

## RASIM GULDIKEN, MECHANICAL ENGINEERING, RECEIVES GRANT FOR SELF-ADMINISTERED TEST FOR EARLY DETECTION OF OVARIAN CANCER



**TAMPA, Fla. (June 10, 2010)** An interdisciplinary research team led by Rasim Guldiken, assistant professor of mechanical engineering, has been awarded a grant from Bankhead-Coley Cancer Research Program of Florida Department of Health for their project titled "A Novel, Low Cost, Ultra-Sensitive Nanosensor for Early Detection of Ovarian Cancer." The total amount of the grant is \$400,000 over a three-year period.

Guldiken

Guldiken is principal investigator and is collaborating with USF Health (Profs. Kruk and Nicosia), who will receive \$28,000 of the grant, and Harvard Medical School (Dr. Demirci), who will receive \$16,000 of the grant.

The project aims to develop a prototype of a disposable, tiny (smaller than human hair or sand particle) ultrasonic MEMS sensor, enabling early ovarian cancer detection by measuring urinary protein; Bcl-2. The lack of clear symptoms and the absence of a reliable screening test for ovarian cancer results in more than 70 percent of women being diagnosed after the disease has spread beyond the ovary, so that the prognosis is poor. Patients with ovarian cancer have a short median survival time after diagnosis and their five-year survival rate is less than 40 percent.

Advantages of our nanosensor are:

1) Low cost (<\$1) and battery operated

2) Simple operation (reminiscent of a pregnancy test) not necessitating trained personnel3) Cost-feasible, easy urinary test; allowing testing to be done at home, in a physicians' office or at a patient's bedside.

The research results may have a worldwide impact on disparate groups, including populations with low income and medically underserved locations, and women at high risk for developing ovarian cancer. This is especially important for detection of early-stage ovarian cancer which is associated with high survival (>95%) and reduced lifelong medical costs, but currently accounts for less than 10% of diagnosed ovarian cancer cases. In addition to the nanosensor's ability to accurately detect initial ovarian cancer cases, ovarian cancer monitoring during the course of disease may indicate recurrent disease and therapeutic efficacy.

Professor Guldiken received a doctorate in mechanical engineering from Georgia Institute of Technology and joined the College of Engineering faculty in 2008.

The University of South Florida is one of the nation's top 63 public research universities and one of only 25 public research universities nationwide with very high research activity that is designated as community engaged by the Carnegie Foundation for the Advancement of Teaching. USF was awarded \$380.4 million in research contracts and grants in FY 2008/2009. The university offers 232 degree programs at the undergraduate, graduate, specialist and doctoral levels, including the doctor of medicine. The USF System has a \$1.8 billion annual budget, an annual economic impact of \$3.2 billion, and serves more than 47,000 students on institutions/campuses in Tampa, St. Petersburg, Sarasota-Manatee and Lakeland. USF is a member of the Big East Athletic Conference.

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