

NMSU's cancer research expertise serves needs of New Mexicans
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New Mexico State University experts are combining critical cancer research with well-established education and outreach know-how to ensure meeting the needs of our state's residents takes the highest priority.

For generations, New Mexico State University has gained recognition for the important research discoveries we've made in agriculture, engineering, science and other fields. But, it's the unique needs of New Mexicans that makes the variety of cutting-edge, multi-million dollar cancer research projects at NMSU so important.

NMSU and the Fred Hutchinson Cancer Research Center in Seattle, Wash., recently received a \$9 million grant from the National Cancer Institute. The grant will support cancer research, but also will boost training, education and outreach programs at NMSU.

Mary O'Connell is the principal investigator for the grant and a professor in NMSU's College of Agricultural, Consumer and Environmental Sciences. The research portion of this grant will focus on hormone replacement therapy and chemotherapy resistance in breast cancer. The information learned from this research will be disseminated to other scientists around the country, and around the world, to help advance this effort.

As the state's land-grant institution, NMSU also will ensure this research will be responsive to the needs of New Mexico, with a goal of working to develop approaches that target underserved populations, primarily Hispanic and Native American groups. As one of the top Hispanic-serving institutions in the country, NMSU was considered for our expertise on health disparity topics and working with diverse and underrepresented populations.

The project also will focus on community outreach. Rebecca Palacios is an assistant professor in NMSU's College of Health and Social Services and director of the Outreach Core program. She will work on outreach, education and increasing cancer awareness in various New Mexico communities. As part of the outreach activities, NMSU will partner with local agencies to educate the public and encourage those agencies to seek grants for additional funding. Student-led research and professional development are crucial components of this program as well.

As part of a different program, NMSU College of Arts and Sciences researcher Jeffrey Arterburn is using advanced chemistry to focus on the development of receptor-targeted molecular probes, imaging agents, and anticancer and antiviral drugs.

Many around the state are familiar with NMSU's Tough Enough to Wear Pink campaign, which takes place each fall, and the Cowboys for Cancer Research effort, which both promote cancer awareness and help raise money for cancer research in New Mexico. Dr.

Arterburn's research is one of the projects directly funded by this effort. He also receives grant funding from the National Institutes of Health.

Among the discoveries he and his colleagues have made over the past few years is the identification of a new type of estrogen receptor that functions differently than the classical nuclear receptor.

His work has contributed to the development of synthetic compounds that target a type of estrogen receptor found in breast, ovarian and endometrial cancers. Estrogen receptor status is important for the diagnosis and treatment of breast cancers. This alternative receptor is activated in response to the drug Tamoxifen, which is used to block the nuclear estrogen receptors in breast cancer cells.

Through modeling of the estrogen receptor site, he has identified a strategy for designing new drugs with improved selectivity that should be able to bind and deactivate this receptor.

Arterburn and his team are very interested in the process of detecting and monitoring the status of the cancer through treatment. In addition to drug therapies, they are developing diagnostics that would be able to tell patients more about the type of tumor they have and to monitor the status of a tumor in response to therapy.

NMSU is all about discovery, and you can see from this work that NMSU faculty members are all about some important discoveries. These projects reflect well on the caliber of research, outreach and training being conducted at NMSU and represent just a portion of the \$1 billion in outside funding NMSU's total research operation has received over the past seven years. While this is a good start, I'd like to see us do even more of this kind of research. It's important to the people of our state and it's important to the people in our community and on our campus. If we can play a role in the next important research discovery in this field, it's more than worth our efforts.