Brand Day

Concurrent Session

Newsletters, Magazines and Publications
Exploring the evidence, cracking the case
How nanotechnology is helping researchers clue into pathogen, cancer biomarker detection

Recently, Li and collaborators — including Lateef Syed, a doctoral candidate in chemistry from India — led a patent for a technique to detect blood contamination. Its commercial potential earned Syed a Kansas State University Research Foundation doctoral research scholarship.

The technique involves attaching chemicals to gold nanoparticles, which light up when blood contamination is detected in a process called chemiluminescence. This method can detect slight traces of biomaterials from less than one blood cell, creating numerous applications for hospitals and crime scene investigations.

"If you spray this material on the computer keyboard or on a doorknob in a hospital, you can see even a slight trace of contamination that otherwise is unnoticeable," Li said. "For crime scene investigations it can chemically trace small amounts of blood, leaving nothing to hide."

Other collaborators include Deryl Troyer, Kansas State University professor of anatomy and physiology, as well as Judy Wu and Mark Richter, both of the University of Kansas. The work was supported by the Institute for Advancing Medical Innovation at the University of Kansas. The institute has led a provisional patent application for the technique.

A second project for Li and Syed uses carbon nanofibers to create a biosensor chip that detects pathogens such as E. coli and salmonella. The goal is to turn this biosensor into an easy-to-use hand-held electronic device.

"It is important for this biosensor to be hand-held because it could immediately analyze a sample on location and determine contamination," Syed said. "This will make it possible to prevent outbreaks through early-stage detection."

Several Kansas State University researchers are becoming scientists detectives at the food safety and biomedical scenes. Under the direction of Jun Li, associate professor of chemistry, they are developing biosensors that can accurately detect even tiny traces of pathogens, blood contamination and cancer cells.

"All of our work centers on nanotechnology," Li said. "It is an exciting area where we can solve health care and food safety problems while protecting lives and preventing financial loss."

Li has been contacted by companies interested in using the biosensor chip. The researchers are now developing the chip to detect viruses, which is important for food safety and biosecurity.

Li and Syed are collaborating on the biosensor chip project with Christopher Culbertson, associate professor of chemistry. Their work has been supported by the Canadian-based company Early Warning Inc., as well as the U.S. Department of Homeland Security through the Center of Excellence for Emerging and Zoonotic Animal Diseases, or CEEZAD, at Kansas State University.

The team has published articles about this work in the journals Electrophoresis and Electroanalysis. Syed has co-authored two more articles, and the team has a third article submitted.

A third nanobiosensor project by Li is funded by a three-year $444,000 National Institutes of Health grant. The project focuses on cancer research and early detection of cancer-related enzymes. Cancer patients have enzymes called proteases that tumor cells use to destroy surrounding healthy cells so the tumor has room to grow.

"If we can detect those small concentrations of enzymes as cancer biomarkers in a simpler and faster way, it can show us what stage the cancer is and what treatment should be applied," Li said.

Duy Hua, university distinguished professor of chemistry, and Annelise Nguyen, associate professor of diagnostic medicine and pathobiology, are collaborators for this cancer-related research.

"Our work is quite interdisciplinary," Li said. "We have formed strong collaborative partnerships that allow researchers to build on their strengths and combine their expertise to save the lives of many cancer patients."

— Jennifer Tidball

Please check youtu.be/Yys9e7XbsrU to watch the video about Jun Li.

Perspectives

Kansas State University

Spring 2012

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About the OGC
Who are we, and what do we do? The OGC is the in-house “law firm” for K-State. We are a group of attorneys and paralegals dedicated to providing administrators and other employees acting on behalf of the University with timely, accurate legal advice and practical guidance in a collaborative environment. We are involved in early and ongoing preventive advising, policy review and development, contract review and negotiation, proactive education about legal issues, and all stages of dispute resolution, including litigation. Our goal is to facilitate the University’s success in its educational, research and service missions, including the K-State 2025 visionary plan, by helping prevent and solve legal problems.

Crime Reporting and Campus Security:
What You Need to Know About the Clery Act
A safe and secure campus takes the cooperation of the entire campus community. The federal Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act (“the Clery Act”) requires colleges and universities to disclose information about crimes on and around their campuses. It is enforced by the U.S. Department of Education, which has imposed significant fines against universities in recent years for violations ranging from failure to notify the community of crimes in a timely manner to omissions of policy statements and crime statistics in the annual security report. The Clery Act specifically requires colleges and universities to: (1) publish and distribute an annual security report containing crime statistics, fire reports (for campus housing) and security policies and procedures; (2) issue timely warnings and emergency notifications to the community about certain crimes and emergencies; and (3) enact policies concerning missing students.

K-State’s annual crime statistics and security policies are found in the Annual Campus Security and Fire Safety Reports for each campus. See Reports at www.k-state.edu/security/reports/ for more information.

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Magazines

Calvin Today

Conquest

Johnson Cancer Research Center

Kansas State University

Earl and Molly McVicker open doors with two leadership scholarships

K-State sesquicentennial food history and recipe book

"What keeps me motivated is not the food itself but all the benefits and amenities the food represents."

Spring 2012 calendar

Smiling people

FOCUS

Spring 2012

Research

Contact Info

WATL Leader in Food Safety research & teaching, biology of mycoplasmas
Magazines
The Department of Communication Studies is a community of scholars and students dedicated to communication research and education through the analysis, interpretation and production of messages. Our lives are spent in relationships with others. From family, romantic partners and friends to co-workers, supervisors and clients to neighbors and other community members, we are constantly interacting and communicating with people. While many assume that communication comes naturally, miscommunication and misunderstanding are abundant in most relationships. The relational communication track focuses on current research and theories in interpersonal communication to explain behaviors and improve tangible communication skills. Classes increase understanding of verbal and nonverbal communication and responses, relational development, cultural similarities/differences, conflict, deception and group communication dynamics. By improving understanding of communication theories, students learn about taking different perspectives and modifying personal communication behaviors to maximize relational outcomes. These skills are particularly important in careers involving interactions between organizational members or with clients. **COMM 322: Interpersonal Communication (3 hrs)**
**COMM 323: Nonverbal Communication (3 hrs)**
**COMM 328: Professional Interviewing (3 hrs)**
**COMM 480: Intercultural Communication (3 hrs)**
**COMM 420: Gender Communication (3 hrs)**
**COMM 526: Persuasion (3 hrs)**
**COMM 542: Relational Communication (3 hrs) ***REQUIRED***
COLLEGE OF ARCHITECTURE, PLANNING & DESIGN.

REQUEST $5 MILLION IN RECURRING BASE FUNDING TO THE SOLUTION OPPORTUNITIES AND CONSTRAINTS

INCREASES/UPGRADES IN:

- Education and research infrastructure
- Technology and facilities
- Faculty and staff development
- Student support and recruitment

RANKS IN THE NATION FOR GRADUATE SCHOOL

ARCHITECTURE RANKS

THIRD

INTERIOR ARCHITECTURE & PLANNING

THIRD

RESEARCH

THIRD

Sweet Honey In The Rock

7:30 p.m., Friday, Feb. 1
McCain Auditorium