by Hannah-Alava
that the order was Pc-Scx (not Scx-Pc as listed

in Lindsley and Grell, Genetic Variations of *D.m.*) but until quite recently there has been a complete lack of cytological information on the position of these genes. Pc and Scx were earlier considered as pseudoalleles (Hannah and Strömnaes 1955, DIS 29:121-123) but if so, the distance between the subloci (about 0.3 of a unit, Hannah-Alava 1969) is greater than found for other complex loci. Because of the antennapedia-like phenotype of Pc, as well as semi-lethality of Pc²/Antp⁴⁹ and lethality of Scx/Antp compounds, Hannah-Alava (1969) further suggested that both Pc and Scx could be functionally related, if not allelic, to Antennapedia mutants and, thus, possibly in the right arm between 83E and 84D. From the lethal interaction of Antp^B and four X-ray induced revertants of Ns (Nasobemia) sharing a recessive lethal effect and having cytologically detectable change at 84B1-2 Denell (1972, DIS 48:45) concluded that Antp and Ns are allelic. Subsequently he has shown that these Ns revertants also fail to complement the recessive lethality of Scx. This he considers as evidence for Scx, too, being allelic, or possibly pseudoallelic, to the Antp mutants (Denell, Genetics in press). This implies that Antp as well as Scx and Ns are located at 84B1-2 in the salivary chromosome map. On the other hand, since Pc shows no lethal interaction with Scx and the revertants of Ns, Denell concluded that Pc is neither an allele of Antp nor of Scx.

This last conclusion is supported by evidence from our recent experiments (to be published in detail elsewhere) which demonstrate that Pc is in the left arm of the third chromosome. The results of three independent analyses are briefly reviewed here.

(1) It was shown by analyzing 79 recombinant chromosomes derived from crossing-over in the in-p interval from h th st cp in ri Pc² sr^{61j2}/eg rn³ pP bx sr e^s ca compounds that Pc² is to the right of ri but to the left of both eg and rn³. This together with the result of Holm et al. (1969, DIS 44:112) that eg invariably is associated with C(3L) chromosomes induced in homozygous eg/eg females suggests that Pc² is in 3L.

(2) In an attempt to induce compound-3 autosomes in th st cp Pc²/+ females, eight new C(3L) chromosomes with, presumably, heterozygous Pc² and one with homozygous Pc⁺ were recovered. At the same time, none of eight newly induced C(3R) chromosomes had the Pc² gene.

(3) The recessive lethality associated with Pc² was found to be suppressed in flies homozygous for Pc² but covered by Dp(3;2)FM27, a segregational derivative of an insertional translocation, T(2;3)FM27, comprising a piece of 3L - from 75A-B through 80B(C?) - inserted in 2L at 21F-22A (Puro, unpublished). Such flies exhibited an exaggerated Pc phenotype with extreme pleiotropic effects of wing position and texture in all flies and an increased penetration of extra sex combs in males.

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hemolymph and NaCl solution on the spirochetes was observed.

Oishi (1970, 1971) has shown that SR spirochetes have a virus in each spirochete species of *D. nebulosa* and *D. willistoni*, and possibly *D. equinoxialis* (Poulson, 1973). The viruses act as a virulent to the different SR spirochetes. We examined homologous superinjection in each case of SR pseudoobscura with nebulosa and willistoni spirochete. Little effect of the superinjection was shown in the SR pseudoobscura with willistoni spirochetes, but not nebulosa spirochete.

It is interesting that the results may correspond to behavior of temperate phages. In order to clarify the mechanisms of the self-induced interaction, additional experiments are now underway.

References: Oishi, K. and D.F. Poulson 1970, Proc. Nat. Acad. Sci. USA 67:1565-1572; Oishi, K. 1971, Genet. Res. Camb. 18:45-56; Poulson, D.F. and K. Oishi 1973, Genetics 74: s216; Sakaguchi, B., H. Chikushi, D.F. Poulson and K. Oishi 1968, Proc. Int. Cong. Genet. 12th 2:88.