

SOUTHWESTERN NEWS

Media Contact: Russell Rian
214-648-3404
russell.rian@utsouthwestern.edu

UT Southwestern researchers develop screening test for cells that activate immune system

DALLAS – Sept. 6, 2005 – UT Southwestern Medical Center researchers are the first to create a large-scale, cell-based screening method that identifies which compounds activate immune-response cells that hold promise for future cancer-fighting vaccines.

The new screening technique can scan thousands and even millions of compounds to identify those that activate dendritic cells, which are on constant recon patrol throughout the body to scout out cancerous or infected cells and alert the immune system.

“Our assay is unique from other conventional ones in its sensitivity and cost- and time-efficiency,” said Dr. Akira Takashima, professor of dermatology and vice chairman for research and head of the project.

Dendritic cells (DCs) are considered key to developing future vaccines that can either mimic the body’s natural immune response or turn on immune responses that failed – due, for example, to cancer or an immune deficiency.

The team, which also included Dr. Norikatsu Mizumoto, assistant professor of dermatology and the study’s lead author, and Drs. Hironori Matsushima and Hiroaki Tanaka, postdoctoral researchers in dermatology, created the cell-based biosensor system.

“We basically engineered DCs to express a fluorescent signal only when sensing activation signals so that you can identify immuno-stimulatory agents very easily,” said Dr. Takashima. Immuno-stimulatory agents launch the immune system.

The research appears on *Blood* magazine’s online Web site and will appear in a future issue.

“We have optimized the high-throughput screening capability – an experienced scientist can now test one thousand chemicals a day almost single-handedly,” added Dr. Mizumoto. Previously, scientists would have to test each compound individually, a time-consuming process.

Their research already has led to the discovery of several compounds that turn on dendritic cells, which are found throughout the body from skin to blood. They continuously scan the body at the cellular

(MORE)

Screening test – 2

level looking for antigens – foreign cells and materials invading the body – and for molecular signatures of tissue damage or infection.

“Their primary job is to present antigens to the immune system so that you develop protective immunity for infection and cancer,” said Dr. Takashima.

The DC biosensor system should help pharmaceutical and biotech companies sift through large numbers of chemicals for ones that tell the dendritic cells to launch the immune response. It may also prove useful in identifying biothreat agents because it detects infectious pathogens with high sensitivity.

Dr. Takashima said he hopes to garner additional funding to discover potent immuno-stimulatory drugs by screening high-quality libraries of compounds.

Doing so may be the first step toward developing a new class of vaccines that force or trick the natural immune system to kick on, or initiate an immune response that can be copied and initiated artificially.

Other UT Southwestern researchers from dermatology involved in the study were Dr. Yasushi Ogawa, postdoctoral researcher, and Dr. Jimin Gao, former instructor.

The research was funded by the National Institutes of Health, the Dermatology Foundation Career Development Award and the American Cancer Society Junior Investigator Award.

###

This news release is available on our World Wide Web home page at
<http://www.utsouthwestern.edu/home/news/index.html>

To automatically receive news releases from UT Southwestern via e-mail,
subscribe at www.utsouthwestern.edu/receivenews