

# IMMUNOLOGIC REACTIVITY OF MICE WITH THE ASCITES FORM OF EHRLICH'S CARCINOMA

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After inoculation of mice with cells of the ascites form of Ehrlich's carcinoma the reactivity of the animals to sheep's erythrocytes first increases (1st-3rd day) and then decreases.

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The study of the immunologic response of the body to malignant disease is of great importance both to determination of the role of immunologic reactions in tumor development and to investigation of the possibility of immunotherapy of malignant tumors [3, 5]. It has been shown [1, 2, 4] that ability to form normal and immune antibodies is diminished in animals with malignant tumors.

The object of the present investigation was to study immunologic reactivity of mice in the course of development of the ascites form of Ehrlich's adenocarcinoma in the animals.

## EXPERIMENTAL METHOD

Sexually mature mice of line H were used. Viable ascites cells of the Ehrlich's carcinoma were inoculated intraperitoneally as a single dose of  $5 \cdot 10^6$  cells into all animals at the same time. The viability of the cells was determined by Schrek's method [6]. The index of immunologic reactivity in the experimental animals was the number of hemolysin-producing cells in the spleen after intraperitoneal injection of sheep's erythrocytes into the mice. During immunization by this method, about 80% of antibodies are formed in the spleen. The animals were immunized at different times before and after inoculation of the tumor with a 10% suspension of sheep's erythrocytes (0.5 ml per mouse). The number of antibody-forming cells was determined by 4 days after immunization.

The hemolytic activity of antibody-forming cells in the spleen was investigated by the writer's modification of Jerne's method of local hemolysis in agar as follows: the animals were divided into 9 groups, with 4 mice in each group. Jerne's test was carried out on the 1st, 3rd, 5th, 7th, 9th, 11th, 13th, 15th, and 19th day after inoculation of the tumor. Twelve healthy mice of the same line were used as controls.

## EXPERIMENTAL RESULTS

The experimental results are given in Table 1.

It is clear from Table 1 that on the first day after inoculation of the tumor the number of antibody-synthesizing cells in the spleens of the experimental mice was much higher than in the controls. After the third day this index gradually fell, and from the 9th to the 19th day (toward the end of the animals' life) the number of antibody-forming cells was at a low level.

It follows from these results that at the beginning of development of the tumor (1st-3rd day) the immunologic reactivity of the experimental animals was higher than that of the controls. Later, with the ac-

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TABLE 1. Dynamics of Hemolytic Activity of Spleen Cells of Immunized Mice during Development of Ascites form of Ehrlich's Adenocarcinoma (number of plaques/ $10^6$  spleen cells in mice).

Index	Day after inoculation of tumor				
	1st	3rd	5th	7th	9th
Number of plaques (M $\pm$ m)	1267,3 $\pm$ 15,5	1073,3 $\pm$ 10	673,3 $\pm$ 15,5	279,3 $\pm$ 12	43,7 $\pm$ 8,9
Cont.					
Index	Day after inoculation of tumor				Control
	11th	13th	15th	19th	
Number of plaques (M $\pm$ m)	40 $\pm$ 1,6	76 $\pm$ 5,7	145,7 $\pm$ 13,8	23 $\pm$ 2,8	853,2 $\pm$ 8,4

cumulation of ascites cells of the tumor, the ability of the mice to given an immunologic response to the antigenic stimulus fell sharply.

The mechanism of this phenomenon requires further study.

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