In situ hybridization of DNA of the *Su(UR)ES* gene in polytene chromosomes of several species of Dipterans.

Kokoza, E.B., and I.F. Zhimulev. Institute of Cytology and Genetics, Novosibirsk 630090, Russia. E-mail: zhimulev@bionet.nsc.ru

The *Su(UR)ES* (Suppressor of DNA underreplication in polytene chromosomes) gene controls degree of DNA underreplication in both intercalary and pericentric heterochromatin (Belyaeva *et al.*, 1998). When it is mutant, DNA underreplication is suppressed: the polytene chromosomes do not show weak points (constrictions) and ectopic pairing in the intercalary heterochromatin regions. In regions of pericentric heterochromatin, new banded regions appear due to suppression of underreplication. To determine localization of this gene in several other species of *Drosophila*, *in situ* hybridization experiments were performed with salivary gland polytene chromosomes of *Drosophila erecta, D. simulans* (species close to *D. melanogaster*), *D. virilis* (remoted species of *D. melanogaster*), and with nurse cell polytene chromosomes from *Anopheles gambiae*. Salivary gland chromosomes of *D. melanogaster* (Oregon R) were used as a control.

A 3.8 kb fragment of cDNA containing full copy of the *Su(UR)ES* gene was used as a probe (details of cloning and characterization of the gene are in I.V. Makunin, in preparation). The biotin labelled DNA (Gibco-BRL Bio-nick Labelling Kit) in 10% dextran sulfate / 50% formamide was incubated overnight with chromosomes of *Drosophila melanogaster, D. erecta,* and *D. simulans* at 42° C, and with chromosomes of *D. virilis* and *A. gambiae* at 37°C. The washing temperature was set respectively. The signals of hybridization were detected with alkaline phosphotase / NBT + BCIP system (Gibco-BRL Detection Kit).

Only polytene chromosomes of *D. melanogaster, D. erecta* and *D. simulans* showed strong signal in the site of the *Su(UR)ES* localization (68A in *3L* chromosome). Data obtained show that there is no total homology of the *D. melanogaster Su(UR)ES* gene with DNA of remote species; however, this does not exclude possible homology of fragments of the gene. In one of the experiments, 5-year-old squashes of *D. melanogaster* chromosomes were used for the control. Despite the fact that they had been kept for such a long time, they show the signal insignificantly less strongly than those of fresh preparations.

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References: Belyaeva, E.S., I.F. Zhimulev, E.I. Volkova E.I., A.A. Alekseyenko, Yu.M. Moshkin, and D.E. Koryakov 1998, Proc. Nat. Acad. Sci., USA 95 (13): 7532-7537.

Back Rows in the Ecological Theatre: different distributions of *Drosophila* in *Opuntia ficus-indica* plantations.

Eisses*, Karel Th., and Mauro Santos. Universitat Autònoma de Barcelona, Departament de Genètica i de Microbiologia, 08193 Bellaterra (Barcelona), Spain.
* Address for correspondence, Utrecht University, Department of Plant Ecology and Evolutionary Biology, Padualaan 8, 3584 CH Utrecht, The Netherlands, e-mail: kteisses@dds.nl