



# CIRWH NEWS FLASH

Center for Interdisciplinary Research in Women's Health

WINTER 2003

THE UNIVERSITY OF TEXAS MEDICAL BRANCH

VOLUME 1, NUMBER 1

## Arthritis is a result of a 'vicious cycle of pain and inflammation'

More than 70 million adults in America today live with arthritis in one form or another, according to the National Arthritis Foundation. The annual cost of the disease to the U.S. economy is at least \$65 billion in medicines, disability and lost wages.

Osteoarthritis, the most common of the 100 forms of arthritis, afflicts 21 million Americans, 16 million of them women.

Drs. Karin N. Westlund and Terry Ann McNearney, UTMB faculty members who are fellows in the Center for Interdisciplinary Research in Women's Health (CIRWH), are working together to eliminate the disease altogether.

They have found that arthritis is promoted by what Westlund, professor of anatomy and neurosciences, calls the "vicious cycle of pain and inflammation."

"The nerve is something like an electrical wire," she explained, "except that the current usually moves only in one direction—from the sensory source to the brain. Pain states affect the central nervous system in such a way that the current moves in both directions," Westlund told faculty and scientists at a recent CIRWH seminar.

The arthritic joint sends a pain signal to the nervous system, which activates a nerve-signaling protein (a neurotransmitter) that in excess causes inflammation and increases pain. The more neurotransmitter there is, the

more pain it causes—and the vicious cycle continues unless the pain, the inflammation, or both can be stopped.

"Arthritis needs neurotransmitters (glutamate, in this case) to start," said McNearney. "And it needs neurotransmitters to keep going. But if the nerves are disrupted, as happens with a stroke or application of a local anesthetic like lidocaine, the neurotransmitters do not get summoned to the painful joint and the pain-inflammation cycle never starts. We know that if you can stop the neurotransmitters, you can greatly diminish the damage to joints."

"We measured the glutamate in the joints of patients—and the levels were sky high," said Westlund, who has been at UTMB for 27 years. "Now, we're studying the glutamate to see how it causes the inflammation. We recently gained access to human joint lining cells in culture. We are treating the culture with glutamate in hopes of creating the pain-signaling chemicals, which would lead to 'arthritis in a dish.'"

Once they know what triggers the pain-signaling chemicals to converge on the joint, they can take the next step



*Dr. Karin N. Westlund, left, gets ready to peer into the microscope while she talks with Dr. Terry Ann McNearney.*

***What is arthritis? See page 2.***

of figuring out how to stop it and eventually transfer this new treatment to the bedside. The unique collaborative effort between neuroscience and immunology research is supported by grants from the National Institutes of Health and the Dana Foundation.

McNearney has been at UTMB since 1994. Associate professor in the Departments of Internal Medicine, Anatomy & Neurosciences and Microbiology & Immunology, she is a rheumatologist. Many of the patients she sees have some form of arthritis. As the clinician half of the team, McNearney looks forward to the day she will be able to apply their research to patients. She would like to see that day come within the next five years.



## FROM THE DIRECTOR'S DESK

Welcome to the inaugural newsletter of the Center for Interdisciplinary Research in Women's Health at UTMB.

CIRWH (sir-wah) was inaugurated in February 2002 to promote, stimulate and support research relating to the health of women across the life span.

Under the auspices of the center, research—throughout the UTMB campus and beyond—will seek solutions to health problems that are more common in women, that have different manifestations or that require different treatment for women. CIRWH also will promote collaborations among investigators from different research and clinical specialties.

We are proud to introduce you to CIRWH, our fellows, their research and our activities. More importantly, we want to hear from you—with questions, topics you'd like to learn more about or opinions about women's health research issues. We will provide a forum for your comments here.

Please contact me or Joanna (Jo) Bremer, center administrator and editor, at (409) 747-4978 or by email at [jobremer@utmb.edu](mailto:jobremer@utmb.edu), with your thoughts.

Yours in good health,

Abbey B. Berenson, M.D.

## What is arthritis?

The word arthritis is derived from the Greek terms *arthron* (joint) and *itis* (inflammation) and literally means joint inflammation. This painful, often crippling disease has more than 100 varieties.

The two most common types of arthritis are osteoarthritis, which afflicts about 21 million adults in the United States, and rheumatoid arthritis, af-

flicting 2.1 million.

In osteoarthritis, the cartilage cushioning the ends of the bones in the joints begins to fray and may wear away entirely. It causes joint pain and stiffness, resulting in disability when it affects the spine and weight-bearing joints (knees and hips).

