# FYI from the NHLBI



Public Interest News from the National Heart, Lung, and Blood Institute

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#### **Message from the Director**

This "back to school" season, the NHLBI (www.nhlbi.nih.gov) is providing several opportunities for you to learn how to improve your health. For example, September is National Cholesterol Education Month. The theme this year is "Know Your Cholesterol Numbers - Know Your Risk." It highlights two main points of the new cholesterol guidelines in the Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III, or ATP III): the importance of having your cholesterol measured and knowing your risk of developing heart disease. Many Americans are at high risk of heart attacks because of a combination of cholesterol and other factors; they could benefit from lowering their cholesterol levels even though they don't have especially "high cholesterol." The ATP III Guidelines emphasize the importance of developing personalized risk reduction strategies by setting and attaining target cholesterol levels based on overall heart attack risk.



However, if you or any of your loved ones have the misfortune of experiencing a heart attack, it is crucial that medical care be

sought immediately. New medicines can prevent or limit damage from a heart attack, but they are most effective if given within an hour of the onset of symptoms. On National 911 Day, held on September 11, our National Heart Attack Alert Program will launch an aggressive outreach program. Part of the effort will be to educate physicians about the importance of talking with patients about the signs of a heart attack and what to do (call 911) if they think they are experiencing one. But you don't have to wait until your next doctor's appointment to learn about heart attack symptoms. The National Heart Attack Alert Program also is launching a new Web page where you can learn how to "Act in Time to Heart Attack Signs."

Sincerely yours,

Claude Lenfant, M.D. Director

# **Stem Cells: Scientific Progress and Future Directions**

On August 9, President Bush announced that Federal dollars may be used to fund important basic research on human embryonic stem cells. Dr. Ruth Kirschstein, Acting Director of NIH, expressed the NIH community's enthusiastic support of the President's decision, and stated "The approach he has outlined is sound, and we understand the President's clear desire to move forward with care. Using the more than 60 existing cell lines from around the world, many more researchers will now be able to explore the potential of human embryonic stem cells, in addition to the extensive work already sponsored by NIH using human adult stem cells. We believe this combined research has high potential both for opening new doors in basic scientific understanding and for discovery of new treatments for some of our most devastating diseases."

To help you understand what is known, and what is not known, about stem cells, the NIH has prepared a comprehensive, yet comprehensible, report that is available at

www.nih.gov/news/stemcell/scireport.htm. In addition to a glossary and descriptions of different types of stem cells, the report contains examples of how stem cell research may benefit patients with specific diseases, including conditions affecting the blood or cardiovascular systems. Other chapters describe how stem cells could be used to deliver gene therapies and the safety issues that need to be considered before stem cell-based therapies are developed.

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# New Rules to Protect Patients' Privacy

Each time a patient sees a doctor, is admitted to a hospital, goes to a pharmacist, or sends a claim to a health plan, a record is made of their confidential health information. When Congress enacted the Health Insurance Portability and Accountability Act of 1996 (HIPAA), which included provisions encouraging electronic transactions and communications, new safeguards were required to protect the security and confidentiality of that information. In response, the U.S. Department of Health and Human Services (DHHS), of which the NIH is a part, recently established "Standards for Privacy of Individually Identifiable Health Information" (also known as the HIPAA Privacy Rule).

Most health plans, health care clearinghouses, and health care providers have until April 14, 2003, to comply with the rule. Then, patients will have significant new rights to understand and control how their health information is used. For example:

- Providers and health plans will be required to give patients a clear written explanation of how information may be used.
- Patients will be able to obtain copies of their records, and to request amendments.
- People will have the right to file a formal complaint about violations of the provisions of this rule or the policies and procedures of the covered entity. The DHHS Office for Civil Rights will enforce the rule and violators will be subject to civil and criminal penalties.

With few exceptions, such as law enforcement needs, an individual's health information may only be used for health purposes. As required by the HIPAA law itself, stronger state laws (like those covering mental health and AIDS information) will continue to apply. Additional information about the rule is available on the Web at www.hhs.gov/ocr/hipaa.

