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The Beat Newsletter

Frederick P. Whiddon College of Medicine

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10-1994

## The Beat Newsletter

College of Medicine

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## DEPARTMENT UPDATE

**THE BIOCHEMISTRY DEPARTMENT** has undergone major change over the past two years since the arrival of Dr. Nathan Aronson as Chair and Distinguished Professor.



Dr. Nathan Aronson spent 23 years on the faculty at Penn State University where he was Professor of Biochemistry. Dr. Aronson's laboratory is currently studying a genetic disease termed "AGU" in which glycoprotein fragments accumulate in tissues. This metabolic defect is genetically enriched in the population of Finland, where there are over 200 severely mentally-retarded AGU patients.

Three assistant professors, Dr. Steven J. Pittler, Dr. Richard E. Honkanen, and Dr. Sainen Barik, also joined the Biochemistry Department as new members of the faculty.



Dr. Steven J. Pittler (Ph.D., Michigan State University) came from the Cullen Eye Institute at Baylor and is an expert on the molecular biology of cGMP phosphodiesterase and its role in normal and pathological aspects of signal transduction in the retina. In addition, he is studying effects of the drug lovastatin on the architecture of the retina. He holds a joint appointment with

the Department of Ophthalmology and is a founding member of the USA Lions' Eye Research Group. Recently he was awarded the 1995 Cogan Award from the Association for Research in Vision and Ophthalmology. This prestigious award recognizes the most promising young scientist in the field of vision research. His studies are supported by the National Institutes of Health, the National Science Foundation and the Alabama Affiliate of the American Heart Association.



Dr. Richard Honkanen (Ph.D., University of Georgia) came to Biochemistry from the Pacific Northwest Research Foundation in Seattle, and also had prior postdoctoral positions at the University of Hawaii and the Medical College of Georgia. His field of study is serine/threonine protein phosphatases, enzymes that regulate many aspects of cellular development, growth and metabolism. For

example, he is testing the role of these phosphatases in the process of insulin secretion. He is internationally recognized for his work on characterization of inhibitory compounds that are widely used to study these important regulators of cell function. This has led him to collaborate with the Federal Drug Administration at Dauphin Island, since many such inhibitors are found in marine microorganisms. Dr. Honkanen's research is supported by NIH, the National Oceanic and Atmospheric Administration and the Alabama Affiliate of the American Heart Association.



Dr. Sainen Barik (Ph.D., Univ. of Calcutta) is a specialist in virus transcription and came to USA in April from The Cleveland Clinic Foundation. He did postdoctoral work at the Univ. of Connecticut Health Center. Dr. Barik is recognized for his molecular characterization of viral transcription and is now emphasizing the study of the medically important respiratory syncytial virus. This

virus is a major cause of respiratory diseases such as bronchiolitis and pneumonia in young children. His research is funded by the NIH.

Now that a full-size faculty has been attained, a principal goal of Biochemistry is to develop active collaborations with other faculty research and academic programs throughout the Medical School, including both Clinical and Basic Science groups, as well as with other University departments doing related biological research. A number of such fruitful endeavors are underway and the Biochemistry faculty look forward to developing many more in the coming years.



## NEW FACULTY

*The following are biographical sketches of new faculty members in the College of Medicine.  
We hope your stay at USA will be an exciting and rewarding experience.*



Browning



Caldwell



Boudreaux



Berry



O'Brien



Houston



D. Hashimi



M. Hashimi



Vande Waa



Murphy



Thomley



Pace



O'Connor



Zayek



Hanna



Michael



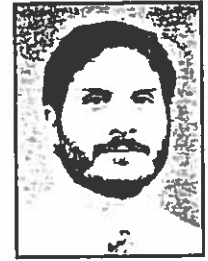
Abernethy



Hartsock



Pofahl



Safran



Frye



Dean



Barik

## ANESTHESIOLOGY

**James Browning, M.D.** received his B.A. in biochemistry and his M.D. from the University of Texas Medical Branch, Galveston. He completed his residency in Anesthesiology at the University of South Alabama College of Medicine.

**William Caldwell, D.O.** received his undergraduate degree from Emory University and his Medical Degree from Southeastern College of Osteopathic Medicine in North Miami Beach, Florida. He completed his residency and a fellowship in Pediatric Anesthesiology at Columbus Children's Hospital in Columbus, Ohio.

**Randall Boudreaux, M.D.** received his B.S. in premedicine from McNeese State University in Louisiana and his M.D. at Louisiana State University School of Medicine. He completed his residency at the University of South Alabama.

## BIOCHEMISTRY

**Sailen Barik, Ph.D.** received his B.S. in chemistry and his Ph.D. in Biochemistry from the University of Calcutta, and conducted postdoctoral research at the University of Connecticut. His research involves studies on viral transcriptions.