Rheumatoid arthritis is an inflammatory disease of the synovium, or

lining of the joint, causing pain, stiffness, swelling, joint damage and loss of function. Joints of the hands and feet are most often affected, occurring equally on both sides of the body. This symmetry helps distinguish rheumatoid arthritis from other forms of the disease.

SOURCE: National Institutes of Health, publication No. 02-4999

## Researcher Profiles

Name: **Karin N. Westlund, Ph.D.**



Title: Mary & J. Palmer Saunders Professor for Excellence in Teaching

Birthplace: Austin, TX

Education: 1975 B.A. (Zoology), University of Texas at Austin, Austin, TX; 1976 M.A. (Zoology), University of Texas at Austin, Austin, TX; 1981

Ph.D. (Physiology & Biophysics), The University of Texas Medical Branch, Galveston, TX.

**How long have you been at UTMB?** Since 1976, 27 years.

**What is the focus of your women's health research?** Arthritis research.

**What do you enjoy most about your work?** The excitement of scientific discovery.

**What do you enjoy least about your work?** Having to compete to generate salaries and supply money through grant writing.

**If money were no object, what would you be doing right now?** Even more research.

Name: **Terry Ann McNearney, M.D.**



Title: Associate Professor

Birthplace: St. Louis, MO

Education: Trinity College, Washington D.C.(B.S.) St. Louis Univ. Med. School, St. Louis MO, (M.D.) Baylor College of Med., Houston, TX (Int. Med. Residency), Washington University School of Med., St. Louis, MO (Rheumatology and Retrovirology Fellowships).

**How long have you been at UTMB?** Since 4/24/94

**What is the focus of your women's health research?** Studying neurotransmitter contribution to the initiation and persistence of arthritis.

**What do you enjoy most about your work?** The research, my collaborators, potential for translational studies, very stimulating projects.

**What do you enjoy least about your work?** The mind boggling amount of administrative and bureaucratic generated paper work.

**If money were no object, what would you be doing right now?** Full-time virus and arthritis-related research.



## HOT FLASH

The Center for Interdisciplinary Research in Women's

Health at the University of Texas Medical Branch at Galveston announces the winners of its first seed grants. CIRWH will award two grants of \$12,500 each to help finance pilot research on the effect of enhancement drugs on female reproduction and on the use of health facilities by lupus patients.

The successful candidates are UTMB faculty members Drs. Shilla Chakrabarty and Gayle Weaver.

Chakrabarty, assistant professor in the Department of Obstetrics and Gynecology, will use animal models to study the consequences of long-term use of enhancement drugs on

## Women's Health Research Center awards two grants for pilot research

the growth and functions of young women's reproductive systems. She hopes to determine the cause of undeveloped reproductive systems and infertility in young athletic women.

Gayle Weaver, associate professor in the Division of Rehabilitation Sciences, plans to study how African American women residing in Boston with systemic lupus erythematosus (SLE) use health fa-

cilities. African American women have a higher rate of SLE. Using women in Pearland for comparison, Weaver plans to see if there is a difference between how women in the Northern and the Southern regions of the U.S. use health facilities. Weaver is currently studying health care among underprivileged populations in Boston. The seed grant will enable her to proceed with a new facet of those studies.

CIRWH was inaugurated in February 2002. Its mission is to promote, stimulate and support interdisciplinary research related to the health of women across the life span. Another round of seed grants is scheduled for the spring. Watch the CIRWH web page at <http://www.utmb.edu/cirwh/seedgrant.htm> for announcements about application deadlines.

## New vaccine reduces incidence of genital herpes disease, study finds

A new vaccine reduced by more than 70 percent the incidence of genital herpes disease in women previously uninfected with the oral and genital herpes viruses, concludes a report in the Nov. 21, 2002, edition of the *New England Journal of Medicine*.

Two phase-three clinical trials tested the vaccine in 2,714 people, 978 of them women, at centers across the globe. Men showed no benefit from receiving the vaccine.

"People have been trying to make a herpes vaccine without success for more than 60 years," said infectious disease specialist and vaccinologist Lawrence R. Stanberry, chairman of the Department of Pediatrics at UTMB and lead author of the paper. He added, "This is the first one to prove effective."

In 1997, the most recent figures available from the federal Centers for Disease Control and Prevention, about 45 million Americans had contracted genital herpes. This means about one person in five over age 12—outside jails, prisons, nursing homes and hospitals—has the virus technically known as herpes simplex virus type 2 (HSV-2). Herpes simplex virus type 1 (HSV-1) is a closely related virus that causes similar small, sometimes painful "fever blisters" around the lips and nostrils in about 80 percent of Americans.

