MEDICINE

Drugs Pin-Point Cancer

Three antibiotics that have an affinity for cancerous tissue may be used as carriers for cancer-killing drugs, providing scientists with a new weapon for combating the disease.

➤ THREE ANTIBIOTICS have been found to seek out cancers better than any other known drugs, Dr. Ti Li Loo, a member of the research team at the National Cancer Institute, Bethesda, Md., which made the discovery, told SCIENCE SERVICE.

The antibiotics themselves will not cure cancer, but scientists hope they can be used as carriers for the drugs that will.

Here is how they would work:

A known anti-cancer drug with the power to kill cancerous tissue would be combined with the antibiotic and the combination would be injected into the body.

The antibiotic would act like a freight train, carrying the drug to the spot where it would do the most good, and keeping it there long enough to kill the cancer.

Before this can even be attempted much research still has to be done, but the technique appears to be one of the most promising avenues open to a chemical attack on cancer.

Known as Aureomycin, Terramycin and Achromycin, the antibiotics are members of a group chemically called the tetracyclines. They not only show a unique affinity for cancerous tissue, but they also seek out a greater variety of tumors than any other known drugs, Dr. Loo said.

They show two other important characteristics. One is to shine with a bright yellow fluorescence under ultraviolet light and the other is to remain in the tumor tissue for periods as long as 20 days.

It was this fluorescence which first put the researchers on the trail of the drugs, after they noticed in postmortem studies that cancers were shining under ultraviolet light. All drugs received by the patients were reviewed and the tetracyclines were found to be causing the fluorescence.

This characteristic may be a valuable help in diagnosis, especially for determining whether a cancer has metastasized or spread from its original site. A tetracycline injection would make any other involved organs show up bright yellow under the special light.

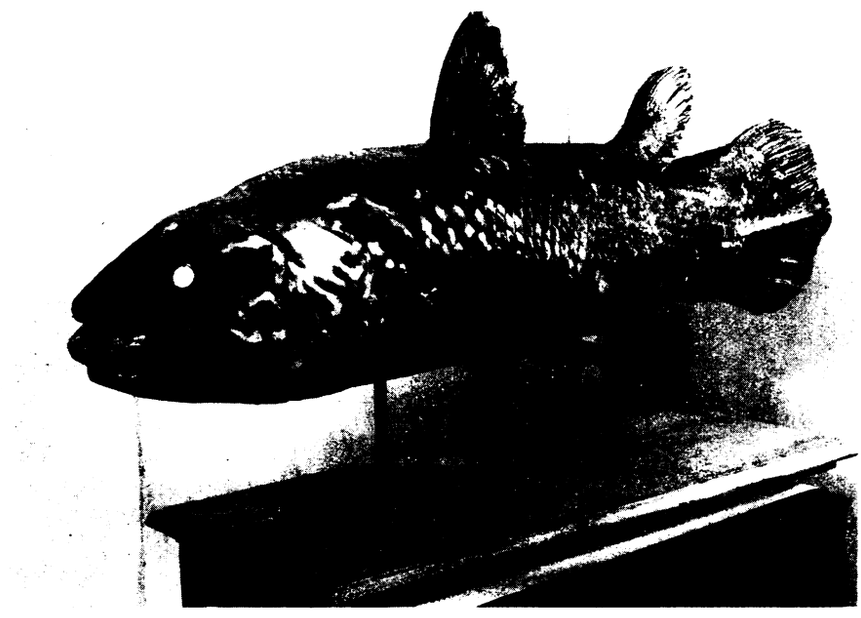
The drugs' use in diagnosis would be limited, however, since the tissue and organs to be checked would have to be exposed by exploratory surgery. A person could not just stand in front of an ultraviolet light for a cancer check.

Exactly why the antibiotics have an affinity for cancerous tissue as well as the ends of bones, or why they remain localized within cancerous tissues are still unknown, although research along these lines is now being pushed, he added.

Animal experiments showed the antibiotics had no apparent effect on the growth of tumors, although the experiments were not designed as a critical check on anti-cancer activity.

The research is reported by Dr. Loo, and Drs. David P. Rall, Montague Lane and Margaret G. Kelly of the National Cancer Institute, in the *Journal of the National Cancer Institute* (July).

Science News Letter, August 17, 1957



LIVING FOSSIL—A life-like cast of a female Latimeria, *the "living coelacanth" which is very much like its ancestor of 300,000,000 years ago, has been purchased from the Natural History Museum in Paris, France. It is the first such cast to be shown in the United States and is on display at the American Museum of Natural History, New York.*

BIOLOGY

Skin Grafts From Rat Made to Grow on Mice

➤ RAT SKIN can be grown on mice who have first received rat bone marrow to protect them against radiation damage, scientists at the National Defence Research Council, The Netherlands, report in *Nature* (Aug. 3).

This has not been possible in the past because skin grafts from one species of animal to another have always refused to "take" and been sloughed off by the new host.

Rats and mice, although they are both rodents, belong to two different species.

The irradiated mice were protected with transplants of rat bone marrow and received what would otherwise have been lethal doses of X-rays. In 35 survivors, small pieces of rat skin were then grafted on the mice. In 10 animals the rat skin took and was growing normally up to 108 days later, the authors reported.

The determining factor appears to be the number of the mouse's blood cells which are really rat cells, having been produced by the transplanted bone marrow. In mice which accepted the rat skin, all the red cells, plus many other blood cells, were of rat origin.

In nine mice, the skin grafts were deteriorating and an examination of their blood showed that it was a mixture of both rat and mouse cells.

In the three cases where the skin graft sloughed off completely no rat blood cells at all were found near the skin.

Some mice even refused to accept their own skin back after the marrow transplantations and sloughed it off within 10 to 30 days.

Reporting the work are O. Brocades Zaalberg, O. Vos and D. W. van Bekkum of the Medical Biological Laboratory.

Science News Letter, August 17, 1957

PALEONTOLOGY

Model Coelacanth Exhibited in Museum

➤ A CAST, approximately five feet long, of *Latimeria chalumnae,* "the living coelacanth," has been acquired by the American Museum of Natural History, New York City.

Until its discovery in 1938, it was believed the fish became extinct 75,000,000 years ago. To date 12 living specimens have been captured. All of them, except the first which was taken off the coast of South Africa, were found near the Comoro Islands, off Africa's east coast.

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