#### Simple Steps to Reduce Your Heart Attack Risk

- Get a fasting blood lipoprotein profile to find out what your total cholesterol, LDL cholesterol, HDL cholesterol, and triglyceride numbers are.
- Calculate your risk for heart disease using the ATP III assessment tool at hin.nhlbi.nih.gov/atpiii/ calculator.asp.
- Discuss your risk for heart disease with your health care provider and take steps to reduce the factors that put you at risk.
- Learn how to read a food label by visiting nhlbisupport.com/ chd1/FoodLabel/foodlabel.htm
   Choose foods that are low in saturated fat and cholesterol.
- Calculate your body mass index (BMI) with the BMI calculator at www.nhlbisupport.com/bmi/ bmicalc.htm.
- Participate in physical activity of moderate intensity—like brisk walking—for at least 30 minutes on most, and preferably all, days of the week. No time? Break the 30 minutes into 3, 10-minute segments during the day. Visit the Virtual Fitness Room at nhlbisupport.com/chd1/ Tipsheets/vfitness.htm.
- Don't smoke. If you do smoke, contact your healthcare provider for help in quitting.
- Call 1-800-575-WELL and get free information including recipes on lowering cholesterol and preventing heart disease.



# News from Capitol Hill

On July 25, Congressman Clifford Stearns (R-FL) introduced a resolution

(H. Con. Res. 197) to establish Chronic Obstructive Pulmonary Disease (COPD) Awareness Month. The goal would be to raise public awareness about the prevalence of the disease and the serious problems associated with it. COPD is a slowly progressive disease of the airways characterized by gradual loss of lung function. In the United States, the term COPD includes chronic bronchitis, chronic obstructive bronchitis, or emphysema, or a combination of these conditions. Approximately 16 million Americans have COPD. In 2000, COPD ranked as the fourth leading cause of death both in the United States and worldwide.

As of July 30, the House and Senate Appropriations Committees were in the process of finalizing their recommendations for the Fiscal Year 2002 budget. Once the committees have completed their work, the bills will go to their respective chambers for debate and approval. After a conference committee resolves any differences between the bills, the House and the Senate must approve the conference committee's version before it can be sent to the President to be signed into law.

#### NHLBI Trial Shows Surgery Offers High Risk, Little Benefit, for Some Emphysema Sufferers

Early results from the NHLBI-supported National Emphysema Treatment Trial (NETT) show that emphysema patients who have severe lung obstruction with either limited ability to exchange gas when breathing or damage that is evenly distributed throughout their lungs receive little benefit from lung volume reduction surgery (LVRS) and are at high risk of death from the procedure. This is the first time that researchers have identified scientifically based selection criteria for patients seeking LVRS as a treatment for advanced emphysema. When discussing the result, Dr. Lenfant stated "Identifying which patients should not undergo this surgery is a key goal of this study. We expect the final results of NETT will guide us further in determining if and when this procedure should be used to treat emphysema."

#### **NHLBI Research Initiatives**

From time to time, the NHLBI invites investigators to submit grant applications or contract proposals for specific research programs. We currently are soliciting applications for the following programs. Unless a due date is noted below, applications are accepted for February 1, June 1, and October 1 deadlines each year. For a full description of these and other research initiatives, visit www.nhlbi.nih.gov/funding/inits/index.htm.

# **Ancillary Studies in Heart, Lung, and Blood Disease Trials** (RFA-HL-00-012)

- Applications Due: See announcement.
- Objective: To conduct mechanistic studies using patients and patient materials from clinical trials related to heart, lung, and blood diseases.

#### **Biobehavioral Research for Effective Sleep** (PA-00-046)

 Objective: To support research on sleep-related problems found in healthy and chronically ill individuals with acute and chronic sleep deprivation. Research to identify interventions for adults and children also may be supported.

#### Cellular and Molecular Mechanisms of Primary Pulmonary Hypertension (PPH) (PA-00-043)

 Objectives: To promote research to elucidate the mechanisms, at the cellular and molecular level, involved in the unique vascular remodeling and in regulation of the pulmonary vascular tone during PHH development.
 Studies of the genetic basis of PPH also are encouraged.

