OAKLAND UNIVERSITY

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Breast cancer research presented

By **Jeff Samoray**, OU Web Writer

Using a blend of scientific data, references to popular culture and frequent doses of wit, Interim Vice Provost and Vice President for Academic Affairs Virinder Moudgil discussed the research he and his students have conducted on causes of breast cancer in a lecture titled “Hormones in Health and Disease” as part of the President’s Colloquium Series.

Moudgil delivered the lecture, which gave an overview of the function of hormones in the human body, how cancerous tumors can spread and the role of estrogen as a regulator of p53, a tumor suppression protein, before a full audience in the Oakland Center Gold Rooms March 13.

“The risk of developing breast cancer is one in eight if that person lives to a full life span,” Moudgil said. “Among the various risk factors are age, country of birth, socioeconomic status, age at first full-term pregnancy and family history.

"A large number of women have opted for preventative mastectomy, but we should keep in mind that 90 percent of breast cancers are acquired – not inherited. Having a healthy lifestyle with a proper diet and exercise will do a lot of good to either postpone or in some cases even prevent acquiring breast cancer. Americans love food, but we also love food that is high in fat content. Having a high fat diet may contribute to acquiring cancer.”

Moudgil cited statistics from the World Health Organization indicating that 20 million people will contract breast cancer by the year 2020, and one in four will die as a result.

“Cancer kills because it invades body tissues and has unlimited growth and immortality,” Moudgil said. “All you need is one cell changed from normal to abnormal, then a layer or mass can form. Our blood supply acts as a nutrient to the cancerous cells, which allows them to grow and spread.”

Based on these observations, Moudgil and his team of research assistants – which includes undergraduates, graduate students and post-doctorate fellows – constructed a cancer model in their laboratory to explore the affects p53 on tumors and treatments such as hormone replacement therapy.

“Our hypothesis is that the hormone estrogen regulates the expression of the tumor suppressor protein p53,” Moudgil said. “We know that p53 exists in all humans, but the mutation of p53 may represent the evolution of normal tissue to a cancerous state. In over 50 percent of known breast cancer patients, p53 was found to be mutated. In a healthy person if a cell is damaged, it produces p53 to cease the division of cells. In an unhealthy person with damaged p53, it will not cease the cells from dividing and multiplying. A potential ideal concentration of hormones in replacement therapy would be one that raises p53.”

Olga Vasquez, an office manager in OU’s Placement and Career Services, said though she found the material challenging, Moudgil presented it in such a way that it was understandable to a general audience.

“I feel a bit overwhelmed because I learned so much,” Vasquez said. “You always hear that you have to eat healthy and exercise – now I know why. I came to the lecture because I’m interested in health issues and wanted to see how this issue might affect me. The more knowledge you have about these issues, the more it eases your mind.

"I’m also very proud to learn of the achievements of our professors and how our research goes beyond the world of OU.”

Sumit Dinda, a project development scientist and lecturer in OU’s Biology Department, earned his Ph.D. at OU while partnering with Moudgil on his research. Dinda continues to work with Moudgil in furthering the study of cancer.

“I think the work we are doing at Oakland University can be favorably compared with the research coming out of places like Harvard,” Dinda said. “Our undergraduates are gaining valuable research experience and getting input in publications. For the general audience here today, I think the presentation was great. He simplified it for everyone by delivering a balance between scientific and general knowledge.”

The President’s Colloquium Series was established in 1995 to showcase the achievements of Oakland University researchers,

to promote communication and collaboration among scientists and to recognize the outstanding work of 'Nobel Class' scientists. The application deadline for the next colloquium series is March 21. For information on colloquium proposal guidelines and submission procedures, visit the **University Research Committee** Web page or contact Jim Cipielewski, chair of the University Research Committee, at (248) 370-3098 or **cipielew@oakland.edu**.

SUMMARY
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