

### Viruses May Be Useful as Part of Cancer Treatment

From Mayo Clinic

Viruses - long regarded solely as disease agents - are now being used in therapies for cancer. Concerns over the safety of these so-called oncolytic viruses stem from their potential to damage healthy tissues.

Most viruses can infect different cell types, which leads to the array of symptoms during a viral infection. Now Mayo Clinic researchers have found a way to control the viruses used in potential cancer therapies. They are engineering the viruses' genetic sequence, using microRNAs to restrict them to specific tissues. MicroRNAs are encoded by genes, but don't end up as proteins. In many cases, they help limit the activity of different cellular genes. The microRNAs destabilize the viruses' genome, making it impossible for a virus to run amok. The discovery was reported in a recent issue of *Nature Medicine*.

"Our findings demonstrate a new tool for molecular medicine that should also help allay concern over the use of viruses as a therapeutic delivery system," says Mayo physician Stephen Russell, M.D., Ph.D., lead author of the study.

In this case, a virus is engineered to be responsive to microRNAs that are present in certain cell types. Using this new form of targeting, researchers redirected a virus normally responsible for a lethal muscle infection to recognize only cancer cells. The laboratory mice that received the engineered virus were cured of established melanoma tumors and suffered no ill effects.

The Mayo researchers say microRNA target insertion may be a new way to make viruses safer for use in cancer therapy and could lead to new methods of making safer vaccines.

*Dear Reader,*

*With the holiday season upon us, WorldCare would like to wish you and your family a happy holiday and a healthy New Year.*

*Sincerely,*

*Rebika Shaw,*

*Regional Director, Corporate Communications*

## HEALTH NEWS

### Wireless Technology Monitors Patients' Heart Problems

From Massachusetts General Hospital

Bluetooth wireless technology - which allows people to use their cell phones hands-free - can also save lives when it's implanted into patients' hearts. The Massachusetts General Hospital Heart Center uses this type of wireless monitoring technology to send a message about a patients' condition directly to a physician or nurse practitioner.

Bluetooth and radiofrequency capabilities are typically used along with defibrillator and cardiac resynchronization therapy (CRT). CRT involves a special pacemaker in a patient's upper chest that makes sure the heart's chambers are working together properly. The monitoring technology sends alerts directly to the patient's physician if something goes wrong.

"From our end, it is viewed on a secure Web-based server, and any patient who's had an event comes up on the first page we see," says Mary Orencole, N.P., coordinator for the Cardiac Resynchronization Therapy Program at the heart center. This approach saves lives by alerting physicians often before symptoms occur. They receive detailed information on how the heart is beating and can call a patient into the hospital if a medical emergency arises. Some of the conditions the providers monitor include heart failure and irregular heart rhythms.

"The patients, on the other hand, also have a button via which they can send their information [to us] immediately, and clinicians can then view this information within minutes on their computers," Orencole says.

Patients around the world are monitored with this technology, including one man who lives in Bermuda and another who was monitored while on vacation in Alaska.

The heart center is a major investigator in the use of such technology and currently oversees several hundred patients using radiofrequency and/or Bluetooth monitoring devices.

### Blacks With Heart Disease Less Likely to be Treated for Depression

From Duke University Medical Center

Blacks and whites with heart disease are both likely to have symptoms of depression, but blacks are only half as likely to receive treatment for it, according to a new study from Duke University Medical Center.

"This is an important finding because we know that depression is associated with a 2- to 4-fold increase in the risk of complications and death from heart



WorldCare  
7 Bulfinch Place,  
P.O. Box 8310,  
Boston, MA 02114  
Tel. 617.374.9001

## NEWS ON WORLDCARE

WorldCare is happy to announce that the **Mayo Clinic has joined the WorldCare Consortium** as its newest member. This world-class institution is ranked as one of the two best hospitals by *US News and World Report*.

