

**USC HEALTH RESEARCH NEWS**  
**July 12, 2005-September 1, 2005**

**July 15, 2005**

**Innovative Breast Cancer Therapy May Reduce Treatment Time to Single Day**

If USC/Norris Comprehensive Cancer Center specialists have their way, certain women with breast cancer will be able to receive their entire course of radiation therapy in a single treatment—while still under anesthesia during surgery. USC/Norris is participating in an international, multi-center clinical trial of intraoperative radiotherapy, a technique aimed at women with early stage invasive breast cancers who undergo breast-conserving surgery. The study is called the Targeted Intraoperative Radiotherapy Trial, or TARGIT.

“We believe intraoperative radiotherapy is a tremendous advancement in our ongoing effort to improve the quality of breast cancer treatment, as well as reduce the impact that these treatments have on women’s lives,” said breast surgeon Dennis R. Holmes, assistant professor of clinical surgery at the Keck School of Medicine.

Holmes is principal investigator on the trial at USC/Norris and is conducting the study with Oscar Streeter Jr., associate professor of radiation oncology at the Keck School.

Go to article:

<http://uscnews.usc.edu/hscweekly/detail.php?recordnum=11455>

**Virtual Systems’ Sense of Touch May Aid Stroke Rehabilitation**

Stroke patients who face months of tedious rehabilitation to regain the use of impaired limbs may benefit from new haptics systems interfaces that add the sense of touch to virtual computer environments. Such systems are in development at USC’s Integrated Media Systems Center (IMSC) as part of a \$1.8 million National Institutes of Health (NIH) grant awarded to a team led by Thomas McNeill, Keck School of Medicine professor of cell and neurobiology and neurology.

The new systems are being designed by an interdisciplinary team of researchers from the USC Viterbi School of Engineering and the Annenberg School for Communication, and are challenging stroke patients to grasp, pinch, squeeze, throw and push their way to recovery.

“Each year in the United States more than 700,000 people suffer a stroke, and nearly 450,000 survive with some form of neurologic impairment or disability,” McNeill said. He added that experts estimate that the number of stroke patients will more than double over the next 50 years, making the need to develop new and innovative rehabilitation programs a national priority.

The NIH grant, which aims to encourage interdisciplinary research, focuses on rehabilitation of upper limbs.

Go to article:

<http://uscnews.usc.edu/hscweekly/detail.php?recordnum=11460>

**July 29, 2005**

## **USC Study Shows Immigrants Receive Lower Levels of Healthcare**

Immigrant children receive even lower levels of care—84 percent less than U.S.-born children, according to a research team including members from the Keck School of Medicine and Harvard and Columbia universities.

“Our study lays to rest the myth that expensive care for immigrants is responsible for our nation’s high health costs,” said Sarita Mohanty, assistant professor of medicine at the Keck School. “The truth is that immigrants get far less care than other Americans. Further restricting their eligibility for care would save little money and place many immigrants—particularly children—at grave risk. Already, many immigrant children fail to get regular checkups, and as a result more end up needing emergency care, or get no care at all.”

The study is the first to analyze nationwide spending on immigrants’ health care. Researchers analyzed data on 21,241 people in the Agency for Healthcare Research and Quality’s 1998 Medical Expenditure Panel Survey, which collects detailed health-spending data on a representative cross-section of Americans. Researchers determined how much is spent per capita on health care among immigrants and non-immigrants by adjusting for differences between the two groups in age, income, health status and insurance status. According to the study, immigrants comprised more than 10 percent of the U.S. population but accounted for less than 8 percent of total health spending and only 8 percent of government health spending. Per capita health expenditures averaged \$1,139 per immigrant, significantly less than the \$2,564 expenditure for non-immigrants. And 30 percent of immigrants used no health care at all in the course of a year.

Go to article:

<http://uscnews.usc.edu/hscweekly/detail.php?recordnum=11482>

**August 15, 2005**

## **USC Surgeons Perform Novel Procedure**

Surgeons at the Keck School of Medicine of USC and USC University Hospital can now repair life-threatening thoracic aortic aneurysms through a minimally invasive procedure, without opening the chest or cutting the aorta. The team recently performed its first two procedures to install the Gore TAG endoprosthesis, a high-tech, sleeve-like device that fits inside the aorta and relieves the pressure on vulnerable aneurysms before they can burst. The procedures were Southern California’s first using the newly approved TAG device, which can be navigated into place through small incisions in the groin.

The surgeons are part of the Aortic Center at USC, an alliance of vascular and cardiothoracic surgeons who have joined forces to find the best solutions to patients’ aortic problems.

“Both surgeries went extremely well, and we’re optimistic about what this procedure means for patients: less loss of blood, a shorter hospital stay and quicker recovery time,” said vascular surgeon Douglas B. Hood, assistant professor of clinical surgery in the Keck School and co-director of the Aortic Center.

