polygonal but occasionally round cells were observed. Upon staining, these latter cells were in the process of division. Action of vaccinia virus was characterized by rounding of the cells 48 hours after inoculation, followed on 3rd or 4th day by noticeable swelling and distention of cytoplasmic elements of cells. By the 5th day cells lysed. With herpes simplex, semliki forest and newcastle disease viruses, distinct foci of degeneration first appeared within 64 hours then gradually progressed over entire culture in 148 hours. Infection with canine hepatitis virus was not evident until 5-7 days after inoculation. At this time, cell damage was characterized by appearance of numerous masses of round cells, packets of clumps of cells and eventual destruction of most cells 3-5 days after first signs of infection.

Summary. Growth characteristics of a canine Sertoli cell adenocarcinoma in tissue culture are described. Histopathological and cytological picture of the original tumor, of cells grown in tissue culture and material removed from dogs inoculated with tissue culture cells are shown. According to histopathological criteria, the original tumor, tissue culture cells and material removed from dogs inoculated with 10th passage SCT cells are all malignant. The viral spectrum of this cell line is presented.

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Effect of Continuous Low Dose Gamma Irradiation on Bactericidal Activity of Phagocytic Cells of Mice.* (24637)

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Previous studies(1,2) on bactericidal activity of phagocytic cells of mice indicated that this function was impaired in cells obtained from mice which had been subjected to whole body x-radiation in a single acute exposure within the range of 500-700 r. It was of interest, therefore, to determine whether or not bactericidal activity would be similarly impaired by continuous exposure to relatively low doses of γ irradiation.

Materials and methods. Procedures and reagents for studying bactericidal activity of phagocytic cells from mice (Carworth, CF-1) were essentially those previously described (1). Peritoneal exudates were induced in mice with gelatin. Sixteen hours later, *Pseudomonas aeruginosa* organisms were injected into peritoneal cavities so that phagocytosis could occur *in vivo*. Antibiotics were then injected to kill extracellular organisms and the phagocytes were harvested, pooled, washed, and suspended (10^6 cells/ml) in tissue culture medium with antibiotics. Immediately, and at 2 and 4 hours thereafter, aliquots of the phagocyte suspension were ground and cultured to determine number of viable bacteria/ml. A total of 150 mice were housed in groups of 10 in plastic cages (7½ x 12 x 7 inches) surrounding a nominal 10 curie cobalt 60 source. The cages were placed on curved wooden racks so that their centers were 127

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TABLE I. Effect of Continuous Gamma Irradiation (128 r/d) on Bactericidal Activity and Number of Exudate Cells in Mice.

Animal group Irradiation Time, wk	Accumulated dose, r	Phagocytes per mouse, mm^3	% viable* phagocytes after 4 hr *in vitro*	Mean No. viable *Pseudomonas* × 10^4/ml phagocytes Hr *in vitro* 0	2	4	4 hr count as % of 0 hr count
0	0	3.4	97	50.0	9.0	1.0	2%
1	900	3.3	92	5.3	3.5	1.2	21
2	1800	1.4	92	56.5	35.7	15.3	27
3	2695	1.2	87	38.5	21.5	55.8	105

* Cells with nucleus unstained by trypan blue (.0005%).

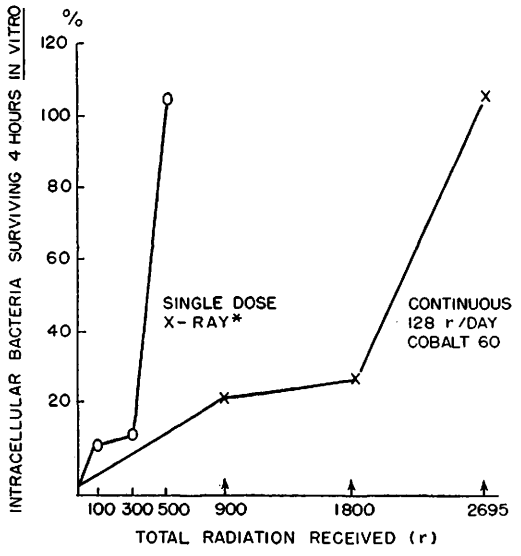

FIG. 1.

cm from the source.‡ Under these conditions and assuming random movement of the mice, each mouse received approximately 128 r/22 hours (the source was shielded 2 hours a day to allow for cleaning cages and feeding the animals). Groups of 30 mice were removed from the cobalt room after 1, 2, and 3 weeks exposure, and their phagocytes examined for bactericidal activity. A group of 30 mice, similarly housed but not exposed to irradiation, served as controls.

Results. A summary of the results is presented in Table I. As previously shown(1), the number of exudate cells which could be recovered from the mice decreased with increasing amounts of irradiation. Extent of decrease, however, was not as marked as when the same amount of x-radiation was given in a single dose.

The volume of cells (1.2 mm^3/mouse) obtained from mice which had accumulated 2695 r during 3 weeks exposure at 128 r/d was about the same as that obtained from mice irradiated with 500 r in a single acute exposure.

The decrease in bactericidal activity was also less marked when the mice were exposed to 128 r/day. A substantial fall in bactericidal activity occurred only after a total of 1800 r had been administered, whereas 500 r was sufficient to cause a similar decrease when administered in a single dose. Fig. 1 illustrates the differences between effects of single dose x-irradiation and continuous low dose gamma irradiation on bactericidal activity. The percentage of those intracellular bacteria initially present which were still viable after 4 hours *in vitro* is plotted against total amount of irradiation administered.

Summary. Mice were subjected to continuous gamma radiation (128 r/22 hours) for 3 weeks, and bactericidal activity of their phagocytes determined at weekly intervals. Bactericidal activity declined gradually through 2 weeks exposure (1800 r) then fell off rapidly in the third week (2695 r). These results are compared to those obtained with mice exposed to single doses of x-irradiation.

‡ Dosimetry and planning for irradiation of animals were carried out by members of research staff of Argonne Cancer Research Hosp., USAEC, at Univ. of Chicago.

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