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The Beat



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JANUARY 1998

BATTLING BRITTLE BONES

Osteoporosis is considered to be a major public health hazard. Osteoporotic fractures can cause substantial morbidity and mortality and osteoporosis is a common disease among the elderly. This disease, as reported by the National Osteoporosis Foundation, afflicts more than 28 million Americans, mostly women, and leads to 1.5 million fractures each year. With improvements in health care the lifetime expectancy in developed countries has increased. As the fraction of elderly individuals increases in the general population, osteoporosis will likely become even more commonplace. Recent information has developed in the area of osteoporosis and has been a hot topic this past year. The rise in interest has been stimulated by the release of a new drug called Fosamax and the development of a new class of estrogen-like drugs called selective estrogen receptor modulators (SERMs) which are designed to mimic estrogen's actions. The U.S. Food and Drug Administration Endocrinologic and Metabolic Drugs Advisory Committee voted 8-4 on November 20, 1997, to recommend approval of the first in a new class of drugs (Raloxifene) for the prevention of osteoporosis in postmenopausal women and is expected to be marketed early this year. Other osteoporosis drugs are in the development stage and a number are in clinical trials. Investigational treatments, such as raloxifene, will allow for the expansion of the treatments available to patients with debilitating osteoporosis.

Ian Thorneycroft, Ph.D., M.D., professor and chair in the Department of Obstetrics and Gynecology, explains that despite the intense publicity concerning osteoporosis, standard hormone replacement therapy (HRT) still should be considered as the preferred therapy because it has been shown to prevent decreases in bone density and to decrease the risk of fracture while providing many other health benefits for women who have no contraindications to its use. HRT not only eliminates hot flashes, but most importantly has a beneficial effect in the cardiovascular system and may also delay the onset of Alzheimer's Disease. However, in spite of these benefits, it can also stimulate breast and uterus tissue, which may increase the risk of cancer in these areas. Dr. Thorneycroft stated that while raloxifene may provide an attractive alternative to estrogen or HRT, it has not yet been shown to provide all the beneficial functions of standard estrogen therapy. Thorneycroft suspects, like other experts in the field, that many will be attracted to raloxifene because of the

lower patients probability of getting breast cancer. Raloxifene maybe be useful for women who are afraid to take estrogen, or who cannot take it, says Thorneycroft. Dr. Thorneycroft has a well-known national and international reputation for his work in reproductive endocrinology and has been invited to present lectures at many international conferences. He recently presented international lectures for the Royal Thai Obstetrics and Gynecology Society on "Estrogen and Alzheimer's Disease"; the College of Malaysian Menopausal Society on "Hormone Replacement Therapy"; the Philippine Society of Climacteric Medicine and to a group of physicians in Tokyo, Japan on "Recent Advances in Estrogen Therapy."

Although there is no cure for osteoporosis, there are many ways to slow its progress. Currently, there are three commonly accepted therapies available for postmenopausal osteoporosis: hormone replacement therapy, bisphosphonates (most widely used in this class of compounds are Didronel and Fosamax) and calcitonin (recently marketed as a nasal formulation of salmon calcitonin). There are other agents available such as tamoxifen which is commonly used as an adjunct in the treatment of breast cancer, and sodium fluoride that have been shown to improve bone mineral density.

Dr. Thorneycroft and his colleagues have conducted several menopausal studies and projects involving health-related quality of life issues. Amongst these studies, special areas of interests include contraception and menopause. The Department of Obstetrics and Gynecology has completed studies involving a comparison of raloxifene, estrogen and placebo on the uterus in healthy postmenopausal women and is currently studying the consequences of transfer from hormone replacement therapy to raloxifene.

Osteoporosis is one of the most under-diagnosed disorders in medicine. However, with good screening and early treatment this disease can be prevented. With an increased emphasis on research of this important disease, the outlook on osteoporosis prevention and treatment as our population lives longer, is very encouraging.



Dr. Thorneycroft displaying a bone density machine that can detect osteoporosis in its earliest stages.