### Functional Tissue Engineering for Heart, Vascular, Lung, Blood, and Sleep Disorders and Diseases (PAR-01-006)

- Applications Due: See announcement.
- Objectives: To stimulate engineering of biological substitutes for damaged tissues and organs and to promote development of novel tissue regeneration and remodeling approaches.

### NHLBI Innovative Research Grant Program (RFA-HL-01-016)

- Applications Due: 10/18/01, 2/16/02, 6/18/02
- Objective: To facilitate innovative studies not readily supported by other funding mechanisms that require the use of existing data sets or specimen collections.

# Novel Biomarkers of Chronic Obstructive Pulmonary Disease (COPD) (RFA-HL-02-005)

- Applications Due: 2/26/02
- Objective: To promote examination of associations between specific aspects of COPD and novel biomarkers that are measured by minimally invasive methods.

#### Pathogenesis and Treatment of Lymphedema (PA-01-035)

 Objectives: To stimulate research on the biology of the lymphatic system, the underlying pathophysiologic developmental, cellular, and molecular mechanisms that cause the disease, and new therapeutic interventions for patients with primary and secondary lymphedema.

# **Physical Activity and Obesity Across Chronic Diseases** (PA-01-017)

 Objectives: To examine relationships between physical activity and obesity, to improve assessment of physical activity and energy balance, and to test interventions that incorporate physical activity for obesity prevention or treatment related to chronic diseases.

### Restless Legs Syndrome and Periodic Limb Movement Disorder (PA-01-086)

 Objective: To enhance understanding of and develop treatments for restless legs syndrome and periodic limb movement disorder.

# SBIR/STTR Technologies for Monitoring and Performing Resuscitation (PA-01-054)

 Objectives: To improve monitoring of molecular or physical derangements associated with circulatory, hypoxemic, or traumatic arrest and to elucidate the unique pathophysiology of irreversible injury following multiple organ ischemia and reperfusion.

### **Self-Management Strategies Across Chronic Diseases** (PA-00-109)

 Objectives: To expand research on self-management interventions, such as those used in treating blood disorders, and to understand their implications in treating other chronic diseases.

#### Sleep and Sleep Disorders in Children (RFA-HL-01-006)

- Applications Due:10/16/01
- Objectives: To understand children's sleep requirements, define pathophysiological mechanisms underlying childhood sleep disorders, and identify determinants of childhood sleep patterns.

# Treatment of HAART-Associated Metabolic Changes in Patients with HIV Infection (RFA-DK-02-06)

- Applications Due: 3/21/02
- Objective: To develop strategies for treating cardiovascular complications of highly active antiretroviral therapy (HAART) in HIV-infected patients.

#### Trials Assessing Innovative Strategies to Improve Clinical Practice Through Guidelines in Heart, Lung, and Blood Diseases (RFA-HL-01-011)

- Applications Due: 10/12/01
- Objective: To improve implementation of national, evidence-based clinical practice guidelines for treating heart, lung and blood diseases and conditions.

#### The National Heart, Lung, and Blood Advisory Council's June Meeting

After calling the meeting to order, Dr. Lenfant described legislation passed by the previous Congress that established a group of educational loan repayment programs. The NIH views these as very worthwhile programs and has established a committee to develop implementation guidelines. Four programs are provided for in the legislation: a) clinical research, b) pediatric research, c) clinical research for individuals from disadvantaged backgrounds, and d) minority health disparities research. A pilot implementation of the programs will begin in 2002 with an estimated overall NIH budget of \$230,000,000.

Dr. Lenfant also reviewed the President's FY 2002 budget for the NHLBI, which provides the Institute \$2,567.4 billion (an increase of \$268.3 million or 11.7% increase over the FY 2001 budget).

Dr. Barbara Alving, Director of the Division of Blood Diseases and Resources, gave an overview of the results of the April 2001 meeting of the Board of Extramural Affairs (BEA), a working group of the NHLBAC. The BEA provides the Institute with a mechanism for receiving advice from leaders of scientific communities and assists the Institute in communicating new developments and plans to its investigators. The proposed FY 2002/2003 initiatives evaluated by the BEA were developed with community participation through workshops, working group meetings, and other interactions between Institute staff and investigators. Following Dr. Alving's presentation, the Council reviewed, discussed, and approved a total of 27 initiatives.