### “Caring Care”

*“The Case Managers I worked with seemed genuinely concerned and were very caring. Overall, I was very pleased and I would absolutely recommend the WorldCare service to someone else.”*

### Patient Perspective

### About WorldCare

The global health care community has trusted WorldCare since 1994, when it became the first company to offer physician-referred, patient-specific, second opinion e-consultations (telemedicine) for serious illnesses. WorldCare benefits patients around the world by providing access to top physicians, cutting edge medical practices and best medical advice through highly specialized electronic medical opinions from the best medical centers in the United States.

**WorldCare** – 7 Bulfinch Place – P.O. Box 8310 – Boston, MA 02114  
**Phone:** 617.374.9001 **Email:** [info@worldcare.com](mailto:info@worldcare.com) **Web:** [worldcare.com](http://worldcare.com)

### Heart disease and depression (continued)

disease," says James Blumenthal, PhD, a psychologist at Duke and a co-author of the study. "Undertreatment of depression is a serious clinical issue."

Researchers studied 864 patients (727 whites and 137 blacks) who received care at the Duke Heart Center between April 1999 and June 2002. They found that depression was common in this group: Thirty-five percent of the black patients and 27 percent of the white patients had elevated measures of symptoms of depression. But while 21 percent of the whites were taking antidepressants to treat the disorder, only 11.7 percent of the blacks were receiving treatment.

There also appeared to be important gender differences. Among those with the most severe symptoms of depression, 43 percent of white men, but only 22 percent of black men were on antidepressants. In comparison, 64 percent of white women and 67 percent of black women were taking such medications.

"These findings suggest that depression in heart disease is undertreated, and it appears that black men are suffering the most," says Silvina Waldman, MD, a cardiologist at the Duke Heart Center and lead author of the study. "It is sobering to realize that large numbers of patients are missing out on important and readily available therapeutic options."

"We clearly need to do a better job of recognizing and treating depression, especially in heart patients," Dr. Blumenthal said. "We need treatments that work, treatments that are acceptable to patients, and treatments that are actually incorporated into medical practice."

### Discovery may help lead to protection from pneumococcal infection

*From Children's Hospital Boston*

The discovery of a new, previously unknown mechanism of immunity suggests that a better way to protect

vulnerable children and adults from *Streptococcus pneumoniae* (pneumococcal) infection may be available, say researchers at Children's Hospital Boston and the Harvard School of Public Health.

Pneumococcus causes serious infections in children and the elderly, including pneumonia and brain inflammation. Since 2000, U.S. infants have been routinely immunized against pneumococcus, but most developing countries cannot afford the existing vaccine.

Richard Malley, MD, of Children's Hospital Boston, and Marc Lipsitch, D.Phil., of the Harvard School of Public Health, have been studying how natural immunity against pneumococcus develops and have shown that in addition to antibodies, T-cells can provide broad protection against this pathogen. In their new study, published in September, they identify the specific protective T-cells -- so-called TH17 cells -- and show that they protect against infection by releasing IL-17, a protein that enables human blood

cells to kill pneumococcus in the nose more efficiently. This is significant, since colonizing a person's nose is the first necessary step of infection.

Researchers had known that children carry pneumococcus in the nose for shorter periods of time as they get older. The researchers showed that adults and older children, but not newborn babies, have TH17 cells that target pneumococci, suggesting that exposure to pneumococcus normally leads to production of these cells.

The investigators also describe an efficient way of measuring TH17 cells, which could help determine whether a new vaccine is rallying an effective response. "We are now evaluating vaccine candidates and changing them so they not only induce antibodies, but also induce this specific type of immunity," Dr. Malley says. "A vaccine that induces both protective antibodies and T-cell immunity to pneumococcus may be a very effective way to protect against this potentially devastating disease."



Contact your local WorldCare office if you are interested in obtaining a second opinion from a WorldCare Consortium hospital. Visit [www.WorldCare.com](http://www.WorldCare.com) for more information.