INSIDE:

Taylor Receives AHA Award
Medical Sciences Addition
Nears Completion

CME Office Accredited
LeDoux Receives Award

MEDICAL SCIENCES BUILDING ADDITION NEAR COMPLETION

The new addition to the Medical Sciences Building, which includes three floors totaling 76,000 square feet, designed to meet the biomedical research needs of the University, will be completed in Spring of 1998. Each floor is constructed with clusters of modular laboratories that will house scientific focus groups working as teams. The research laboratories have been designed to incorporate the most modern features available. These features include movable laboratory furniture and service walls with easy access to allow reconfiguration of the laboratory to meet the constantly changing requirements of modern biomedical research as we enter the 21st Century.

NEW Ph.D. GRADUATES IN BASIC MEDICAL SCIENCES

Abdul Hafeez Divan, sponsored by Dr. Samuel J. Strada in the Department of Pharmacology. His dissertation was entitled "Role of Reversible Phosphorylation in Rat Pulmonary Microvascular Endothelial Permeability."



Abdul-Manaf Ibrahim, sponsored by Dr. Jane D. Funkhouser in the Department of Biochemistry and Molecular Biology. His dissertation was entitled "Localization of the Rat Lung Phosphatidylinositol Transfer Protein: A Proposed Role in Clara Cell Protein Secretion."



Yuan Liu, sponsored by Dr. Nathan Aronson in the Department of Biochemistry and Molecular Biology. Her dissertation was entitled "Mechanism of Glycosylasparaginase Autoproteolytic Activation and Substrate Catalysis."



Terrence M. Tumpey, sponsored by Dr. Robert Lausch in the Department of Microbiology and Immunology. His dissertation was entitled "A Role of Interleukin-10 (IL-10) in the Modulation of Stromal Keratitis Induced By Herpes."



Yan Xu, sponsored by Dr. Ronald S. Kaplan in the Department of Pharmacology. Her dissertation was entitled "High-level Expression and Site-directed Mutagenesis of the Mitochondrial Citrate Transport Protein."



Ling Zhou, sponsored by Dr. W. Joseph Thompson in the Department of Pharmacology. Her dissertation was entitled "Molecular and Functional Characterization of Multiple Phosphodiesterase Isozymes In Trabecular Meshwork Cells."

DR. AUBREY E. TAYLOR RECEIVES HEART ASSOCIATION AWARD



The Research Achievement Award has been conferred annually by the American Heart Association (AHA) since 1953, in recognition of distinguished scientific achievement in the field of cardiovascular research. Since the inauguration of the AHA Basic Research Prize, the Research Achievement Award has been focused to recognize and reward lifetime contributions to cardiovascular research and/or teaching. This year's award was shared by **AUBREY E. TAYLOR, Ph.D.**, Louise Lenior Locke Professor and Chair of the Department of Physiology, and Dr. Thomas W. Smith. Dr. Smith, who died in March 1997, was a member of the AHA Circulation Council. The prestigious Research Achievement Award was presented at the opening session of the 70th Scientific Sessions in Orlando, Florida on November 9, 1997.

Dr. Taylor's research has contributed significantly to an understanding of the microvascular and cardiovascular physiology, and was recognized by a prestigious MERIT award from the National Heart Lung and Blood Institute. His research career began in the early 1970's when he received the Ph.D. in physiology at the University of Mississippi in 1972, under the direction of Dr. Arthur Guyton. He completed a postdoctoral fellowship at the Biophysical Laboratory of Harvard Medical School with Dr. Peter Curran. These experiences, together with his prior training in mathematics, poised Dr. Taylor to investigate the theoretical as well as practical aspects of microvascular exchange. He has been a major force in the development of new, theoretically sound yet physiologically accessible, analytical approaches in the transcapillary exchange of fluid and solutes. He developed innovative experimental models to measure the dynamics of capillary filtration and capillary permeability in order to understand the mechanisms responsible for edema formation and resolution. This fundamental research has significant clinical implications.

