

October 1, 2001

Molecule May Kill Cancer Tumors

By THE ASSOCIATED PRESS

Filed at 5:01 p.m. ET

WASHINGTON (AP) -- Scientists have developed a molecule that appears to make cancer its own worst enemy.

In laboratory tests on mice, the molecule -- called icon -- killed tumors by destroying the blood vessels that feed them. It also caused the cancers to produce copies of icon, which spread through the body and attacked other cancers.

The process eliminated human melanoma and prostate cancers in the tested mice. The first trials in people are planned for next year.

Drugs that inhibit the growth of the blood vessels that feed cancer have received wide attention in recent years, though early results reported last spring showed less promise than had been hoped for.

The new therapy, developed by researchers Alan Garen and Zhiwei Hu at Yale University, takes a different approach, attacking the cells lining the blood vessels in tumors rather than trying to prevent the growth of new blood vessels. Their findings are reported in Tuesday's issue of Proceedings of the National Academy of Sciences.

"We're excited about it," Garen said. But he cautioned, "From mice to men, that is a big jump. Until the trial is done with patients you can't be sure."

Dr. Albert Deisseroth of the Sidney Kimmel Cancer Center in San Diego is arranging clinical trials, which he hopes to launch next spring once approval is obtained from the Food and Drug Administration.

He also cautioned against jumping to conclusions about possible new cancer therapy. "There are differences between animals and human beings."

But, Deisseroth added, "when studies in animals are so reproducible and encouraging ... then you feel justified to invite individuals who are not responding to other forms of therapy to participate" in trials.

The first trial will focus on people with melanoma -- a type of skin cancer -- that has spread throughout the body, he said.

While the animal tests have worked on prostate cancer and melanoma, in theory the therapy should work on any solid cancer, Deisseroth said.

Garen said that cells lining the blood vessels in tumors have a receptor on their surface called TF (tissue factor), which is not present on the cells lining blood vessels in other parts of the body.

His team found that a molecule circulating in the blood called fVII bonds strongly to TF.

The researchers created their new molecule by attaching an fVII molecule to a portion of a human antibody called Fc. Fc causes the breakdown of cells it binds to and activates the body's immune system to attack those cells.

The new icon molecule was inserted in a harmless virus that was injected directly into a tumor. Once infected, the tumor cells produce more icon and secrete it into the blood, where it circulates. When it encounters a tumor, it binds to the TF in its blood vessels, destroying them.

In mice with human melanoma or prostate cancer that received the molecule, both the injected tumor and others that were not directly injected disappeared.

“The mice appeared to be free of the disease and in good health at the end of the experiments, which lasted up to 194 days,” the researchers reported.

Control mice with similar cancers that did not receive the molecule died within 63 days. Derrick Grant, a blood-vessel expert at Thomas Jefferson University in Philadelphia, called the findings “very exciting.”

The paper “puts a new and important spin on Judah Folkman's hypotheses that destroying the tumor vasculature can stop tumor growth,” he said. Folkman, of Boston Children's Hospital, is a pioneer in efforts to battle cancer by attacking its blood supply.

Transferring the molecule into a tumor in a virus that forces the tumor to make more of the anti-cancer molecule “is brilliant and deserves praise,” Grant said.

Copyright 2001 The Associated Press | Privacy

Information