

# WEEKEND

## RESEARCH

### Protein may block cancer defenses

By CINDY DUNLEVY  
Staff Writer

For years, researchers have tried to solve the mystery of why the body is unable to fight cancer cells. And now, scientists at Duke University Medical Center say they may have found the answer.

Several years ago an observation at Duke University Medical Center showed that cancer patients suffered from an immune deficiency that prevented the fighting of malignant cells. But after surgical removal of these tumor cells, the immune system regained its force.

Now scientists at the Duke Medical Center, Drs. Ralph Snyderman and George Cianciolo, have found a protein that envelops the tumor cells and diverts normal attacking defenses from the cancerous area. This protein shields the tumor from the body's natural defense macrophages, large trackers and devourers of

foreign materials in the body, Snyderman said. The protein surrounding the cell sends signals tricking the immune system into allowing the cells to remain, he said. The macrophages believe the cancer to be a normal part of the body, so it escapes attack.

"This protein is similar to those found in cancer-producing viruses that enter the body, so the protein is synthesized by the tumor cells themselves," Snyderman said.

Tumor cells sustain their growth against the body's miraculous immune system with chemical signals, which they send to the macrophages, he said. With no command to attack, the macrophages simply do not recognize any foreign growth.

The Duke scientists recently found this protein in laboratory mice, but 1970 marked the beginning of these initial studies.

Snyderman began in the early '70s with the study of chemotactic responses, white blood cell

responses to chemical signals.

Cianciolo joined the team of researchers in 1978. "When I came to the lab, this research was the major direction of the laboratory," he said. "You get a good feeling, especially when you know that your paper is going to be published."

Snyderman is professor of medicine and chief of the rheumatic and genetic disease division at Duke. "Rheumatic diseases are generally those associated with arthritis, but they are any inflammatory disease," Snyderman said.

Working with the Duke scientists were Drs. Mark E. Lobstrom and Milton Tam of Genetic Systems Inc. of Seattle.

Other research in the Division of Rheumatic and Genetic Diseases includes work with monoclonal antibodies headed by Dr. Barton Haynes. His work concerns understanding viral effects on human cells which could prove vital in diagnosing and treating leukemia. Duke is now among the nation's leaders in the study of monoclonal antibodies.

### Drugs submitted to FDA

### Treatment for herpes virus developed

By CINDY DUNLEVY  
Staff Writer

A new form of an anti-herpes drug and a new type of anti-depressant have been submitted by Burroughs Wellcome to the Federal Drug Administration.

Burroughs Wellcome, a pharmaceutical research center in Research Triangle Park, has submitted the oral form of Zovirax, which will be prescribed to treat and manage Herpes Simplex virus infections.

In March 1982, the FDA approved Zovirax (Acyclovir is the generic) in its ointment form, making it the first approved drug for genital herpes, a virus which afflicts 25 million people in the United States.

There are many over-the-counter drugs claiming to work against herpes, but Zovirax is still the only FDA-approved drug used in hospitals and by prescription to fight against herpes viruses.

The FDA also has approved the intravenous form of Zovirax, which

helps manage chronic infections in hospitalized patients. In patients whose own natural defenses are suppressed, Zovirax can be life-sustaining.

For a child being treated for leukemia, a cold sore (Herpes Simplex I) can become disfiguring and even fatal since his immune system is suppressed by chemotherapy.

Also, the immune systems of transplant patients are artificially suppressed to keep their bodies from rejecting organs. Zovirax is used to ward off Herpes infections in these situations.

About 200,000 people develop herpes when their immune systems are impaired, and for 20 percent the virus proves to be fatal.

Terri Creagh-Kirk, a clinical scientist at Burroughs Wellcome, said Zovirax has prevented reoccurrence of the herpes infection in 85 percent of the people treated with the ointment and intravenous forms.

"These were people who had chronic lesions each time," Creagh-

Kirk said. "These people treat every episode of the herpes infection, and we are hoping the virus will deplete itself as the chemical in Zovirax attacks the invaded cells."

Herpes invades normal cells by traveling along nerve fibers and entering the ganglion, which is a bundle of nerves near the spinal column. There the virus lies dormant until stimulated to travel again across nerve fibers where it returns to the skin. The infection then invades a new cell.