*If you would like to submit
an article for publication,
please forward it to:*

Dusty Layton
University of South Alabama
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CSAB 170
or
FAX (334) 460-6073

LEARNING RESOURCES RENAMED MEDIA PRODUCTION SERVICES

The Learning Resources Department which was administratively merged with the Biomedical Library this past year, has been renamed **Media Production Services**. This change was implemented on September 1, 1997. Located in the College of Medicine Medical Sciences Building with a branch in the Mastin Building at the USAMC, Media Production Services provides the following:

- Photographic Services; including standard photography, slide production, and digital photography for online pictures
- Videography
- Computer Graphics
- Medical Illustration
- Scanning service for documents and pictures
- Assistance with web page development
- Frame-grabber service- "capture" still shots from video recordings
- CDR service - put your slides, graphics, text and other files on CD

For additional information or to request service please call 460-6317 (campus site) or 471-7086 (USAMC site).

FDA PROPOSES RULE ON WOMEN IN CLINICAL TRIALS

The Food and Drug Administration (FDA) has proposed a rule intended to ensure that women are not excluded from participating in early studies of potentially life-saving drugs and biologics just because of their reproductive potential. Published in the September 24 *Federal Register*, the proposed rule would permit the FDA to place a trial on hold if a sponsor fails to include the participation of women for inappropriate reasons.

According to the agency, its proposal reflects a significant evolution of thought concerning the legitimacy of using reproductive potential as a criterion for assessing acceptable risk in a clinical study. The proposal was prepared in response to recommendations from the National Task Force on AIDS Drug Development and the Presidential Advisory Council on HIV/AIDS, which both recognized that women in their reproductive years are significantly and increasingly affected by AIDS.

The FDA believes its rule will allow the developers of new drugs to acquire better data about appropriate dosages, the types of patients for whom drugs may be most effective, and contraindications. The rule does not set specific goals for recruiting women into studies, nor does it apply to:

- clinical trials designed to look at healthy volunteers exclusively;
- trials designed to test drugs for special circumstances in gender specific populations; and
- trials designed exclusively for men, so long as a comparison study in women with reproductive potential has been planned or is being conducted.

For more information, contact Allan C. Shipp, AAMC Division of Biomedical Research, 202-828-0484.

Article reprinted from Washington Highlights, Vol. 8, No. 36

CME OFFICE RECEIVES ACCREDITATION

The Continuing Medical Education (CME) Office has been awarded a two year accreditation by the Accreditation Council for Continuing Medical Education (ACCME). The purpose of the CME Office is to provide quality educational activities, in an effort to enhance the knowledge, skills and clinical competence of practicing physicians throughout our region. The State of Alabama requires that physicians attend 12 hours of CME approved activities annually to maintain licensure. Currently, the CME Office provides credits to approximately 3,900 physicians throughout Alabama, northwest Florida and southern Mississippi.

According to Associate Dean J. Raymond Fletcher, M.D., Ph.D., accreditation assures physicians and the public that continuing medical education activities at the university meet the high standards of the ACCME.

In order to gain accreditation, CME programs must undergo rigorous evaluation according to standards adopted by all seven sponsoring organizations of the ACCME. If you are interested in the Continuing Medical Education activities that the University of South Alabama has to offer, contact the CME Office at (334)460-7158.

THE NIH'S NEW CRITERIA FOR ASSESSING GRANT PROPOSALS

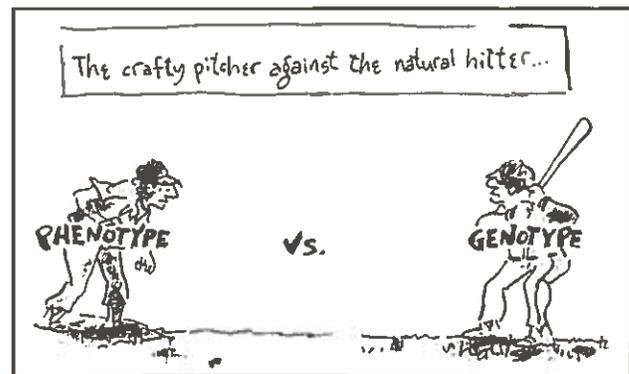
SIGNIFICANCE: Does the study address an important problem? If the aims of the applications are achieved, how will scientific knowledge be advanced? What will be the effect of these studies on the concepts or methods that drive this field?

