

Isotron licenses ORNL cancer treatment technology

The license allows Isotron to market a treatment called neutron brachytherapy, which enables physicians to deliver a highly concentrated dose of californium-252 neutrons to the site of a tumor instead of having to treat the tumor with conventional gamma rays, which often are not as effective at killing cancer cells. The benefit to patients should be tremendous.

"This new procedure could be used to more effectively treat literally thousands of patients with cancer, including brain tumors, some of which today have five-year survival rates of less than 1 percent," said Manfred Sandler, a cardiologist and chief executive officer of Isotron. "So we see this as an extremely significant development in the race to cure cancer."

The key to the new treatment is the miniaturization of the californium-252 source, which allows physicians to insert the radioisotope through a catheter directly to the tumor site. Researchers at Isotron and in ORNL's Nuclear Science & Technology Division reduced the diameter of the source -- the wire that contains the radioisotope -- by more than half from the previous standard of about 2.8 millimeters. The length has also been significantly reduced. Although the dimensions are much smaller, the strength of the source is significantly higher. This makes it possible to reach and treat tumors that previously could be treated only with conventional photon and gamma brachytherapy or with external beam treatments. In addition, because of the potency of the source, treatment times will be significantly reduced.

The licensing agreement, signed earlier this month, is the culmination of a three-year cooperative research and development agreement funded entirely by Isotron. The license grants Isotron rights to two patents detailing how to make miniature californium-252 sources for neutron brachytherapy and how to attach them to small-diameter wires. The work was performed in ORNL's Californium User Facility.

"This is a perfect example of how collaborations between ORNL and the private sector can result in technology to make our lives better," said Alex Fischer, director of ORNL's Office of Technology Transfer and Economic Development. "Through this work with Isotron, thousands of people can perhaps be cured of cancer and go on to lead normal lives."