

mean MI in the experimental series was due to a sharp delay in the course of mitosis itself.

This approach to the evaluation of changes in the duration of mitosis based on analysis of the frequency of occurrence of its phases can be called the "temporal dynamics of the phases of mitosis." This concept emphasizes the importance of the study of temporal relations arising in the course of mitosis.

It can be tentatively suggested that the study of the temporal dynamics of the phases of mitosis will shed a clearer light on many other problems connected with the evaluation of cell proliferation during regeneration and malignant growth.

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LITERATURE CITED

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POLYCLONAL TOLERANCE IN NONIBRED MICE

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KEY WORDS: irradiation; fetal liver; tolerance.

This paper gives the results of a study of the possibility of inducing polyclonal tolerance in noninbred mice to skin allografts after lethal irradiation of the recipients and their protection by allogeneic fetal liver cells obtained from many donors.

EXPERIMENTAL METHOD

Noninbred mice weighing 25-30 g at the stage of 16-19 days of pregnancy, bred at the Kryukovo Nursery, and C57BL/6j mice from the Stolbovaya Nursery were used.

The mice were irradiated on a ^{137}Cs γ -ray source, with a dose rate of 25 rads/min and in a dose of 1300 rads.

The fetal liver was minced in medium No. 199 with 10% bovine fetal serum. The resulting cell suspension was filtered through two layers of gauze and, on the day of irradiation, it was injected intravenously into mice in a dose of $(15-20) \cdot 10^6$ cells/ml.

Transplantation of the caudal skin and chromosome analysis of bone marrow cells were carried out by the usual method.

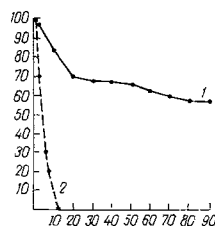


Fig. 1. Survival rate of mice after lethal irradiation and protection by allogeneic fetal liver cells. Abscissa, days of observation; ordinate, survival rate of mice (in percent). 1) Experimental mice after irradiation and protection, 2) mice irradiated in a dose of 1300 rad.

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TABLE 1. Polyclonal Tolerance of Noninbred Mice after Lethal Irradiation and Protection by Allogeneic Fetal Liver Cells

Recipients	Number of mice in group	Skin donors	Results of transplantation	
			take	rejection
Noninbred mice after irradiation and protection	29 21	Noninbred mice C57BL/6j mice	20 (68,9%) 13 (61,9%)	9 (31,1%) 8 (38,1%)
Control noninbred intact mice	12 6	Noninbred mice C57BL/6j mice	0 (0) 0 (0)	12 (100%) 6 (100%)

EXPERIMENTAL RESULTS

The results of a study of the effectiveness of protection of 100 lethally irradiated noninbred male mice by allogeneic fetal liver cells obtained from fetuses of 86 pregnant mice are given in Fig. 1.

More than 30% of the animals died during the first 30 days after irradiation and protection. The state of the remaining mice, which survived until 80 days after transportation of the cells, remained satisfactory for a long time.

After 5 months skin from the tail of noninbred mice and of C57BL/6j mice was grafted on these mice (Table 1).

Survival of the skin from noninbred donors was observed in 68,9% of animals and of skin from C57BL/6j mice in 61,9% of experimental recipients. The period of observation exceeded 4 months.

Investigation of bone marrow cells in 10% of the experimental animals revealed cells of female karyotype in them. Of 211 mitoses counted, 135 contained a Y chromosome and 76 an X chromosome.

It was thus shown for the first time that polyclonal tolerance can be induced in noninbred mice after lethal irradiation of recipients and their protection by allogeneic fetal liver cells obtained from many donors.

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