APPROACH: Are conceptual framework, design, methods and analyses adequately developed, well-integrated, and appropriate to the aims of the project? Does the applicant acknowledge potential problem areas and consider alternatives tactics?

INNOVATION: Does the project employ novel concepts, approaches, or methods? Are the aims original and innovative? Does the project challenge existing paradigms or develop new methodologies or technologies?

ENVIRONMENT: Does the scientific environment in which the work will be done contribute to the probability of success? Do the proposed experiments take advantage of unique features of the scientific environment or employ useful collaborative arrangements? Is there evidence of institutional support?

Source: National Institutes of Health, Center for Scientific Review



DR. REGINA BENJAMIN RECEIVES NATIONAL HONOR



Regina Benjamin, M.D., Clinical Associate Professor in the Department of Family Practice and Community Medicine, has become the 13th Alabamian elected to the Institute of Medicine (IOM), a sister organization of the National Academy of Sciences. The Academies and the Institute are honorary societies that elect new members to their ranks each year.

Dr. Benjamin was nominated by Dr. James Pitman, dean emeritus at the University of Alabama at Birmingham. She will be inducted in October 1998 and will become one of the youngest members of the board.

The IOM's mission is to advance scientific knowledge and the health and well-being to all parts of society. It accomplishes this mission by providing information to government, the professions, and the public of policy matters pertaining to issues of medical care, research and education through its elected membership and access to the best expertise.

Dr. Benjamin has received several honors and awards including *Time* Magazine's appointment in 1994 as one of the nation's 50 future leaders under forty, *ABC World News Tonight with Peter Jennings* "Person of the Week" in 1995, *CBS This Morning* "Women of the Year" in 1996, D.Sc. - Honorary Degree in 1996 from Long Island University in Brooklyn, NY are just to name a few. In addition to being elected to the Institute of Medicine, Dr. Benjamin also holds other policy-making roles at the national, state and local levels. She is as a member of the American Medical Association Board of Trustees that oversees the Medical Association of the State of Alabama, President of the AMA Education and Research Foundation, Mobile County Medical Society member, the Board of Public Health for State of Alabama, and several other state public health boards.

Dr. Benjamin is the Co-Director of the AHEC program, a major coordinated state-wide effort to enhance physician access and patient care to citizens of rural Alabama.

CONGRATULATIONS

Robert J. Cox, M.D., assistant professor of emergency medicine, has successfully fulfilled the requirements as a diplomate of the American Board of Emergency Medicine.

Mr. Dereck Davis, a second year medical student from Shelby, Mississippi was awarded the second annual Tommy Agee Scholarship during an evening with the celebrities on October 3, 1997. Dereck received a \$500 scholarship. The event was held at the Clarion Hotel and celebrated such greats as Tommy Agee - Former American League Rookie of the Year, Jim "Mudcat" Grant - Former Major League Pitcher, Earl Wilson - 1996 Hall of Fame Inductee, and many others who were in town for a celebrity golf tournament to benefit the

Franklin Memorial Clinics. The Office of Special Programs is very appreciative to Mr. Charles White and the Franklin Clinics for their support of our students and programs.

Jack A. DiPalma, M.D., professor of medicine and director of the division of gastroenterology, was elected a trustee of the American College of Gastroenterology during the 62nd annual Scientific Session of the American College of Gastroenterology.

James Downey, Ph.D., professor of physiology, was elected as president-elect of the International Society for Heart Research. The ISHR is a world wide organization of cardiovascular scientists and is the largest international organization of its type.

Richard Esham, M.D., professor of medicine and director of the division of general internal medicine, was one of three delegates representing Alabama at the 41st annual session of the American Society of Internal Medicine in Washington, D.C.

Judy King, M.D., Ph.D., assistant professor of pathology, has been named president-elect of the Alabama Imaging and Microscopy Society.

Arthur Manoli, II, M.D., professor and chair of Orthopaedic Surgery, was elected to the Board of Directors of the Clinical Orthopaedic Society.