During the closed portion of the meeting, the Council concurred on the award of 332 grants for a total cost of \$130,090,147. The next meeting of the Council is scheduled for 8:30 A.M. on September 6, 2001. It is open to the public and will be in NIH Building 31C, Conference Room 10.

The FYI from the NHLBI staff thanks Ms. Paula Polite, member of the NHLBAC and President of the Sarcoidosis Research Institute, for her efforts in preparing this summary. Full minutes of Council meetings and a summary of the initiatives are available at www.nhlbi.nih.gov/meetings/nhlbac.



#### **Spotlight on Our Web Site**

#### **September is National Cholesterol Education**

**Month:** The National Cholesterol Education Program (NCEP) is pleased to present the 2001 National Cholesterol Education Month Kit at **hin.nhlbi.nih.gov/cholmonth/**. Research has shown that lowering cholesterol reduces the risk of developing

heart disease and having a heart attack. The new *Adult Treatment Panel III*, or *ATP III*, guidelines released earlier this year echo these findings and call for more aggressive cholesterol-lowering treatment and better identification of those at high risk for heart disease. Accordingly, the theme for this year's National Cholesterol Education Month is "Know Your Cholesterol Numbers – Know Your Risk."

The kit materials explain key changes in the new guidelines and provide educational materials and tools to implement them. None are copyrighted, so please feel free to format and reproduce them for use in your current or future projects (but please cite NHLBI as the source). Some of the materials included are listed below

- An article that discusses the new ATP III guidelines.
- Links to heart-healthy recipes, including African American, Latino, and Stay Young at Heart favorites.
- Ideas to help you promote National Cholesterol Education Month.
- A Track your progress Reach your goal worksheet to help you keep track of your cholesterol numbers.

Be sure to check out NCEP's popular interactive Web site, *Live Healthier, Live Longer* (www.nhlbi.nih.gov/chd). The site, which was recently updated to reflect the new *ATP III* guidelines, contains information about cholesterol lowering for persons who want to reduce their risk of developing coronary heart disease (CHD) and for persons who already have CHD.

#### New Resources to Help Consumers Control Their

**Blood Pressure:** The National High Blood Pressure Education Program has integrated the latest research findings of the effect of salt and sodium on blood pressure into

#### Hypertension Diet Also Lowers Cholesterol

People who are following the DASH (Dietary Approaches to Stop Hypertension) diet to lower their blood pressure will be pleased to know that they are lowering their risk of heart disease and stroke in more ways than one. In addition to lowering blood pressure in hypertensive patients and reducing elevated levels of the amino acid homocysteine (a risk factor for heart disease, stroke, and peripheral vascular disease), the DASH diet significantly reduces a person's levels of total cholesterol and of low density lipoprotein (LDL) or "bad" cholesterol. This effect was seen in both black and white study participants.

The diet, which is low in saturated fat and cholesterol and promotes the use of low fat dairy foods, is much higher in fruits and vegetables than a typical cholesterol-lowering diet. However, it is consistent with the NCEP's new guidelines, and adds one more tool to the armament of interventions known to help lower a person's risk for CHD.

several new resources to help consumers and their clinicians better control their blood pressure. Visit **www.nhlbi.nih.gov/hbp** for tips on maintaining a healthy weight, interactive quizzes and tools, information on medications, real-life examples, and recipes to help manage high blood pressure.

You also can download an updated brochure describing the DASH diet from www.nhlbi.nih.gov/health/public/heart/hbp/dash/index.htm. It includes a form to track eating habits before starting the plan, a chart to help with meal planning and food shopping, a week's worth of sample menus, and recipes for some of the heart-healthy dishes featured in the menus.

#### **Recent Advances from the NHLBI**

One More Reason to Achieve and Maintain a Healthy Weight: Investigators studying nearly 700 adults found that weight gains of 5 to 20 percent increase the risk of developing sleep apnea by 2.5 to 37 times, respectively. More important, weight loss was associated with reduced sleep apnea severity and decreased likelihood of developing moderate to severe sleep apnea. Sleep apnea, a prevalent and potentially serious medical condition, is characterized by repeated episodes of airway obstruction during sleep and excessive daytime sleepiness. These results strongly suggest that weight loss and prevention of weight gain, through diet or exercise, offer an effective approach for its prevention and treatment.

