

**Genova, G.K.<sup>1</sup> and E.P. Semionov.<sup>2§</sup>** <sup>1</sup>Sofian University, Bulgaria. <sup>2</sup>Leningrad University, USSR. <sup>§</sup>Present address: Institute of Molecular Biology, Sofia, Bulgaria. Unstably localized nucleoli in *Drosophila melanogaster* salivary gland cells in various stocks.

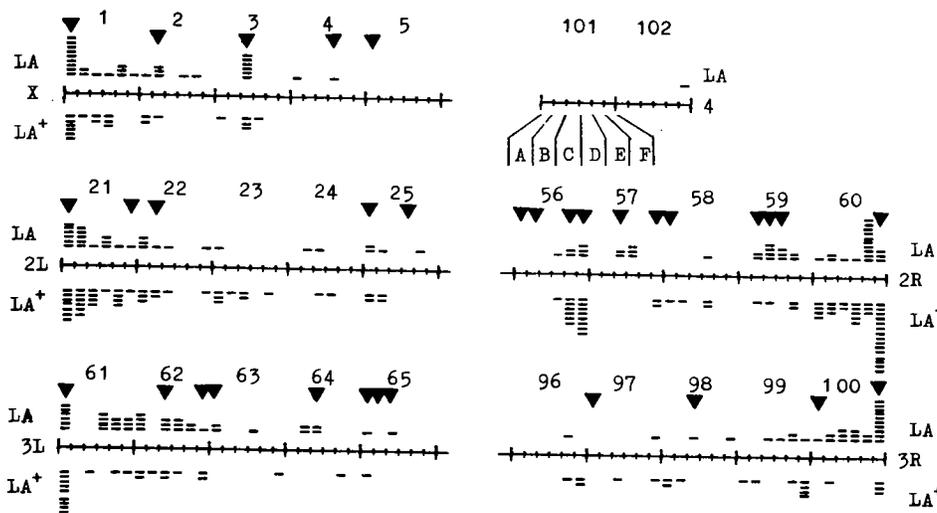
Lately the phenomenon of "additional nucleoli" formation in the salivary gland cells of *D.melanogaster* was investigated in a series of works. In these cells a few nucleoli can be generated with varying sites of attachment to chromosomes, which do not coincide with the number and localization of the nucleolus organizers presented in one copy in each X and Y chromosomes. By means of in situ hybridization and

incorporation of labelled precursors, it was shown that additional nucleoli contained ribosomal RNA genes actively replicated and transcribed (Ananiev et al. 1981). In our research we had for an object to compare the distribution maps of the "unlawful" nucleoli in flies with different genotypes.

The comparative analysis of nucleoli attachment sites in the salivary gland cells (stained with methylgreen-pyronin) was carried out in the third instar larvae from the stocks LA and LA<sup>+</sup> differing in number of physiological characteristics (Khuguto et al. 1980; Gvozdev et al. 1981). 219 and 202 nucleoli attachment sites (about 4000 cells are analysed) along the polytene chromosomes were localized for larvae from LA and LA<sup>+</sup> stocks, respectively. The highest frequency of nucleoli occurs in the telomeric regions of all chromosomes, corresponding to 2-3 divisions of Bridges' map. Therefore we recorded on Figure 1 the picture of the nucleoli localization only for the five distal divisions in telomeric regions of the chromosomes X, 2 and 3. It is evident, that within these regions we consider the attachment of nucleoli occurs to discrete sites, including in sum the greater part of the chromosome telomeric regions; and euchromatic as well as sites assigned to the intercalary heterochromatin in each big chromosome (X,2,3) can serve as nucleoli attachment sites. At the same time there are particular chromosome sites to which the nucleoli were connected most frequently: the distal points of each telomere, the divisions 3C,56EF (all these sites according to a number of criteria belong to intercalary heterochromatin), chromocenter (the nucleoli connected with the nucleolus organizer - 20CD - were not registered). Single small chromosome regions (59F, 61B), on the contrary, have never served as nucleoli attachment sites, although in the adjoining regions this event was relatively often registered. We emphasize that the type of the connection site distribution of unstably localized nucleoli along the chromosomes of the LA and LA<sup>+</sup> larvae is similar. Along with this, in particular sites (60E-F, 100F) the frequency of nucleoli connection for these stocks is different. The average number of nucleoli per nucleus was the same in males and females from both stocks.

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**References:** Ananiev, E.V. et al. 1981, Chromosoma 81: 619-28; Gvozdev, V.A. et al. 1981, Cold Spr. Harb. Symp. Quant. Biol. 45:673-85; Hannah, A. 1951, Adv. Genet. 4: 87-125; Kaufmann, B.P. & M.K. Iddles 1963, Portug. Acta Biol. 7:225-49; Khuguto, N. et al. 1980, Genetika (Russian) 16: 1228-33.



**Figure 1.** Distribution of nucleoli attachment sites along the telomeric regions of the salivary gland chromosomes. With numbers 1,2,3... are marked the number of the divisions of the Bridges' chromosome map. X,2L,...4 - chromosome symbols. Arrowheads point at the intercalary heterochromatin regions according to Hannah (1951) and Kaufmann & Iddles (1963). One horizontal dash corresponds to one recorded event of nucleolus attachment to the given polytene chromosome site. Fairly frequently nucleoli were connected with chromocenter (about 15% of the registered additional nucleoli; they are not included in the data mentioned above).