Keith Ramsey, M.D., associate professor of medicine and director of the division of infectious diseases, was elected to membership in the Southern Society for Clinical Investigation. Members are elected based on the quality of their scientific papers published in the medical literature.

Charles L. Rich, M.D., professor and chair of the Department of Psychiatry, presented a paper at the 23rd annual meeting of the American Academy of Clinical Psychiatrists. The paper "Gender and Suicide: What Protects Females?" addressed factors that are important in understanding why females have a lower suicide rate than males.

Maryella Sirmon, M.D., associate professor of medicine, presented a paper titled "Death in America: the Role of Ritual" at the "Visions for Ethics & Humanities in a Changing Healthcare Environment" conference. In recognition of her work, she was invited to submit the paper for publication in the journal, *Academic Medicine*.

Terrence Tumpsey, Ph.D., a recent graduate in the Department of Microbiology and Immunology, is a 1997 ASM/NCID Postdoctoral Associates Awardee. Only nine investigators were selected for this two year program which gives recipients the opportunity to conduct novel research at the National Centers for Infectious Diseases, located at the Centers for Disease Control and Prevention in Atlanta, GA. Dr. Tumpsey's preceptor will be Dr. Jacqueline Katz and his research will focus on strategies for the development of improved influenza vaccines.

NEW WEB SERVICE FOR FACULTY

The AAMC's Council of Academic Societies (CAS) has launched a new web service to better meet the information needs of faculty. The new Web site contains regularly updated news items, services, and other information of interest to faculty, and is available at <http://www.aamc.org/about/cas>. Through its 86 member professional organizations, the CAS represents the clinical and basic sciences faculty leadership of all LCME accredited medical schools.

In addition to material directly related to CAS, the site contains useful government affairs material, links to various AAMC database products, information on faculty affairs topics, and reports and services on the teaching, research, and clinical service missions of medical schools in the U.S. and Canada.

NATIONAL PRIMARY CARE DAY

"Medical Students Caring for the Future"

The fourth annual National Primary Care Day was held on October 1, 1997. National Primary Care Day (NPCD) is a national event designed for medical students to explore the challenges and rewards of primary care medicine. It provides a forum for medical students to educate their classmates as well as communities about the important role of general physicians in our health care systems.

The annual event included a seminar session with keynote speaker Dr. Sandral Hullett, a family practitioner from West Alabama Health Services. Other activities included small group discussions with USA faculty and residents, community physicians and practical workshops directed by USA residents. The Primary Care Day committee panel included Jennifer Miley, Tamara Walker, and Charles Wood.

The program's objective is to encourage interest in primary care careers by providing information about career opportunities in primary care medicine and addressing insights about primary care residency. The USA student body demonstrates a commitment to meet the nation's need for primary care physicians.

LEDOUX RECEIVES CAREER DEVELOPMENT AWARD

Susan LeDoux, Ph.D., Associate Professor in the Department of Structural and Cellular Biology, is the recipient of a five year NIEHS Independent Scientist Award which provides support for independent scientists who demonstrate the need for intensive research focus as a means of enhancing their research careers. This award is intended to foster the development of outstanding scientists and enable them to expand their potential in making important contributions to research. "Dr. LeDoux has developed a national reputation for her work on mechanisms of DNA repair and holds a strong record of scientific accomplishment," said Senior Associate Dean, Dr. Samuel Strada in his letter of support for this award.

The primary focus of Dr. LeDoux's research has been on the mechanisms that cells use to cope with environmental insults to their DNA. LeDoux says that she entered the field of mammalian DNA repair at a very exciting time. During the past ten years as cellular processes such as cell cycle regulation have been linked to DNA repair the importance of repair processes for normal cellular homeostasis has begun to be appreciated. Application of new methodologies that permit evaluation of repair of damage at the level of specific sequences and now even at the level of individual nucleotides allow important mechanistic questions to be addressed. With the aid of these new technologies, LeDoux and colleagues have shown heterogeneity in repair of N-methylpurines in nuclear DNA and were the first to demonstrate repair of N-methylpurines in mitochondrial DNA. Subsequently, because of this seminal observation of mitochondrial DNA repair of N-methylpurines, these studies were extended and revealed an extremely rapid repair of oxidative damage in mitochondrial DNA that is nucleotide specific.