Dannie King, former head of Burroughs Wellcome Medical Virology Section, said the herpes virus, when stimulated to cross the nerve fibers, converts Zovirax to a form that is toxic to the virus cell itself. King said there is no evidence that Zovirax will eliminate the virus from the body, but it attacks it and keeps it from spreading.

The advantage of the oral form of Zovirax is its speed in entering the bloodstream and its preventing the virus from spreading.

The oral capsule may be available some time in 1983, King said.

The other drug Burroughs Wellcome has under FDA review is an anti-depressant. A number of anti-depressants are available, but Burroughs' new Well-Botrin has fewer side effects. "One thing, it doesn't cause you to feel very drowsy, and it doesn't make you feel hungry. It slightly suppresses the appetite," Creagh-Kirk said. "You know you take an anti-depressant and gain weight then get depressed all over again. It can be vicious."

Also, Well-Botrin is an alternative for those who cannot tolerate other anti-depressants. Well-Botrin does not increase the heart rate as others do, so it is very effective for the elderly.

Burroughs Wellcome has 1,071 employees, and all profits go back into the company for more research. The center is one of the best-equipped in the United States for biological research and houses researchers from all over the world.



A white mouse helps test a research hypothesis. Duke scientists believe a protein recently found in mice shields cancer cells from the body's natural defenses.

## in the Triangle...

### Research Triangle lures many scientists

By CINDY DUNLEVY  
Staff Writer

Possums, pines and Ph.D.'s is how U.S. News and World Report describes the Research Triangle Park (RTP).

Nestled deep in North Carolina's tranquil greenery are some 33 pure research companies busy with discovery. The "goodliest land," which for ages was known only for its poor economy and farming, is luring scientists from all over the world with this research network.

The Research Triangle Park, the largest pure research park in the United States, and the Triangle area rank first in per capita level of Ph.D.'s in the country. This influx of talent is something new for North Carolina since for years its main industry has been the education of other states' students. (North Carolina has a higher concentration of colleges and universities than any other state.)

Now the home folks are returning. Tom Wooten, executive assistant at the Research Triangle Institute, said after graduation from Duke University he thought opportunities for engineering were best found out of state. But then his father

sent him an article about RTP. "He (his dad) said there might be some opportunities here in North Carolina by the time I got my Ph.D. He was right," Wooten told U.S. News and World Report. Wooten had good offers outside the South but wanted to remain with RTP. "I like to fish," he added. "In just a little time, you can drive to the Outer Banks."

Twenty years ago, Governor Luther Hodges encouraged the three surrounding universities, Duke, N.C. State and UNC, to initiate planning of a research park. He said the universities could attract buyers and make money. However, the profit-making motive faded and the focus became non-profit, concentrating on higher research possibilities.

Today RTP includes the National Aeronautics and Space Administration, Union Carbide Corp., Environmental Protection Agency and Research Center, Burroughs Wellcome Co. and General Electric Research Laboratories.

UNC President William Friday said in 1978 that he saw growth of the Park eventually opening a single academic umbrella where different research and findings could complement each other.

### Building dedication

### Blood researcher to be honored

Fruits of his works have circled the globe, touching millions of people who suffer from the bleeding disorder hemophilia.

World-renowned for his pioneering work in blood coagulation, Dr. Kenneth M. Brinkhous will be honored Oct. 29 with the dedication of the Brinkhous-Bullitt Building. Brinkhous has devoted nearly half a century to investigating blood-clotting mechanisms and treatment of hemophilia.

Research by Brinkhous and others in hemophilia has made The Comprehensive Hemophilia Center at UNC one of the largest centers in the world treating and researching bleeding dis-

orders. In 1953 Brinkhous, Dr. Robert Langell and Dr. Robert Wagner developed a major breakthrough in diagnosing bleeding diseases.

In a UNC news release, Dr. Harold Roberts, former director of the UNC Hemophilia Center, estimated this test is run of 4,000 people a month at the N.C. Memorial Hospital Clinical Coagulation Laboratory.

"The test is simple, versatile and accurate," Roberts said. "I can't begin to calculate how many times the test has been used around the world."

— CINDY DUNLEVY



Kimberly Tanner, a research technician in a cancer research laboratory at Duke University, pipettes radioactively labeled proteins. She is preparing them for further analysis in ongoing scientific studies in the Research Triangle area.