#### Researchers Identify Novel Approach for Predicting Pulmonary Complications from

**Sickle Cell Disease:** A pneumonia-like illness known as acute chest syndrome (ACS) is the leading cause of morbidity and early death in patients with sickle cell disease. Researchers have shown that elevated levels of an enzyme called secretory phospholipase A2 are associated with the development of acute chest syndrome. If confirmed by larger clinical studies, enzyme measurements could be used to identify patients with impending ACS, thereby allowing them to receive therapies that will reduce the severity of ACS or prevent its development.



#### Researchers Uncover a Secret of

**Burning Fat:** Researchers recently discovered that perilipin, a protein associated with fat metabolism and weight gain in mice and humans, acts by preventing a "fatburning" enzyme from entering fat cells where it can break down fat molecules and

convert them to energy. They also showed that mice genetically modified to lack perilipin had about half as much body fat, 8 percent more muscle, and higher metabolic rates than did normal mice, despite eating 25 percent more food. Moreover, a mutation for perilipin deficiency prevented obesity in mice that had been genetically programmed to be obese. Since perilipin has been found only on fat cells, researchers hope new anti-obesity drugs can be developed that will reduce perilipin activity and will work exclusively on adipose tissues without side effects on other tissues.

#### **Heart Muscle Regenerates After a Heart**

Attack: Challenging one of medicine's long-standing beliefs, a team of scientists funded by the NHLBI and the National Institute on Aging has found the strongest evidence to date that human heart muscle cells regenerate after a heart attack. The scientists found muscle cells dividing in two regions of the heart, and identified several other key indicators of cell regeneration. "It has long been assumed that when the heart is damaged - such as after a heart attack - heart muscle cells do not regenerate and the damage is permanent. Now, this latest research provides the most dramatic and clear-cut demonstration to date of heart cell regeneration after cardiac injury," said Dr. Lenfant. "With this landmark study, we have a new understanding of the heart that opens up the possibility of repairing heart muscle damage after a heart attack."

According to the study's principal investigator, Dr. Piero Anversa, the next challenge is to find the source of the dividing cells and establish if they truly are cardiac stem cells. "If we can prove the existence of cardiac stem cells and make these cells migrate to the region of tissue damage, we could conceivably improve the repair of damaged heart muscle and reduce heart failure," said Anversa. Research on animal models supports this possibility. Anversa also has published research showing that adult stem cells isolated from mouse bone and injected into a damaged mouse heart became functioning heart muscle by developing into myocytes and coronary vessels. Moreover, the new tissue partially restored the heart's ability to pump blood.

**Identifying Ideal Candidates for Revascularization:** A heart attack involves injury to heart muscle that occurs when arteries supplying blood to the heart become blocked. Sometimes patients improve if the blood flow can be restored via a revascularization procedure such as angioplasty or bypass surgery. However, the procedures are not risk-free; patients have a 2 to 5 percent chance of experiencing serious complications, including death. Therefore, it is critical that patients do not undergo the revascularization procedures needlessly, but it is equally important to treat those for whom the benefits outweigh the risks.

One such patient would be someone experiencing cardiogenic shock, the leading cause of death for patients hospitalized due to heart attacks. As demonstrated by the NHLBI's SHOCK Trial, heart attack patients who received revascularization immediately after developing cardiogenic shock were significantly more likely to be alive one year after their heart attacks than were those who developed cardiogenic shock but did not receive the procedure. Therefore, the American College of Cardiology and the American Heart Association recommend revascularization for patients younger than 75 years who develop cardiogenic shock within 36 hours of a heart attack.

Due to recent advances in magnetic resonance imaging (MRI) technologies, physicians may soon be able to identify other people for whom the risks of these invasive procedures outweigh the benefits. For example, a new MRI technique using contrast agents helps distinguish between patients with irreversibly damaged left ventricles and those in whom damage can be reversed by revascularization. Moreover, the technique is powerful enough to identify damaged tissue even in patients who are not aware that they had ever experienced a heart attack.

