

MEDICINE

Tell if Cancer Drugs Work

Test developed to determine whether treatment for cancer or leukemia will help a particular patient. May save weeks of waiting.

➤ **CANCER** and leukemia patients may be saved days and weeks of waiting to see whether a new treatment will help them by having a test of two chemicals in their blood serum, Drs. Frank W. Ellis and Philip M. West of the Veterans Administration Hospital at Long Beach and the School of Medicine of the University of California at Los Angeles report.

The test is not a diagnostic test to determine whether the patient has cancer. It is a test to see whether hormone treatments, urethane and other chemicals will help a particular patient temporarily, even if they do not cure him. A recurrence or reactivation of the disease may also be picked up by this test before it has gone so far that the patient cannot stand intensive treatment.

Measuring the amounts of two chemicals in blood serum and determining the proportions of one to the other is essentially what the test is. The two chemicals are in-

hibitors, substances that block the activity of the enzymes rennin and chymotrypsin.

The chymotrypsin inhibitor apparently is an index of cancerous activity and the rennin inhibitor reflects the resistance of the host, or patient. Why these chemicals reflect this change in the activity of the cancerous disease is not known. Drs. Ellis and West are now trying to determine the source of these inhibitor chemicals, their biochemical nature and the mechanism by which they are released into the blood stream.

The value of the test in trial of new drugs and management of the cancer patient has been substantiated by daily use of it for three years during which time over 30,000 tests have been made. In their report to the *JOURNAL OF CLINICAL INVESTIGATION* (June), Drs. Ellis and West state that in "by far the majority of cases" seen in a tumor service the results of the test make up "the only simple and objective indicator of the patient's progress."



PRESERVING THE CONSTITUTION—*The Constitution and the Declaration of Independence of the United States will be permanently preserved in specially designed glass enclosures filled with helium. Here E. C. Creitz of the National Bureau of Standards, which developed the method, adjusts the flow of pure helium into the humidifying unit from which it is directed into the document enclosure.*

"Frequently," they point out, "an individual with cancer, in his enthusiasm over a new drug, may feel that he is benefited, but the enzyme patterns reveal whether or not there is any basis for his subjective improvement.

"On the other hand, highly significant but weak, subclinical effects on the tumor may be produced by an agent under investigation which would have escaped notice without a sensitive measure of neoplastic (cancerous) activity."

The aim of treatment, they report, is to keep the chymotrypsin inhibitor at five units or less and the rennin inhibitor at 15 units or more. This equilibrium between the two has been found associated with complete checking or regression of the tumor.

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AERONAUTICAL ENGINEERING

Giant Electric Wind-Tunnel Motors Use Liquid Rheostats

➤ **THE GIANT** electric motors that will power the world's most powerful wind tunnel to be built by the government at the Arnold Engineering Development Center, Tullahoma, Tenn., will be controlled by liquid rheostats, the largest ever built, Westinghouse engineers revealed. The rheostats will be constructed in the Westinghouse plant in Buffalo, N. Y.

Rheostats control the speed of motors by regulating the amount of electric current delivered to them. They introduce more or less electrical resistance into the circuit to decrease or increase the current flow. In the liquid type, the current passes through an alkaline solution from one electrode to another. One electrode is adjustable so that the distance through the solution can be changed.

Two liquid rheostats will be used on this installation. Each will be more than 20 feet high, and will contain three nine-foot tanks in which the alkaline solution is circulated. The bottom electrode in each of these vertical tanks is stationary and is a nickel-clad steel plate.

The upper electrode is attached to a movable plunger-like support at the top. The three tanks operate as a single unit. A particular feature of these rheostats is ability to dissipate rapidly the heat created within them.

The wind tunnel to be constructed soon at the Arnold Center, which will be a great research institution under the U. S. Air Force to study problems concerned with supersonic aircraft and missile speeds, will have a multi-stage compressor system that will require over 200,000 horsepower to operate. Two of the motors to be used will be the most powerful in the world, it is claimed. They will exceed the 65,000-horsepower rating of the Westinghouse motors built for Grand Coulee Dam in the state of Washington.

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