The University of Colorado medical school announced a first-of-its-kind program Thursday aimed at attracting major clinical trials on cancer patients in search of drugs that will kill cancer stem cells.

Scientists across the world are trying to wipe out the resilient cancer stem cell — the one responsible for initiating the disease and the one that often isn't killed off by chemotherapy or radiation, instead clinging to life and later launching a relapse.

But CU is the first to dedicate a program solely to testing drugs that target and destroy the cells at the root of cancer, Colorado researchers said.

"We want to be known nationally as the place to go if a company has a new drug that they think may be targeted against cancer stem cells," said Dennis Roop, who will co-chair the new clinical-trials program.

Research targeting cancer stem cells is among the hottest areas of investigation at cancer centers.

Johns Hopkins University scientists, for example, have discovered cancer stem cells have numerous ways of resisting chemotherapy. At the University of Michigan, researchers found that a compound derived from broccoli may help prevent breast cancer by targeting cancer stem cells.

Michigan's Dr. Mark Prince, a surgeon and professor who focuses on head and neck cancer, said CU's new program is significant, but called it "sort of a marketing gimmick" to attract drug companies.

"It's important and it's great that they singled that out," Prince said. "But lots of places have been (studying cancer stem cells) for longer than Colorado."

CU's new program is a collaboration between the School of Medicine's stem-cell center and its cancer center, each of which is kicking in about $200,000 as seed money. Once the program is established, its directors expect it will operate on funds from drug manufacturers who pay for clinical trials.
They also expect cancer patients from across the region and beyond will enroll in cancer stem-cell clinical trials at CU.

Cancer stem cells, or cancer-precursor cells, are at the root of the disease, just as embryonic stem cells are at the root of embryos. Dr. Antonio Jimeno, a head-and-neck cancer scientist who will direct the new program, describes cancer stem cells as the generals of the cancer army.

"We are now learning that many cancers are more complex than we thought; we thought they were just a group of cells that were completely identical," he said.

Instead, scientists now know the cancer stem cell can produce batches of generic cancer cells that spread and create tumors. Traditional therapies — chemo and radiation — might shrink the tumor but leave behind the stem cells.

Cancer stem cells are adult stem cells genetically damaged by sun exposure, tobacco and other carcinogens. They make up less than 0.1 percent of all cells in a tumor.

One of the major goals of current research is to find a way to kill cancer stem cells without killing normal adult stem cells, the ones responsible for re-growing hair, blood, skin and other organs.

The point is to find drug treatments that "kill the cancer without almost killing the patient," Roop said.

Jimeno said the center will focus on finding out cancer stem cells' "weaknesses, their Achilles' heel," and then looking for drugs to "exquisitely eliminate them" to cure the disease.

"We want to be smarter than cancer," Jimeno said.

*Jennifer Brown: 303-954-1593 or jenbrown@denverpost.com*