Idaho State trio joins battle against breast cancer

By Courtney Cobb - Journal Writer

POCATELLO - The side effects of cancer drugs often deter patients from seeking treatment, but a trio of Idaho State University College of Pharmacy faculty members recently received a grant to research how to fight breast cancer with fewer side effects.

The National Institutes of Health awarded professors Nandita Das, Sudip Das, and Cindy Wilson a $128,820 grant to examine how to administer the drug tamoxifen more effectively.

Tamoxifen is a widely prescribed and successful treatment for breast cancer. It is FDA-approved for prevention of breast cancer in high-risk patients.

Assistant Professor and principal investigator Nandita Das says the grant will allow her team to investigate a new way to deliver the drug to the tumor.

She says a new pharmaceutical dosage form of tamoxifen will be created and compared with today’s marketable drug.

Sudip Das says the researchers will try a unique form of drug delivery called self-emulsifying microemulsion systems which uses specialized FDA approved ingredients.

With the new approach the drug will be channeled toward the lymphatic system instead of the usual preference of absorption into the blood vessels through the gastrointestinal tract, he says.

Co-investigator Cindy Wilson says the project plays only a small part in cancer research, but it could prove to be invaluable.
She says the main focus is to find a better way to deliver a dose of the drug to the target tumor so the patient doesn’t have to endure as high a concentration of the drug distributing throughout the body.

Nandita Das says side effects occur because the medication is distributed to all the tissues equally. While it kills the cancer it also damages normal tissues, she says.

"If we can take the cancer drugs and get them to focus on the malignancy while reducing the side effects it will improve the patient's quality of life," Das said.

Tamoxifen is an oral drug and in the testing Das said the new drug will also be oral.

She says most of today's cancer therapies are invasive and delivered through injection.

The project will assess tumor growth in mice and then monitor progress over time and see how the new and old drugs compare.

Others have figured out the side effects and dosing, which takes time and energy to look at individual pieces, Wilson says.

She says often people get frustrated with the length of time and the limitations of research, but they have to realize it takes a long time to prepare a small piece like targeting and bring it back into the big picture.

Nandita Das says when research is started, unanticipated results can occur that may lead to new projects.

"Sometimes you may strike upon a gold mine that will give you an additional research project and findings," Das said.

Another goal of the trio is to obtain good data to help get bigger grants. Das says it's a circular process and with each new grant more data can be obtained.

Wilson says the project is extremely rewarding both personally and professionally because it has allowed for collaboration among the faculty.

"This research also highlights the value of effective collaboration between investigators with varying expertise in generating federal grant funding and allows me to gain experience in a new field while contributing expertise from my own background," Wilson said.

She says receiving an NIH grant is not only a gold standard for the trio's careers, but also an invaluable opportunity for students.

One or two graduate students will be involved with the research and Wilson says their involvement is critical to their development as students.

Nandita Das says working with students is always a pleasure, but starting out is a little rough because many times students are naive.

In order to build up their scientific potential, it's a very involved process and you have to spend a lot of time training them so they become independent
Thinkers, she says.

The NIH has strict rules and updated reports will be sent out periodically. Sudip Das says they will also send information to journals and other publications.

With good data and results the group hopes to eventually reach clinical testing, but realizes structures need to be put in place at ISU before that happens.

Das says right now ISU is teaching-oriented rather than research-oriented and there is no infrastructure to support clinical trials.

To reach that level, ISU will have to build a new infrastructure, she says.

But for now, the trio will continue working on the breast cancer project along with other multiple projects and grant applications to get funding.

Quick Facts

- Idaho State University currently has four National Institutes of Health (NIH) grants and in the past 10 years has been awarded 32 NIH grants.

- The College of Pharmacy was awarded two of the four NIH grants.

- The new grant will last for two years and ISU researchers will have to hand in reports periodically.

- ISU researchers will examine how to effectively fight breast cancer.