vary from 0.5 International Unit or less to 22.7 units, with the great majority falling into the normal range. Sera from 3 cases of superficial infections had titers of 0.5 unit.

In contrast to other reported results, about two-thirds of the sera from cases of osteomyelitis had a titer of 1 International Unit or less. Only one-fifth of the sera had definitely high titers, and these, in our series, averaged 5.1 units; the highest was 17.7 units. From our results, it seems to be necessary to modify the conception that a high antihemolysin titer is characteristic of osteomyelitis.

8381 P

Further Studies on Transmissible Myelosis of Mice.*

W. A. BARNES AND J. FURTH.

From the Department of Pathology, Cornell University Medical College, New York.

It is now well established that lymphatic leukemia of mice is transmissible and neoplastic. Transmission of myeloid leukemia has only recently been accomplished.[1, 2, 3] The transmissible strain previously described from this laboratory[1] originated in a non-irradiated mouse. The basophile myelocytes characteristic of this strain produce myeloid leukemia in some animals, and multiple myeloma in others. Inoculations were successful in 39% of non-irradiated, closely related mice (Stock A) injected with these myeloid cells, and in only 15% of non-irradiated unrelated mice (Stocks R and S). The number of successful transfers was greatly increased by exposing the animals to X-rays prior to inoculation.

The incidence of spontaneous myelosis was approximately 10 times greater among irradiated mice than among their unirradiated siblings.[1] The present communication deals with one of the 2 successful attempts to transmit myeloid leukemia that occurred in uninoculated X-rayed mice. The first strain of transmissible myelosis that was derived from an X-rayed mouse will be referred to as strain Rfb 117. The mouse from which it originated (No. Rfb

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1 Furth, J., PROC. SOC. EXP. BIOL. AND MED., 1934, **31**, 923; *J. Exp. Med.*, 1935, **61**, 423.

2 Parsons, D., *J. Path. and Bact.*, 1935, **40**, 45.

3 Kaalung-Jørgensen, O., *Zeitsch. f. Krebsf.*, 1935, **42**, 393.

117) was irradiated at the age of 80 days with a single massive dose of X-rays (400 r). When 229 days old, myeloid leukemia was evident from the blood smear. The spleen was greatly enlarged, but the superficial lymph nodes were not enlarged. The mouse was killed *in extremis* 263 days after birth, at which time the leukocytes numbered 66,000 per cubic mm. with 32% basophile myelocytes. The results of inoculations with a myeloid cell suspension from the spleen of this mouse and of the successive subpassages are summarized in Table I. The technic of inoculation has been described elsewhere.[1] Approximately two-thirds of the injections were intravenous, one-third subcutaneous.

TABLE I.
Result of Inoculations.

Family of mice	Irradiation before inoculation	No. of experiments	No. of mice injected	Successful injections No.	Successful injections %
Rf	Not irradiated	9	21	20	95
Rg	Not irradiated	7	36	13	36
Rf-Rg hybrid	Not irradiated	3	18	18	100
Rf-Rg hybrid	Irradiated	2	7	6	85
A	Not irradiated	7	45	3	7
A	Irradiated	8	81	8	10

Almost every member of the inbred family, Rf, is susceptible to this strain (Table I); inoculations are less often successful in the distantly related Rg stock and still less in the unrelated mice of Stock A, whereas the strain of myelosis previously described was best transmitted to mice of stock A. Irradiation failed to increase noticeably the susceptibility of the unrelated mice of stock A to strain Rfb 117.

Attempts at transmission with material free from living myelocytes have been unsuccessful in 30 mice. In these experiments the cells were destroyed by exposure to —30°C. during 30 minutes. Tissues exposed to this temperature when incubated *in vitro* in tissue cultures gave no evidence of the presence of live cells, but live cells were recovered from tissues frozen to —8°C. during 30 minutes.

Table II is a summary of some significant characteristics of transmissible strains of myelosis Ar 117 and Rfb 117, including the morphological appearance of the malignant cells, gross anatomical changes, percentage of successful inoculations among related and unrelated mice, and the effect of X-rays in increasing susceptibility to transmissible myelosis. These two strains exhibit such conspicuous differences that they can be distinguished by examination of blood smears alone.

TABLE II.
Comparison of Two Strains of Myelosis.

	Strain Ar 117	Strain Rfb 117
Percentage of successful inoculations		
Stock A, not irradiated	33	7
Stock A, irradiated	88	10
Stock Rg, not irradiated	33	36
Stock Rf, " "	0*	95
Malignant cells		
Average size	16 μ	14.7 μ
Granules	Coarse	Medium
	Dark purple-blue	Purple-red
	Oxydase negative	Oxydase positive
Anatomical changes		
Enlargement of liver and spleen	Moderate	Great
Enlargement of lymph nodes	"	Slight
Color of the myeloid growth	Gray-white	Gray, often greenish
Occurrence of multiple tumors	Common (attached to bones and in viscera)	Rare (only in viscera)

*This group is small (8 mice) but the material produced myelosis in 7 of the 8 irradiated mice injected.

In tissue cultures the malignant myeloid cells of strain Rfb 117 exhibited active amoeboid motion, multiplied by mitotic division, and did not mature into polymorphonuclear leukocytes as would be expected from the studies of previous workers.[4]

Summary. A new transmissible strain of myelosis that originated in a mouse irradiated by X-rays is described. This strain possesses characteristics which differ from those of the strain previously observed. The immature myeloid cells peculiar to this strain reproduce themselves by mitotic division *in vitro* and *in vivo* and like malignant cells, fail to mature.

8382 P

Measurement of X-Ray Absorption Coefficients in Tooth Sections.*

FRANKLIN HOLLANDER.

From the School of Dental and Oral Surgery, Columbia University.

The following is a preliminary report of a new method of determining linear X-ray absorption coefficients in plano-parallel ground sections of teeth. This coefficient is a precise measure of radio-

[4] Timofejewsky, A. D., and Benewolenskaja, S. W., *Arch. f. Exp. Zellf.*, 1929, **8**, 1.

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