**Continued on page 6** 

#### **Recent Advances, continued from page 5**

# Long-Acting Beta-Agonists not as Effective as Inhaled Corticosteroids in Treating Persistent

**Asthma:** Researchers recently completed two studies addressing whether long-acting beta-agonists (LABs) should replace or supplement inhaled corticosteroids (ICS) as treatment for adults with mild-to-moderate persistent asthma. The results, published in the May 23, 2001 issue of the Journal of the American Medical Association, showed that LABs alone are not as effective as ICS alone in treating adults with mild-to-moderate persistent asthma. However, many patients with asthma were treated successfully with lower doses of steroids if they also took LABs. In a statement announcing the results Dr. Lenfant said "These two studies provide new and important scientific information about treatment questions that clinicians face every day in managing adult patients with mild-to-moderate persistent asthma: can they switch patients to long-acting beta-agonists from inhaled corticosteroids or use long-acting beta-agonists to reduce steroid doses? Now we have the answer."

# Third Annual PIO Meeting Scheduled for February 2002

The NHLBI will sponsor its annual meeting with representatives of various public interest organizations on February 6, 2002. As in previous years, the meeting date immediately precedes the winter meeting of the National Heart, Lung, and Blood Advisory Council to facilitate interactions between organization representatives and Council members. However, this year's meeting will have a slightly different format – instead of having several formal presentations interspersed with breakout sessions, it will consist primarily of workshops and seminars on topics identified by representatives who attended last year's meeting. "Save the Date" letters announcing the event have been mailed to organization leaders; we hope each of your groups will be represented.

Upcoming Events				
Date	Activity	Details	For Additional Information	
9/6/01, 10/18/01	National Heart, Lung, and Blood Advisory Council meetings	8:30am - 2:00pm, NIH Main Campus, Building 31C, Conference Room 10, Bethesda, MD. Open to the public.	www.nhlbi.nih.gov/meetings/ nhlbac	
10/20 - 10/23/01	American Dietetic Association Annual Meeting and Exhibition	St. Louis, MO. Sessions address the ADA's five strategic areas: Technology, Complementary Care, Genetics, Obesity, and Retail Food.	www.eatright.org/fnce	
10/21- 10/25/01	American Public Health Association's 129th Annual Meeting and Exposition	Atlanta, GA. "One World: Global Health" is the theme of the meeting.	www.apha.org	
11/4 - 11/8/01	American College of Chest Physicians' 67th Annual International Scientific Assembly	Philadelphia, PA. CHEST 2001 addresses issues relevant to clinical chest and critical care medicine and cardiothoracic surgery.	www.chestnet.org	
11/11 - 11/14/01	American Heart Association's 74th Annual Scientific Session	Anaheim, CA. The meeting emphasizes advances in cardiovascular research.	www.scientificsessions.org	
11/15/01	Great American Smokeout	Join the millions who have quit smoking since the first Great American Smokeout in 1971.	www.cancer.org	
12/7- 12/11/01	American Society of Hematology's 43rd Annual Meeting	Orlando, FL. The meeting, directed toward the research community, promotes exchange of information relating to blood, blood-forming tissues, and blood diseases.	www.hematology.org/ meeting/	

#### **Constituents' Corner**

We are reserving space for you, our readers, to share ideas and broadcast opinions. We invite you to submit your comments, thoughts, and suggestions via **email** (NHLBI.Listens@nih.gov) or **snail mail** (Public Interest News, c/o Office of Science and Technology, Building 31, Room 5A03, 31 Center Drive, MSC-2482 Bethesda, MD 20892-2482).

#### **Need More Information?**

- For health-related questions and publications, please contact the trained information specialists at the NHLBI Information Center (NHLBIinfo@rover.nhlbi.nih.gov) or write to the Information Center at P.O. Box 30105, Bethesda, MD 20824-0105.
- For communications pertaining to NHLBI policies and priorities, contact the NHLBI Office of Legislative and Public Liaison (SL34V@nih.gov).
- For additional information regarding NHLBI events, consult the references provided or www.nhlbi.nih.gov/calendar/nhcal.htm. Most other NIH Institutes and Centers also maintain calendars on their Web sites. Links to their Web pages are at www.nih.gov/icd.