Zelentsova,E., T.Braude*, & M.B.Evgen'ev. Institute of Molecular Biology, *Institute of General Genetics, USSR Academy of Sciences, Moscow, USSR. Supernumerous family of mobile dispersed genetic elements isolated from D.virilis genome lacks the ability to amplify.

A novel class of repeated genes of Drosophila melanogaster has been recently described (Finnegan et al. 1977; Ilyin et al. 1977). These genetic elements exist in many copies in the genome of D.melanogaster and code for abundant poly(A)-containing RNAs. Later it was shown that such sequences often called "mobile dispersed genetic elements" (mdg) are capable to transpose from one place of the genome to another. Moreover, now it's well documented that these multiple elements often called "jumping genes" may be amplified in tissue culture cells of D.melanogaster.

Almost all the investigations on Drosophila "jumping genes" structure and behaviour have been performed in D.melanogaster, however we were lucky to isolate and describe a multiple gene family from D.virilis. Evgen'ev et al. (1982) designated pdv111. This family occupies more than two hundred sites in D.virilis chromosomes, thus it is by far the most abundant one described until now (Fig. 1). We studied the copy number of these sequences in the DNA isolated from adult flies, salivary glands and embryonic cell culture of D.virilis by means of filter hybridization.

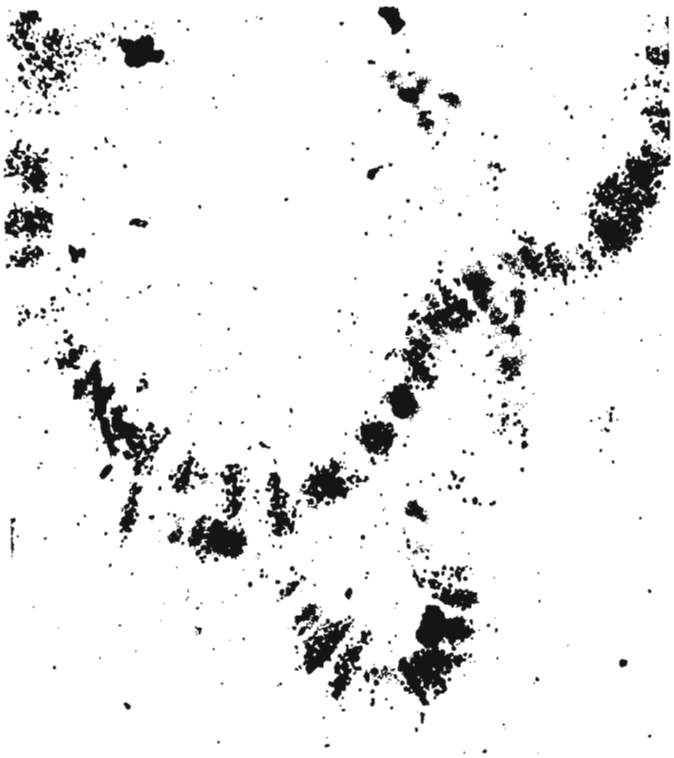

Fig. 1. Polytene chromosomes of D.virilis hybridized with ^{3}H-pDv111 sequences.

In our experiments, the DNA isolated by usual phenol detergent method was hybridized with cloned sequences of the family studied immobilized on nitrocellulose filters. The DNA isolated from the above mentioned sources was labeled by nick-translation. The experiments summarized in Table 1, enable one to conclude that super multiple family representing "jumping genes" of D.virilis does not amplify in embryonic cell culture on the other hand these sequences apparently normally replicate in salivary gland nuclei (no drastic underreplication occurs).

References: Ilyin,Y.V., N.A.Tchurikov & G.P.Georgiev 1976, Nucleic Acids Res. 3:2115; Finnegan,D.J., G.M.Rubin, H.W.Young, & D.S.Hogness 1977, Cold Spring Harbor Symp. 42:1053.

Table 1. The hybridization of total nick-translated DNAs of D.virilis isolated from different cell types with an excess D.virilis cloned mdg DNA immobilized on nitrocellulose filters.

Immobilized DNA used for hybridization	D.virilis DNA adult flies cpm %[a]	cell culture cpm %	embryos cpm %	salivary glands cpm %
pDV 111	5200 1.05	5100 1.02	5600 1.1	3800 0.71

Hybridization was carried out in 100 ul 4xSSC, 0.2 SDS for 20-24 h at 65°C. Each hybridization tube contained about 0.5×10^{6} cpm.

a=The figure represents the proportion of the total amount of label in the hybridization mix of the ^{3}H-labeled DNA isolated from different sources bound to mdg DNA on the filter.