

PRODUCTION OF A STRAIN OF HUMAN OSTEOGENIC SARCOMA CELL LINE  
HOS TRANSPLANTABLE INTO NUDE MICE AND RATSE. S. Revazova, Yu. N. Solov'ev,  
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UDC 616.71-006.34-089.843-092.9

KEY WORDS: sarcoma, cell transplantation.

Many cell lines of human malignant tumors transplantable in vitro form tumors in nude mice and rats. In some cases, however, tumors cannot be obtained in nude animals by transplantation of malignant human tumor cells from tissue culture into them. According to data obtained by some workers, the HOS cell line obtained from biopsy material from a human osteogenic sarcoma [1], on transplantation into nude mice, did not lead to the reproduction of tumor growth [2, 3]. This paper describes transplantation of cells of the HOS line into nude mice with the production of a strain from this tumor.

## EXPERIMENTAL METHOD

The HOS cell line was cultured in Eagle's medium with 10% calf serum; the seeding dose was  $7 \times 10^4$  cells in 1 ml, the multiplicity of seeding 1:4 and 1:6, and the frequency of subculture after every 5-7 days. The monolayer was kept for a long time on glass; it was removed by versene with chymotrypsin. The culture consisted of large polymorphic cells with large nuclei and with nucleoli of various shapes. The cytoplasm was granular and the karyotype corresponded to the appearance. The modal class was 47-50 chromosomes and the marker a long subtelocentric.

Nude mice based on line BALB/c aged 6-8 weeks and nude rats aged 4-6 weeks were used. The animals were kept under conventional conditions.

## EXPERIMENTAL RESULTS

HOS cells from culture were injected subcutaneously in a dose of  $10^6$  into a nude mouse. A tumor appeared 7.5 months later at the site of transplantation. It was then transplanted into three mice, in which tumors developed 2.5 months later. On serial passage of the tumor in nude mice the latent period from transplantation to the appearance of a tumor gradually diminished, and the rate of growth of the tumor increased. As a result of long serial passage (by now the tumor has undergone more than 30 passages) the parameters of tumor growth have stabilized. The interval between transplantations is 18 days. The tumor has a 100% take rate and possesses stable growth parameters. The largest size of the tumors in nude mice is  $8 \pm 1.5$  g, and in nude rats  $62 \pm 10$  g. The histological picture of the tumors remains unchanged throughout the period of passage. The tumor tissue at all passages is basically uniform in structure and consists of moderately polymorphic, large polygonal and elongated cells with a vesicular nucleus and with solitary distinct nucleoli (Figs. 1 and 2). The cytoplasm of most cells was pale and sometimes eosinophilic. Atypical mitotic figures were comparatively numerous. The positive fibrous stroma in the tumor tissue was weakly represented.

As a result of prolonged serial passage from a cell culture of human osteogenic sarcoma strain HOS, a strain transplantable into nude mice and rats was thus obtained. It is an interesting fact that the tumor did not appear in the nude mouse until 7.5 months had elapsed after transplantation of its cells from tissue culture. According to observations of other workers, the HOS cell line cannot induce tumor formation in nude mice. This may perhaps be explained by too short a period of observation of the animals after transplantation. However,

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All-Union Oncologic Scientific Center, Academy of Medical Sciences of the USSR. Institute of Virology, Academy of Medical Sciences of the USSR, Moscow. Translated from *Byulleten' Eksperimental'noi Biologii i Meditsiny*, Vol. 106, No. 10, pp. 471-472, October, 1988. Original article submitted October 19, 1987.

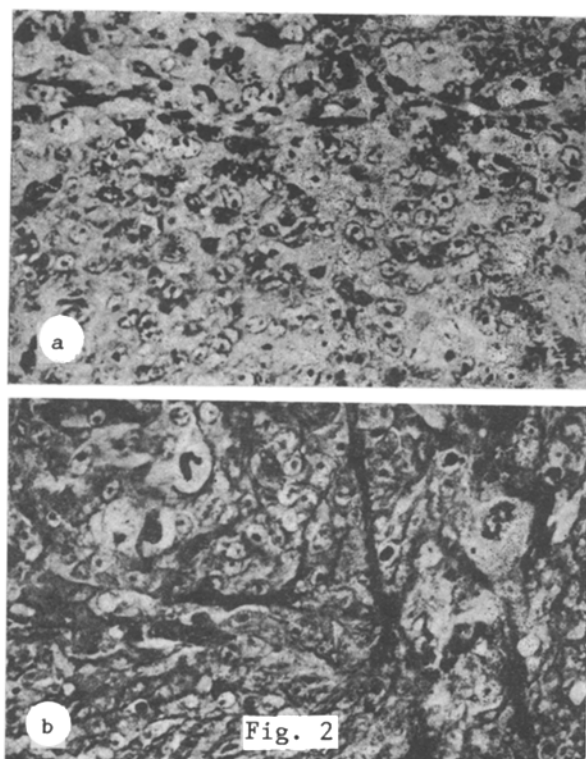
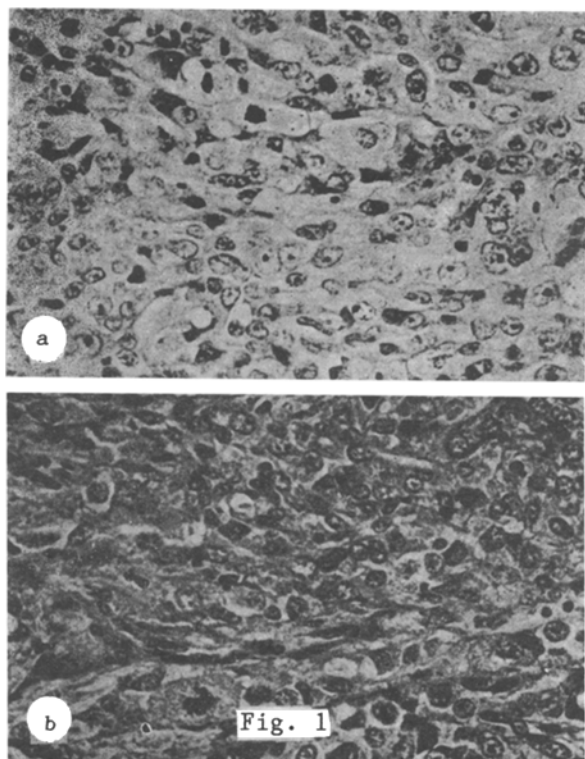


Fig. 1. Strain HOS, polymorphocellular sarcoma, first generation. a) Hematoxylin and eosin, b) PAS reaction. Here and in Fig. 2: magnification 250.

Fig. 2. Strain HOS, polymorphocellular sarcoma, 31st generation. a) Hematoxylin and eosin, b) PAS reaction.

it was shown that after transfection with the oncogene or treatment with a carcinogen the cells of this line can form tumors in nude mice after only 2 weeks.

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