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'God's Work'

Connecting Jewish values to the fight against cancer

By URI NIR

My interest in science is connected to my curiosity about God's creation — which I see as the ultimate source of wisdom — and my desire to make His world a better place.

FIRST PERSON

This desire sustains me during my countless hours in the lab, as I work on discovering cancer's molecular trigger.

I am privileged to be heading a team of scientists at the Mina and Everard Goodman Faculty of Life Sciences - Institute for Nanotechnology Advanced Materials that has revealed a "smoking gun," an enzyme that, in several tissue types, plays a pivotal role in cancer onset and progression.

People often ask me why I am doing this research work at a university that in the past has been known more for Jewish studies than scientific research work. I am at Bar-Ilan because I recognize the important role it plays in bringing different kinds of people together, and introducing them to the beauty of our Jewish heritage. It is the ideal setting for a professor such as me who cares deeply about being at a university that fuses cutting-edge scientific research and Jewish studies in an academic culture of excellence.

It has always been a priority for me to be in a collaborative academic environment with professors who share my values. The Bar-Ilan professors

I work with feel they are not only contributing to their fields, but also to Israel — and the Jewish people.

In our lab, we've identified an enzyme called

enzyme and prevent it from interacting with other molecules.

I am working with my team on a robotic technique that screens for potential Fer inhibitors, making the whole

from the Faculty of Life Sciences and a supervisor from industry.

Biotechnology is, by its very nature, multidisciplinary, and the program's curriculum — which includes training in

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Fer, which is an important regulator of a tipping point that causes cells to replicate uncontrollably. This Fer-based process we've uncovered only occurs in abnormal cells. The process is required for the proliferation of abnormal cells in colon, liver and breast cancers. The fact that this same mechanism appears in all these cancers indicates that we may have found an important molecular junction where normal tissues turn cancerous.

We've shown that, without the Fer enzyme, the proliferation of prostate carcinoma cells in tissue culture is halted. We've had similarly encouraging results using breast, liver and colon cancer cells. In addition, we've recently discovered that down-regulation of Fer inhibits the progression of prostate tumors in animal models.

The most exciting thing about our work is that it provides a clear target for scientists working to develop new anti-cancer drugs. We are looking for a compound that can bind to the Fer

process faster and far less expensive than conventional drug discover methods. If we are successful, it may eventually be possible to use the molecule we find to short-circuit the process that leads to cancer.

In parallel work at the university, my collaboration with Bar-Ilan researchers — professor Geraldo Byk, an expert in combinational chemistry, and biophysicist Dr. Yaov Paas — has also been extremely rewarding. Together we are working on techniques in which anti-cancer drugs would be attached to a cancer-seeking vehicle. By putting drugs exactly where they are needed, it will be possible to achieve better results with lower doses, leading to a reduction in the side effects associated with chemotherapy.

The uniqueness of the Bar-Ilan University program is in the way it combines academic studies with exposure to real-life, practical work in a wide range of biotech companies. Our students perform research under the joint supervision of an advisor

intellectual property law, ethics and business management along with straight science — prepares our graduates to be leaders in this growing area of the Israeli economy.

I want to thank the donors to the American Friends of Bar-Ilan University for their generous support of our scientific research work and contributions to building state-of-the-art laboratory facilities.

Our work is only made possible by the funding provided by our Friends from the U.S. and around the world.

I am confident we are doing God's work in bringing us closer to a cure for cancer. I look forward to the day when together we can all celebrate the end to this dreaded disease.

Dr. Uri Nir is director of nanomedicine at Bar-Ilan University and one of the world's leading cancer researchers. To learn more about Nir's work to fight cancer contact Gary Baskind, New York regional director of American Friends of Bar-Ilan University, at 212-906-3904 or gary.baskind@afbiu.org.