## MEDICINE

**Michael Berry, M.D.** received his B.S. in chemistry and biology at USA. He obtained his M.D. from USA College of Medicine and completed a fellowship in Gastroenterology at USA.

**Barbara O'Brien, M.D.** received her B.A. in biology at Cornell University and her M.D. from USA College of Medicine. She completed her fellowship in Gastroenterology at the University of Illinois at Chicago.

**Michael Houston, M.D.** received B.S. at the University of Alabama and his M.D. at USA College of Medicine. He completed a fellowship in Pulmonary and Critical Care at Northwestern University.

**Diana Hashimi, M.D.** received her B.S. in chemistry at Birmingham Southern College and her M.D. at USA College of Medicine. She completed her residency in Internal Medicine at USA College of Medicine.

**Mir Hashimi, M.D.** received his B.S. in chemistry at Auburn and his M.D. at USA College of Medicine. He completed a residency and fellowship in Cardiology from USA College of Medicine.

**John Vande Waa, Ph.D., D.O.** received his D.O. at Michigan State College of Osteopathic Medicine and a Ph.D. in Microbiology and Public Health. He completed a residency in Internal Medicine and a fellowship in Infectious Disease from the University of Wisconsin.

## MICROBIOLOGY

**David Dean, Ph.D.** received his B.A. in biochemistry and cell biology from the University of California and his Ph.D. in Microbiology. He completed a postdoctoral fellowship at the University of California at Los Angeles. His area of research involves the study of SV-40 DNA tumor viruses.

## PATHOLOGY

**Claire Michael, M.D.** received her M.D. from Ain Shams University in Cairo, Egypt. She completed her residency at William Beaumont Hospital in Royal Oak, Michigan and a fellowship in Cytopathology at Wayne State University/Detroit Medical Center in Michigan.

**John Abernethy, M.D., Ph.D.** received a B.S. in chemistry, a Ph.D. in Biochemistry and his M.D. from Duke University. He completed his residency in Anatomic and Clinical Pathology from Duke University and a fellowship in Dermatopathology at Wake Forest University.

## PEDIATRICS

**Betty Pace, M.D.** received her B.S. from Marquette University and her M.D. from the Medical College of Wisconsin. She completed her residency in Pediatrics at Children's Hospital of Wisconsin. She completed fellowships in Pediatric Hematology-Oncology at the University of Colorado and medical genetics at the University of Washington.

**Timothy O'Connor, M.D.** received his B.S. in biology from Spring Hill College and his M.D. from USA. He completed his residency in Pediatrics at USAMC and a fellowship in Pediatric Emergency Medicine at Children's Mercy Hospital at the University of Missouri, Kansas City.

**Michael Zayek, M.D.** received his M.D. from St. Joseph University of Beirut. He completed his residency in France and a fellowship in Neonatology at Children's Hospital of Buffalo.

**William Hanna, M.D.** received his B.S. in psychology from St. Andrews Presbyterian College and his M.D. from East Carolina University. He completed his residency in Pediatrics and a fellowship in Pediatric Emergency Medicine at St. Louis University.

## OPHTHALMOLOGY

**Brent Murphy, M.D.** received his B.A. in chemistry and M.D. from the University of Kentucky. He completed his residency in Ophthalmology from the University of South Florida and a fellowship in Oculoplastic and Orbital Surgery at Vanderbilt University.

**Martin Thomley, M.D.** received his B.S. in chemistry from Auburn University and his M.D. from the University of Alabama. He completed his residency and a fellowship in Vitreoretinal Surgery at Bascom Palmer Eye Institute in Miami, Florida.

## ORTHOPAEDIC SURGERY

**Langdon Hartsock, M.D.** received his B.S. in premedicine at Davidson College and his M.D. from Duke University. He completed his fellowship in Orthopaedic Traumatology at R. Adams Cowley Shock Trauma Center in Baltimore.

## SURGERY

**Walter Pofahl, M.D.** received his B.A. in molecular biology from Vanderbilt. He received his M.D. from West Virginia University. He completed his residency and fellowship in Surgery at the University of Kentucky.

**David Safran, M.D.** received his B.A. in chemistry from City University of New York and his M.D. from New York University. He completed his residency in General Surgery at Hartford Hospital and his fellowship in Surgical Critical Care at Jacksonville Memorial Hospital.

**Karen Frye, M.D.** received her M.D. from the University of Arizona. She completed her residency in General Surgery from Highland General Hospital and a fellowship at the University of Washington Burn Center.

## WHAT'S NEW AT USA'S SICKLE CELL CENTER?

Sickle Cell Anemia is a genetic disorder affecting approximately 50,000 people in the United States. A single amino acid substitution within the hemoglobin results in a protein which becomes insoluble in the absence of high oxygen content. As a result the red blood cell sickles, and has a more difficult time making the voyage through the circulatory system to carry oxygen to the tissues. The result is tissue and organ damage, painful sickle cell episodes, and a decreased lifespan.