Evaluation of repair processes is often performed in transformed cell lines and extremely important information can be gained from these types of studies. However, as we attempt to relate this repair information to typical cellular processes these studies must be moved into normal diploid cells. Because of the obvious importance of the central nervous system and the dearth of information concerning DNA repair within the different populations of CNS cells, primary cultures of glial cells from rat CNS were utilized by Dr. LeDoux and a cell-type specific repair of alkylation and oxidative DNA damage in both the nucleus and mitochondria has been described.

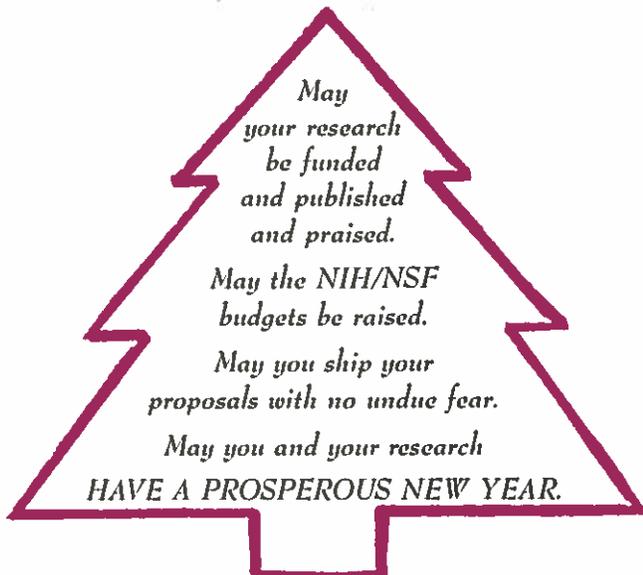
During the next five years, Dr. LeDoux's research will remain focused on the mechanisms by which cells of the CNS, including different populations of glial cells and neurons, deal with environmental toxins. As before, the primary area of concentration will be on repair of DNA damage following exposure to genotoxins. When successfully completed, these studies will enhance understanding of the role that environmental toxins play in the etiology and pathogenesis of neurodegenerative diseases. Moreover, knowledge of the molecular mechanism whereby xenobiotics interact with the DNA of CNS cells will facilitate the development of preventative and therapeutic strategies for a variety of neurodegenerative diseases.



Dr. LeDoux (1st row; second from right) with students and colleagues in the laboratory

DR. STEVEN PITTLER APPOINTED TO NIH STUDY SECTION

Steven J. Pittler, Ph.D., associate professor of biochemistry and molecular biology, has been appointed to the NIH Visual Sciences Study Section, Center for Scientific Review. Members are selected on the basis of their demonstrated competence and achievement in their scientific discipline as evidenced by the quality of research accomplishments, publications in scientific journals, achievements and honors.



HHS ANNOUNCES SATELLITE SERIES ON HIV/AIDS

The Department of Health and Human Services has announced new satellite broadcast programming on HIV and AIDS-related issues, a series of two-hour broadcasts which will examine topics of interest to health care providers, researchers, and more general audiences.

The series premiere, on February 27, 1998, will look at HHS' soon-to-be-released guidelines for the Use of Antiretroviral Agents in HIV-Infected Adults and Adolescents. Explaining the guidelines will be Anthony S. Fauci, M.D., director, National Institute of Allergy and Infectious Diseases; John G. Bartlett, M.D., professor, Johns Hopkins University; and Eric P. Goosby, M.D., director, HHS Office of AIDS/HIV Policy.

HYPERTENSION RESEARCH

The University of South Alabama Department of Medicine is enrolling patients with high blood pressure in research to study a new type of drug. The research will last about seven months. Physical examinations, laboratory tests, EKG heart function test and experimental drugs at no cost. Payment for time and travel is provided.

For more details, call Sue Karns, (334) 460-7320

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