

New chip being created to detect cancer

Written by Michael Bravata

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The Nanofab center and three university departments are working together to develop a chip that could detect cancerous genes.

The Electrical Engineering, Bioengineering and Biology Departments are collaborating with the center to create a silicon chip, which is an inexpensive, efficient and sensitive detector that will analyze the existence of severe and sometimes terminal types of sicknesses, said Shawon Mohammud Noor, electrical engineering graduate research assistant.

The leader of the project is a recent addition to the department, Samir Iqbal, electrical engineering assistant professor. He joined the university in 2007 from Purdue University in West Lafayette, Ind.

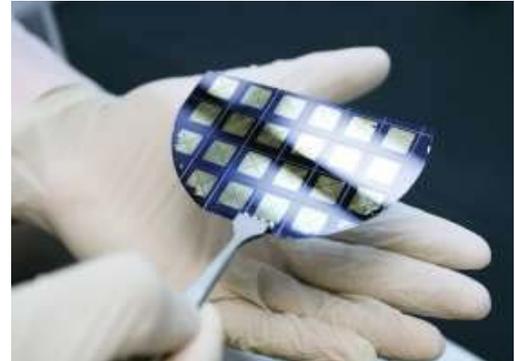
Iqbal described the process as extracting DNA from a cultured sample of blood and placing it on the silicon chip.

The chip will analyze the genes and send an electrical signal if the gene contains cancer, he said.

"Genes can tell us everything from the color of the eyes to a disease it has," Iqbal said.

Noor performs all of the test programming, system functionalization and fabrication.

"This research can not only overcome the noise issues encountered in standard amperometric detection schemes but can also result in high sensitivity detection of



Professor Samir Iqbal holds a silicon wafer designed at the Nanofab center. Each square on the wafer houses 30 clusters, and each cluster contains 100 individual chips. The Shorthorn Michael Rettig

biomolecules on a silicon platform for the development of reliable, portable, and inexpensive biosensors," Noor said.

With the aid of Iqbal, the project was able to establish the first ever nano-bio lab in the Nanofab center.

"I think it's good for the advancement of technology," nursing freshman Bianca Villarreal said. "It also allows UTA to kind of be put on the map."

Although there are other people working on the same type of solution using techniques like imaging, they are not using the chip, Iqbal said.

The center is using nanotechnology to solve the problems that the life sciences exhibit. The electrical engineering department is funding the project, he said.

"This and other research projects of our lab are all in the direction of electrically sensing disease markers using silicon chips," Noor said in an e-mail. "These research directions can not only prove viability of new ideas for start-up companies, it can also attract federal funding."

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