ACTIVITY OF NUCLEOLAR ORGANIZERS DEPENDING O

P. Klenovitskiy, B. Iolchiev, Vetokh A.

L.K. Ernst Federal Science Center for Animal Husbandry

INTRODUCTION. The level of protein proliferation and biosynthesis in various physiological and pathological processes depends on the functional activity in the nucleolar apparatus of cell. Parameters characterizing the activity of nucleolar organizers are associated with the manifestation of polygenic traits. The activity degree of the nucleolar organizers varies depending on the level of functional load on the cells. The synthesis intensity of subunits rRNA (18S and 28S) that enter the ribosome depends on the activity of the nucleolar organizers. It is assumed that the activity of the nucleolar organizers depends on numerous exogenous and endogenous factors.

The aim of this research was to study the relationship between the activity of nucleolar organizers and the animal genotype.

MATERIALS AND METHODS.

Animals. The objects of study were goats with different genotypes. In the experiment, 3 groups of goats hybrids were used: group I - 5 individuals of the Karachai breed × F1 C.sibirica × C.hircus; group II - 4 individuals Boer × F1 *C.sibirica* × *C.hircus*; group III - 3 individuals of F2 *C.sibirica* × *C.hircus* × F1 *C.sibirica*×*C.hircus* .

Materials. The material for the study was venous blood.

Staining. Blood smears were fixed with Lillie's solution and were stained using the Havel and Blake technique.

Microscopy. Microscopic studies were performed using a Nikon Eclipse Ni equipped with a high-resolution Nikon DS-Qi2 camera (4908 x 3264) (Nikon Japan); increase x1000.

Statistical analysis. For statistical analysis of the obtained data, was used the SPSS v.23 program.

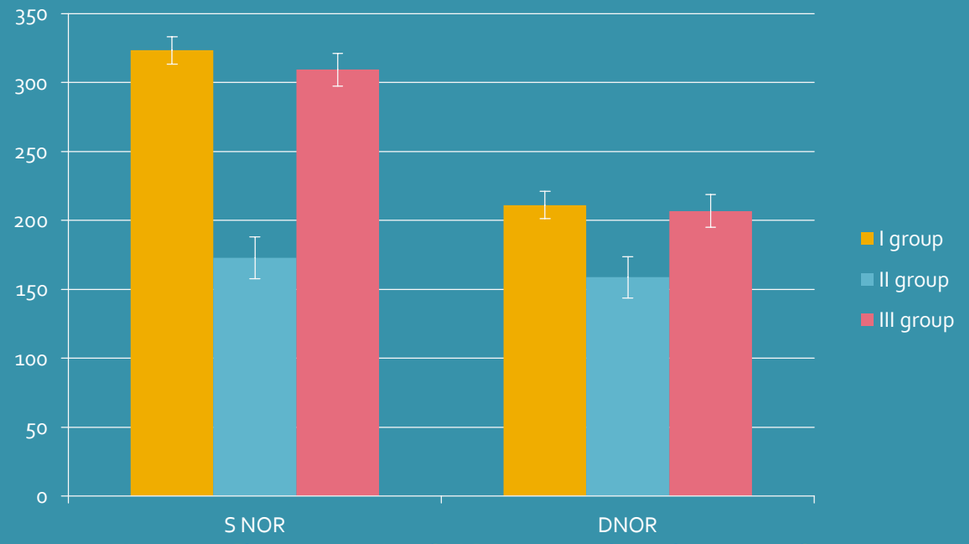

Figure 1. Characteristic of NOR in goat lymphocytes of different genotypes

RESULTS AND DISCUSSION.

At this stage of the study, we used the average optical density AgNOR (D_{NOR}) as an indicator reflecting the total amount of Ag bound to the argyrophilic proteins of the nucleolar organizer. The average value of the number of argyrophilic zones in the studied groups ranged from 2.4 in hybrids (Bur × F1 *C. sibirica* × *C. hircus*) to 3.57 (F2 C. sibirica × *C. hircus* × F1 *C. sibirica* × *C. hircus*). The groups significantly differed in the total area of NOR. The total area of the nucleolar apparatus in hybrids (Karachai breed × F1 C. sibirica×C. hircus) and (F2 C. sibirica × C. hircus × F1 *C. sibirica*×*C. hircus*) exceeded area of NOR hybrids (Boer × F1 *C. sibirica* ×*C . hircus*) by 87% and 79%, respectively ($p<0,05$) (fFigure 1.).

It was found that in goats of the second group this indicator was 158.58 ± 10.18, which was significantly inferior in terms of AgNOR (D_{NOR}) to animals in group I (211.10 ± 3.62) and in group III (206.77 ± 4.43). No significant differences between the goats of groups I and III were found. Thus, the AgNOR (DNOR) criterion depends on the goat genotype to a certain extent and is of interest for assessing the activity of the nucleolar organizers in goats.

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