"These are very exciting findings," said Stanberry, a

CIRWH fellow who reported on the study at a recent center seminar. "These new studies suggest that a comprehensive campaign to vaccinate girls and women not infected with either type of herpes simplex virus could significantly reduce the spread of the herpes epidemic in the general population."

As a result of these studies, the National Institutes of Health and the drug company GlaxoSmithKline are collaborating on new studies that will test the vaccine on 7,550 women between 18 and 30 years old "who don't have HSV-2 and don't want to get it," said a co-author of the paper, Stephen K. Tyring, UTMB professor of dermatology and microbiology & immunology and director of the UTMB Center for Clinical Studies. Tyring's center enrolled more than 500 people in the two vaccine studies, the largest number tested at any single center in the studies reported in the new paper. Tyring also is a CIRWH fellow.

The paper's authors said it wasn't clear why the vaccine was effective in women and not in men but said it might have something to do with how the virus enters the body, which is thought to be different in men and women. In men, breaks or tears in skin of male sex organs are thought to be the main way HSV gains entry. Intact skin is "a highly effective barrier against penetration by HSV," the authors write.



# CIRWH Calendar

## SEMINARS

### February

- Feb. 6, Linda Crumpler, "Funding in Women's Health"
- Feb. 13, Mahmoud Ahmed, Ph.D., "What is common among drug abuse, counter bioterrorism and preterm labor?"
- Feb. 20, Helen Wu, Ph.D., "Substance abuse of young women"
- Feb. 27, Stacy Sell, Ph.D., "Modulatory influence of estrogen on behavioral effects"

### March

- Mar. 6, Harold Sandstead, M.D., "Nutrition in young women"
- Mar. 13, Gordon Klein, M.D., "Bones and groans"
- Mar. 20, Alice Hill, R.N., Ph.D., "Bottle feeding patterns in pre-term infants"
- Mar. 27, Mary Lou Voytko, Associate Professor in the Department of Pathology, Wake Forest University Health Sciences Center, "Effects of estrogen on cognitive and brain aging"

### April

- April 3, Elie Al-Chaer, J.D., Ph.D.
- April 10, Ayman Al-Hendy, M.D., Ph.D., "Novel therapeutics for uterine leiomyoma"
- April 17, Gary Kesling, Ph.D., M.B.A., "Violence/injury prevention"
- April 24, Andrea Witlin, D.O., Ph.D.

### May

- May 1, Texas Forum on Female Reproduction
- May 8, Kathryn Cunningham, Ph.D.
- May 15, National Women's Health Week

## WOMEN'S HEALTH CONFERENCES

### February

- Feb. 1-5, Society of Gynecologic Oncologists 34<sup>th</sup> annual meeting, New Orleans

- Feb. 3-8, Society for Maternal Fetal Medicine 23<sup>rd</sup> annual meeting, San Francisco

### March

- Mar. 21-22, 4<sup>th</sup> Annual Southern States Knowledge in Nursing Conference, Galveston
- Mar. 27-30, Society for Gynecologic Investigation annual scientific meeting—50<sup>th</sup> anniversary, Washington, D.C.

### April

- April 23-27, Fourth World Congress on Controversies in Obstetrics, Gynecology and Infertility, Berlin, Germany
- April 26-30, American College of Obstetricians and Gynecologists 51<sup>st</sup> annual meeting, New Orleans

### May

- May 14-17, Society for Obstetric Anesthesia and Perinatology 35<sup>th</sup> annual meeting, Phoenix
- May 16-18, 2003 annual clinical meeting of the North American Society for Pediatric and Adolescent Gynecology, Philadelphia
- May 24-28, 6<sup>th</sup> Congress of the European Menopause and Andropause Society, Bucharest, Romania
- May 30-June 5, 48<sup>th</sup> American College of Nurse-Midwives Annual Meeting, Palm Desert, California

## NATIONAL WOMEN'S HEALTH OBSERVANCES

### March

- Mar. 1-31, National Chronic Fatigue Syndrome Awareness Month

### April

- April 1-30, Sexual Assault Awareness Month
- April 1-30, Women's Eye Health and Safety Month

### May

- May 1-31, National Arthritis Month
- May 1-31, National Osteoporosis Prevention Month
- May 1-31, National Teen Pregnancy Prevention Month
- May 11-17, **National Women's Health Week**

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Medical Branch at Galveston.  
 Health at the University of Texas  
 Interdisciplinary Research in Women's  
 quarterly by the Center for  
 The CIRWH newsletter is published