Robbin G. Cohen, associate professor of cardiothoracic surgery and co-director of the Aortic Center, said the technology gives physicians and patients choices. “The Aortic Center unites surgeons with unique expertise so they can decide which treatment is the best option for a patient,” he said.

Go to article:

<http://www.usc.edu/uscnews/stories/11517.html>

**August 26, 2005**

### **Estrogen Therapy May Slow Advance of Atherosclerosis**

Keck School of Medicine researchers believe that giving women estrogen after menopause may help delay heart disease, and they have begun a landmark study funded by the National Institute on Aging, one of the National Institutes of Health, to put their beliefs to the test.

Howard N. Hodis, the Harry J. Bauer and Dorothy Bauer Rawlins Professor of Cardiology, leads the five-year, \$9.8 million Early versus Late Intervention Trial with Estradiol, or ELITE.

Hodis believes providing women with estrogen may slow the progression of atherosclerosis—an accumulation of cholesterol-containing plaques in the arteries. Atherosclerosis can block blood flow, causing heart attacks, chest pain and strokes. Atherosclerosis-related disease kills 750,000 people a year, about a third of them postmenopausal women. Yet before the change of life, women for the most part appear protected from atherosclerosis.

In ELITE, Hodis will compare estrogen's effects in women who are six or fewer years past menopause to its effects in women who are ten or more years beyond menopause. Out of 504 women who will enroll in the study, half will be randomly assigned to take 17beta-estradiol (a form of estrogen identical to women's own estrogen) daily, while the rest will take a placebo.

Go to article:

<http://uscnews.usc.edu/hscweekly/detail.php?recordnum=11533>

### **Study Suggests Cellular Stress Response Helps Tumor Cells to Evade Destruction**

Cancer cells may be able to avoid destruction by anti-vascular and anti-angiogenesis agents through a cellular stress response that activates a pro-survival protein called GRP78. This provides a novel explanation to address the failure of these drugs to meet initial expectations in the battle against the growth and spread of malignant tumors.

In a study published in the July 1 issue of the journal *Cancer Research*, the USC KSOM team of researchers—in collaboration with researchers from the National Cancer Institute and MannKind Corp. of Valencia, Calif.—showed that anti-angiogenesis drugs that target the formation and upkeep of blood vessels can increase levels of a protein called glucose-regulated protein 78, which can work to block cell death, or apoptosis. GRP78 is synthesized and found primarily in the cell's endoplasmic reticulum.

“When you look at the successful cancer therapies, they often lose efficacy over time because of resistance in the tumor cells,” said Amy S. Lee, professor of biochemistry and molecular biology, associate director of basic sciences at the USC/Norris Comprehensive Cancer Center, and principal investigator for this research. “The majority of patients today die not from a primary tumor, but from a failure of the body to overcome the development of resistance to the drugs that treat that tumor.”

Lee's research sheds light into why that resistance might develop in the first place. Her study shows that anti-angiogenesis drugs, by doing the very job they are supposed to do—starving cells of oxygen and glucose—force tumor cells into a survival mode in which they turn on genes such as GRP78 that can help them to both resist and survive the onslaught.

Go to article:

<http://uscnews.usc.edu/hscweekly/detail.php?recordnum=11539>

**August 30, 2005**

### **Researchers Study Proteins in Enamel**

A gene critical to tooth formation expresses a protein that is then cleaved into two proteins with seemingly opposite functions, according to a USC-led team of dental researchers. The team's study of the two proteins, dentin sialoprotein (DSP) and dentin phosphoprotein (DPP), has been accepted by the Journal of Biological Chemistry and is available on the journal's Website.

Lead author Michael L. Paine of the USC School of Dentistry said both proteins derive from the gene for dentin sialophosphoprotein, which plays an important role in the formation of the tooth coverings enamel and its softer internal cousin dentin.

Go to article:

<http://www.usc.edu/uscnews/stories/11550.html>

**September 1, 2005**

### **Team Finds Drug is Tough Tumor Fighter**

A close structural relative of the celebrated COX-2 inhibitor celecoxib (brand name: Celebrex) is a potent tumor fighter, able to wipe out tumor cells that are resistant to conventional chemotherapies, according to an interdisciplinary team of researchers from USC. Led by Axel H. Schonthal, associate professor of molecular microbiology and in the Keck School of Medicine of USC, the researchers have been studying the effects of an analog of celecoxib that does not have its cousin's celebrated ability to block the activity of cyclooxygenase-2 (COX-2), an enzyme integral to the inflammatory process.

Nonetheless, the scientists showed that the analog manages to halt tumor growth even in drug-resistant lines of multiple myeloma cells. (Multiple myeloma is an incurable cancer of the plasma cell; plasma cells are components of the blood and play a key role in the body's immune response.)

Go to article:

<http://www.usc.edu/uscnews/stories/11549.html>