The University of South Alabama College of Medicine has one of ten federally funded Comprehensive Sickle Cell Centers in the United States. Each year we receive approximately 1 million dollars in direct costs from the NIH to support research, clinical programs, and community programs on sickle cell anemia. In addition to the federal funding of the Sickle Cell Center, the Center will be receiving \$236,063 from the State of Alabama for the year ending September 30, 1995. This one year allocation, which is part of the Sickle Cell Education Program Bill, represents an increase of \$200,000 over previous yearly allocations. In May 1993, Dr. Steven Goodman became the Director of the USA Comprehensive Sickle Cell Center, a position that he holds concurrently with his role as Chairman of the Department of Structural and Cellular Biology. Dr. Johnson Haynes is Associate Director for Clinical Programs and Ms. Rose Peterson is Associate Director for Community Programs. She also heads the Community Component which provides accurate information to the public about sickle cell disease, provides screening and diagnostic services, counsels "at risk" individuals, and provides support for clients and their families.

The Sickle Cell Center and NIH are currently funding the following projects. Dr. Steven Goodman is studying the molecular defect within the spectrin membrane skeleton which causes the formation of the irreversibly sickled cell. Recently, Dr. Goodman and colleagues have made the interesting discovery that a single disulfide bridge formed in  $\beta$ -actin causes the cell to become irreversibly sickled, and that membrane permeable reducing agents can reverse this process. Dr. Zarrintaj Aliabadi is studying the genetic regulatory mechanisms and biochemical factors involved in human  $\beta$  globin gene switching. Dr. Blaine Moore is studying the role of the protein calpromotin in sickle cell dehydration and calcium-dependent potassium transport. Dr. Johnson Haynes is studying the role of the sickled red blood cell and its interactions with vascular endothelium and neutrophils in causing lung injury in sickle cell disease. Dr. Yih-Ming Yang is the project head for the Prenatal Education Program and the Clinical Core Component. Within the Clinical Core, Dr. Yang and Dr. Manuel Cepeda are studying the psychosocial development in the pediatric sickle cell population. Dr. Paul Dyken is conducting a study on neurological, neuropsychological, and neuroimaging of sickle cell patients versus control populations.

To bring fresh ideas and projects into the Sickle Cell Center at USA, Dr. Steven Goodman and Dean Albert Pruitt created a competitive initiation award system for USA investigators not previously funded for research on sickle cell anemia. After careful review of submitted projects, four projects were funded for an initial period of two years. Dr. Danna Zimmer (Pharmacology) will test the hypothesis that butyrate induction of  $\alpha$ -globin gene expression occurs via an alteration in DNA/protein interactions. Dr. Zimmer is attempting to identify butyrate response elements (BRE) in the human  $\alpha$ -globin gene and transacting factors that bind to the BRE. The hypothesis being tested by Dr. Jay Umbreit (Medicine) is that a novel pathway for zinc transport exists in reticulocytes and alterations in this transport process occur in sickle cell disease and is responsible for its pathology. Dr. Warren Zimmer (Structural and Cellular Biology) is using a relatively new recombinant DNA procedure to produce a mouse model for sickle cell disease. Dr. Zimmer is mutating the mouse gene instead of replacing it with a human transgene. Dr. Derek Uchida (Pediatrics) is studying abnormalities of sleep physiology in patients with sickle cell disease. These initiation awards are important in improving research efforts and in demonstrating the University commitment to the USA Comprehensive Sickle Cell Center.

Dr. Betty Pace was recently recruited as a hematologist. She will spend 25% time treating patients with sickle cell disease and 75% time on sickle cell research. Dr. Pace completed a Fellowship in Pediatric Hematology/Oncology at the University of Colorado Health Sciences Center (1987-1990) followed by a Postdoctoral Fellowship in the laboratory of Dr. George Stamatoyanopoulos at the University of Washington. During her work with Dr. Stamatoyanopoulos, Dr. Pace performed outstanding research dealing with the regulation of  $\alpha$  gene expression by butyrate, and development of a transgenic mouse model to study pharmacologic induction of fetal hemoglobin. She will be continuing these studies at USA. As of August 15, 1994 Dr. Pace has been a member of the faculty at USA with primary appointment in the Department of Pediatrics and joint appointment in the Department of Structural and Cellular Biology. Dr. Pace has also been appointed as the Head of the Pediatric Sickle Cell Clinic.

Dr. Goodman believes that a cure for sickle cell disease is on the horizon through a gene therapy approach, where the normal gene is inserted into stem cells and the abnormal gene is turned off. Therefore, he is going to launch a gene therapy initiative to determine what steps need to be taken to start an effective research effort on gene therapy for sickle cell disease at USA. This is an important progressive step for the Sickle Cell Center and the USA College of Medicine, which will propel us into the manner in which medicine will be practiced and genetic disease cured in the future.

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