

MEDICINE

# Cancer Resistance Tested

More than 20 advanced cancer patients volunteered for tissue culture experiments to investigate human resistance to cancer. The findings seem hopeful, Faye Marley reports.

► MORE THAN 20 advanced cancer patients in Buffalo, N. Y., who knew they could not live anyway, volunteered for a tissue culture experiment that may lead to eventual help or cure for others, Dr. George E. Moore, director of the Roswell Park Memorial Institute, told SCIENCE SERVICE.

Dr. Moore reported findings on "host resistance" to the final session of the 13th annual meeting of the Tissue Culture Association, and offered six human cell lines grown on glass and in suspension cultures to other scientists attending the conference.

Dr. Moore said in an interview that he and his collaborators were interested in knowing whether or not humans have resistance to cancer and whether those who have developed cancer have lost their resistance.

"We injected volunteers with tiny bits of their own tumors and with bits of wild fast-growing tumor cells produced in the laboratory from human cancer," he explained. "In 70% of the cases the implanted tumor cells regressed or disappeared after growing temporarily. In all but two of these cases the tumor cells regressed within five weeks, but in two instances, the implants survived for 12 and 14 weeks respectively."

Asked whether this indicated immunity,

Dr. Moore answered that the resistance factors he and his colleagues found were more than the old antibody immunity. He said there might be a relation of cells to other cells that can destroy the tumor.

Although Dr. Moore is hopeful about future findings in the area of host resistance, he does not believe this will be the big breakthrough that some optimistic scientists forecast.

"There are at least 106 different kinds of cancer," he said. "We'll cure one after another, but I see no great sudden breakthrough that would apply to all types of malignancy."

He compared methotrexate, the drug that has been found to cure choriocarcinoma, the rare malignancy of the placenta related to childbirth, to penicillin, which will cure streptococcus infections but is not effective against tetanus.

"We must look for other types of chemotherapy, or drug treatment, that will apply to other kinds of cancer," he said.

At the meeting, Dr. Moore reported that human cancer cell lines from gall bladder, ovary, kidney and other types of malignancy were inoculated into mice bearing the ACTH-secreting pituitary tumor described by other investigators.

"Cortisone will knock out the resistance of animals to these cancer cells so they will not respond to cancer drugs," he explained.

Dr. Moore agrees with other investigators that surgery can remove the major part of certain cancers, but that drugs used at the same time can work on other cancer cells. With the added factor of host resistance, he is hopeful for progress against malignant tumors, many of which metastasize beyond the reach of surgery.

The Roswell Park Memorial Institute receives most of its funds from New York State, and legal residents of the state can go there for tumor treatment.

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## Hope for MS Victims Seen

► EVENTUAL HOPE for victims of multiple sclerosis (MS) was suggested in a report of the experiments of Dr. Murray B. Bornstein, department of neurology, Mount Sinai Hospital, New York, showing that myelin (fatty sheath of nerve fiber) can regenerate after it has been destroyed.

Demyelination has been considered an "irreversible" condition of MS for many years.

What Dr. Bornstein and his co-worker, Dr. Stanley H. Appel, have done is to show that demyelinated cultures of mammalian brain tissue will improve and remyelinate after being returned to a normal environment "in vitro" or in test tube culture.

"So far, the importance of what we have done," Dr. Bornstein told SCIENCE SERVICE, "is to find a method for laboratory investigation into factors which may or may not be related to the cause of the disease."

Cultures will lose their myelin when exposed to the blood of laboratory animals in which experimental "allergic" encephalomyelitis (EAE) has been produced. This disorder imitates certain aspects of human demyelinating diseases, including MS. The same pattern of test tube demyelination is produced by the blood of more than 50% of patients studied.

"The significance of this finding," Dr. Bornstein said, "is still to be determined. It may take us five years to determine whether or not this is of any importance in understanding these diseases."

Dr. Bornstein spoke at the 13th annual meeting of the Tissue Culture Association in Washington, D. C.

When he reported his experiments to the National Multiple Sclerosis Society in New York, the Society's medical and research director, Dr. Thomas L. Willmon, said, "This is extremely important or of no value at all."

Dr. Willmon said that tissue culture, particularly the growth of neurological tissue in test tubes, represents a tremendous advance in research on disease of the nervous system.

In cultures, he said, endless manipulations can be performed and results observed that could not be done on the intact brain itself. Substances that are biochemically involved can be studied in relation to myelin development.

Techniques of photography through light and electron microscopy are now being used.

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**TISSUE CULTURE RESEARCH**—Dr. George E. Moore, director, Roswell Park Memorial Institute, and chief of surgery, looks at cancer cells.