

World-Class Collaboration Advances Radiation Therapy

On Friday, July 24, 2026, the Medical Center – University of Freiburg, the University of Freiburg, and the medical technology company Siemens Healthineers opened their joint Technology Innovation Lab, or TIL for short. In the lab at the Department of Radiation Oncology, experts in medicine, medical physics, radiation biology, and data science are working together with engineers to develop and test new technologies for radiation therapy to treat cancer. What makes this project unique is that, for the first time, basic research, clinical research and testing, and technical development are taking place together on a permanent basis. The project partners have invested approximately eight million euros in the construction and equipping of the joint laboratory.

The new methods are intended to treat tumors even more precisely, effectively, and quickly than before. Methods for adjusting radiation in real time and throughout the course of therapy are also to be developed.

“With the Technology Innovation Lab, we are reaching a new level of cooperation between university medicine and medical technology that is unique worldwide in the field of radiation therapy,” says Prof. Dr. Anca-L. Grosu, Medical Director of the Department of Radiation Oncology at the Medical Center – University of Freiburg. “Each of the partners from research, clinical practice, and industry is internationally recognized. But together, we will create something that has never existed before. Ultimately, patients worldwide will benefit from this.”

“Germany has a strong and internationally competitive medical technology industry, whose importance to Germany as a hub for business and innovation is steadily growing. Siemens Healthineers is one of the world’s leading companies in this field and makes a significant contribution to the technological advancement of modern medicine. A collaboration like the one at TIL strengthens both patient care and Germany’s position as a hub for innovation. We are therefore pleased to have two partners—the University of Freiburg and the Medical Center – University of Freiburg—that closely combine top-tier scientific expertise with clinical experience,” says Dr. Bernd Montag, Chairman of the Board of Directors of Siemens Healthineers.

Radiation Therapy as a Precise and Cost-Effective Cancer Treatment

The Department of Radiation Oncology at the Medical Center – University of Freiburg is one of the largest radiation oncology centers in Germany. Its internationally networked research has helped shape modern image-guided, stereotactic, and biologically individualized radiation therapy methods.

Demographic changes are also expected to lead to a significant increase in cancer cases. Alongside surgery and drug-based tumor therapy, radiation therapy is a central pillar of cancer treatment. More than half of cancer patients benefit from radiation therapy at some point during the course of their disease. “With radiation therapy, we can cure many people with cancer, control tumor growth in others, and alleviate symptoms,” says Grosu. At the same time, radiation therapy is a particularly cost-effective form of cancer treatment.

Radio-oncology is a medical specialty that is also heavily influenced by technology. Medical expertise reaches patients through the use of highly complex devices and digital systems. Technological progress is therefore an essential prerequisite for further developments in radiation therapy.

Placing Even Greater Emphasis on Tumor Characteristics

The new research laboratory is intended to develop technologies that allow radiation therapy to be tailored even more closely to the biological characteristics of a tumor. In addition, changes occurring during treatment are to be detected and addressed more quickly. In this process, basic research and new technical approaches are aligned early on with the demands of everyday clinical practice. Insights from patient care will be directly incorporated into the development process. This is intended to shorten the path from scientific concept to clinical application.

“The TIL is a prime example of our ‘Industry-on-Campus’ concept, through which we bring together medicine, research, and

the healthcare industry at a single location and advance translation in medicine,” says Prof. Dr. Frederik Wenz, Chief Medical Officer of the Medical Center – University of Freiburg.

“Research requires scientific ideas, but also modern technologies and suitable research infrastructures,” says Prof. Dr. Lutz Hein, Dean of the Faculty of Medicine – University of Freiburg. “With the Technology Innovation Lab, we are strengthening both aspects.”

Operating Permit Under Regulated Conditions

At the opening ceremony, Regional President Carsten Gabbert presented the operating permit for the Technology Innovation Lab. “The Technology Innovation Lab combines medical development with high standards for safe operation,” says Gabbert. “New technologies are developed and tested here under controlled conditions.” Our role as the Regional Council is to guarantee these conditions—both during the approval process and in the subsequent monitoring of the facility. Given the constructive cooperation we’ve had with the two operators so far, I am confident that we will continue to succeed in this regard.”

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