

# UNM gets nanoscience lab

By Felipe Medina-Marquez | New Mexico Daily Lobo

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UNM dedicated a wing on the third floor of the Centennial Engineering Center Aug. 23 to a small, but still emerging branch of science.

The nanomaterials and nanomedicine lab is a major initiative that involves federal and state funding, along with grants, and features collaborative efforts from different academic disciplines at UNM, including the Cancer Center and the Department of Chemical and Nuclear Engineering, as well as Sandia National Laboratories.

Catalin Roman, dean of the School of Engineering, said he is excited about the potential for this laboratory and that having joint partnerships is important for the future.

“In the long term it is going to be critical for the engineering school and the medical school to come together and build joint programs and make joint investments in research,” Roman said.

The ongoing collaborative effort, which began three years before the lab was dedicated to nanoscience, is already yielding results.

Jeffrey Brinker, a distinguished UNM professor and Sandia fellow, and UNM Cancer Center Director Cheryl Willman have been working together to create a groundbreaking concept that will deliver treatments to cancer patients through nanotechnology.

“We’re making particles that are very small so they can penetrate throughout the body, and they have within them very small pores that can be loaded with various types of cargos, let’s say chemotherapeutic agents, or perhaps what’s called small interfering RNA or DNA plasmate,” Brinker said.

She said the problem with current treatments, such as chemotherapy, is that the drug has toxic effects not only on the cancer but on other parts of the body. The treatment designed by UNM researchers, called a “protocell,” targets the specific cancer and binds itself to it, while remaining harmless to other tissues.

“Our technology — at least as tested in cell cultures — was something like nearly 1 million times more efficient than the current FDA-approved approach,” Brinker said.

Their work, published in a prestigious journal called “Nature Materials” in April, has also drawn the attention of several pharmaceutical companies.

“We’ve been getting calls from big biotech companies,” Willman said in an interview with New Mexico Business Weekly. “It could be a major industry for New Mexico. I would love to see that happen.”

We would like to get venture capitalists on board to do it here.”

Brinker, who has spent decades working on building materials that are structured on one-billionth of a meter (a nanometer) helped lead the drive to get funding to create this laboratory.

“Our technology is one of the main areas of research we’ll be conducting in that laboratory to develop this protocell and a particle drug delivery agent,” he said.

This work has also earned the UNM two grants, totaling \$4 million, from the National Cancer Institute’s Alliance for Nanotechnology in Cancer. Other members of that alliance include schools such as Harvard, MIT, Cal Tech, Northwestern.

“We’re part of this alliance with these other very famous universities,” Brinker said. “I think that’s great for the state, I think it’s great for UNM’s reputation, and I think it has exciting prospects for impacting cancer. We have technology that could be a game changer.”

At the nanomaterials and nanomedicine lab, students from high school to the post-doctoral level will have the opportunity to be mentored under the tutelage of senior researchers.

“Think of it as if you were a student in physics and you had an opportunity to work with Einstein,” Roman said. “You may not get a Nobel Prize, but your horizons would be incredibly opened.”