«THE DYNAMICS OF HUMORAL IMMUNITY FACTORS IN RATS UNDER EXPERIMENTAL BLV INFECTION»

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The purpose of our research was to study the dynamics of some humoral factors of innate and acquired immunity in laboratory rats under experimental BLV infection. The object of the study was Wistar line rats.
**Materials and methods.**

Introduction of infection of the experimental group rats (n = 20) was carried out by twice per week intraperitoneal injection of 0.5 ml of sterile suspension of lymphocytes from BLV-initiated cattle. Control group animals (n = 10) were injected with sterile saline according to the same scheme. After 3 and 6 months from the introduction of infection, blood was taken from the animals lateral tail vena. Blood serum was analyzed by enzyme-linked immunosorbent assay (ELISA) with «Cytokin» kit (Russia) using Thermo Fisher Scientific equipment (USA).
### Results

**Table 1.** The immunological indicators of adult rats.

| Indicator     | Animal group / age, months |  |  |  |  |
|---------------|----------------------------|---|---|---|---|
|               | Experiment / 9 | Control / 9 | Experiment / 12 | Control / 12 |
| IL-1β, pkg/ml | 0.105±0.011* | 0.088±0.009 | 0.100±0.011* | 0.082±0.008 |
| IL-1Ra, µg/ml | 0.653±0.072* | 0.320±0.026 | 0.496±0.051* | 0.281±0.029 |
| C3, ng/ml     | 0.050±0.006  | 0.049±0.005 | 0.051±0.005  | 0.052±0.004 |
| C4, ng/ml     | 0.364±0.029* | 0.308±0.003 | 0.272±0.031* | 0.312±0.003 |
| C3a, ng/ml    | 0.071±0.008  | 0.065±0.005 | 0.082±0.010* | 0.072±0.007 |
| C5a, ng/ml    | 0.245±0.003* | 0.092±0.011 | 0.613±0.059* | 0.087±0.013 |

Note: * - statistically significant differences between the control and experimental groups (p <0.05).
## Results

**Table 2.** The immunological indicators of adult rats’ offspring.

| Indicator      | Animal group / age, months |
|----------------|----------------------------|
|                | F1 experiment / 3 | F1 control / 3 | F1 experiment / 6 | F1 control / 6 |
| IL-1β, pkg/ml  | 0.091±0.011       | 0.087±0.008    | 0.097±0.011       | 0.089±0.009    |
| IL-1Ra, μg/ml  | 0.464±0.042*      | 0.169±0.015    | 0.806±0.082*      | 0.172±0.018    |
| C3, ng/ml      | 0.047±0.004       | 0.050±0.005    | 0.049±0.005       | 0.052±0.004    |
| C4, ng/ml      | 0.279±0.031       | 0.306±0.009    | 0.359±0.038*      | 0.309±0.011    |
| C3a, ng/ml     | 0.076±0.007*      | 0.066±0.007    | 0.075±0.009*      | 0.064±0.006    |
| C5a, ng/ml     | 0.122±0.011*      | 0.106±0.009    | 0.131±0.059*      | 0.112±0.011    |

Note: * - statistically significant differences between the control and experimental groups (p <0.05).
Conclusion:
Analysis of the obtained data allows us to conclude that BLV infection in laboratory Wistar rats is accompanied by activation of the classical pathway of the immune response, determined to C4 complement fraction. Herewith, inhibition processes prevail in immunogenesis, and it is especially pronounced in the infected rats’ offspring. Leukemic infection in Wistar rats is characterized by immunobiological processes leading to the development of a persistent allergic state. The identified humoral immunity markers indicate that BLV-infected laboratory rats have a tendency to hemoblastosis cells malignant proliferation.