

MEDICINE

Cancer Drug Promising

A chemical compound, 5-fluorouracil, has been synthesized that is lethal to cancer cells and has proved to be successful in treating a number of different kinds of cancer.

► THE PROMISE of a new chemical anti-cancer drug as well as the continued success of a proven method of cancer therapy has been reported.

This new drug, which so far has shown some promise, is called 5-fluorouracil. It was synthesized by Dr. Charles Heidelberger of McArdle Memorial Laboratory of the University of Wisconsin and Dr. Robert C. Duschinsky of Hoffmann-La Roche, Inc., Nutley, N. J.

In designing the drug, Dr. Heidelberger made use of the fact that cancer cells take up a substance named uracil from the blood at a much faster rate than normal cells.

Since the substance was found to be utilized for synthesis of nucleic acid by both kinds of cells, Dr. Heidelberger reasoned that the uracil molecule might be altered to produce a chemical lethal to cancerous cells while leaving normal cells unharmed.

One drawback of the drug is its extreme toxicity, Dr. Heidelberger's co-worker, Dr. Anthony R. Curreri of the Cancer Research Hospital at the University told a group of science writers on a tour sponsored by the American Cancer Society. When handled properly, he added, it has proven to be highly successful in treatment of breast,

ovary, gastro-intestinal and transitional cell cancers. However, he claims no regression due to the chemical.

Dr. Curreri explained that all available evidence has led him to believe that the state of extreme toxicity must be reached before treatment becomes effective.

Continued success in the field of chemosurgery for removal of facial and other skin cancers was reported by Dr. Frederic E. Mohs, director of the chemosurgery clinic, University Hospitals, University of Wisconsin.

Data at this time show that of 2,888 cases of skin cancer treated by chemosurgery, 95.5% resulted in a five-year cure, Dr. Mohs said.

Treatment of cancer of the lip, by means of chemosurgery, resulted in a 92.3% cure. The advantages which Dr. Mohs reported for this method included the low percentage of mortality.

The chemosurgery itself has been used for a number of years. It involves treating the cancer-suspected tissue with chemicals which will kill the tissue and yet preserve its microscopic appearance.

The dead tissue is then removed as a flat layer which is cut up into specimens.

These removed specimens are then scanned microscopically. Since they are rapidly frozen, they may be scanned under the microscope within a matter of minutes. Thus the exact area of the remaining areas of cancer may be spotted and marked.

Further treatment is then limited to the selective area and makes it unnecessary to remove wide swaths of surrounding normal tissue, Dr. Mohs explained.

A full report of the one-year study was delivered at a meeting of the American Association of Cancer Research in Philadelphia.

Science News Letter, April 19, 1958

● RADIO

Saturday, April 26, 1958, 1:30-1:45 p.m., EST
"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio network. Check your local CBS station.

Prof. John H. Flynn, director of student personnel services, Boston University College of Industrial Technology, and assistant professor of guidance, Boston University, Boston, Mass., will discuss "Using Engineers Efficiently."

MEDICINE

Lab Technique Studies "Live" Human Muscle

► A BREAKTHROUGH in the baffling area of neuromuscular diseases may result one day from a new laboratory technique for the study of human muscle tissues.

The technique, developed by Drs. J. B. Dillon, Dermot B. Taylor and associates of the University of California at Los Angeles Medical School, has made possible the study of the action of various drugs on small bits of muscle tissue excised during surgical operations.

Dr. Dillon recently described the experiments before the California Myasthenia Gravis Foundation meeting in Los Angeles.

Two small bits of muscle, usually obtained from between the ribs, are suspended in a saline bath and electrically stimulated. This approximates actual muscle "living conditions." With this technique the effects of various drugs on the muscle can be measured by sensitive instruments.

"The importance of the new development," Dr. Dillon explained, "is that for the first time such direct studies of contracting human muscle tissue are possible." Animal muscle tissues have, of course, been studied for years but species difference sometimes obscures vital data.

"This also opens the door to fundamental research on neuromuscular diseases of humans, such as myasthenia gravis, which have no counterpart in other species," he said. The unusual sensitivity of myasthenia muscle to curare has recently been demonstrated in the laboratory.

Dr. Dillon urged that myasthenia patients volunteer to contribute muscle specimens to the research. He said that the tiny specimens can be taken without excessive risk or discomfort.

"We hope that through such research it may be possible to find the cause and cure of this disease about which so little is known," he added.

Science News Letter, April 19, 1958



ELECTRONIC SURVEYING—Engineers using an electronic technique developed by Tellurometer, Inc., Washington, D. C., can be miles apart and out of sight of each other and yet measure distances with a maximum error of 11 inches in 40 miles. A surveyor, shown in the photograph, operates a small radar transmitter sending microwaves to a distant receiver. The time it takes the waves to make the round trip gives the distance.