

# LAB MEDICINE

A Magazine for Alumni and Friends of the School of Medicine

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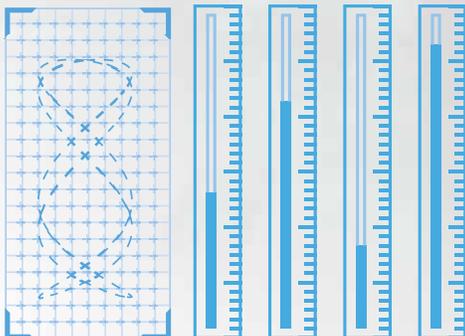


## Frontiers OF THE FUTURE

How Personalized Medicine,  
Genomics, and Informatics  
Are Transforming Health Care



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# Tomorrow's *Medicine*



Senior vice president and dean Selwyn Vickers

In June 2014, our Board of Trustees approved the creation of three new programs—the Hugh Kaul Personalized Medicine Institute, the UAB-HudsonAlpha Center for Genomic Medicine, and the UAB Informatics Institute—that will accelerate and expand our efforts in these critical areas. These programs are now up and running, and this issue's cover feature highlights research projects currently being conducted under the auspices of each program. In addition, each research project is linked to a hypothetical patient case study to demonstrate in concrete terms how advances in each of these fields will improve medical diagnosis and treatment.

Just before going to print on this issue, UAB and the School of Medicine announced that funding for UAB from the National Institutes of Health rose more than 20 percent in fiscal year 2014 compared to the previous year. NIH funding to UAB totaled \$225 million (including contracts), up from \$188 million in FY 2013, placing UAB 10th in NIH funding among public universities. I am proud to say that the School of Medicine secured more than \$156.3 million in 2014. This increase, our first positive growth in 12 years, boosts the school's ranking to No. 26 nationally, up from No. 31 the previous fiscal year.

Garnering research support at this level helps grow our footprint in the fields of personalized medicine, genomics, and other key areas which, in turn, strengthens our ability to provide unparalleled care to patients throughout our state and region.

This achievement is the result of the efforts not only of the current SOM leadership team and our world-class faculty, but also of the vision, planning, and determination of my immediate predecessors in the dean's office, **Dr. Robert R. Rich**, **Dr. Ray L. Watts**, and **Dr. Anupam Agarwal**. As I often say, growing our research enterprise is like walking up a down escalator: if we stop pressing forward, we don't just stop—we slide backwards. After more than a decade of striving toward this goal, it is immensely gratifying to see the efforts of so many of my friends and colleagues rewarded in this way. It is an energizing way to head into the new year—with the wind at our backs as we work to maintain this impressive momentum in 2015.

Sincerely,

Selwyn M. Vickers, M.D., FACS

Senior Vice President for Medicine and Dean

James C. Lee Endowed Chair

Read monthly updates from Dean Vickers at [www.uab.edu/medicine/dean](http://www.uab.edu/medicine/dean).

This issue's cover story is entitled "Frontiers of the Future," but in many ways the future of health care is already here. As gene sequencing costs have plummeted due to advances in genomics and computing technology, researchers are looking for ways to use patients' genomic data, along with information about their lifestyle, behavior, and environment, to tailor treatment decisions for each individual. The full promise of personalized medicine has yet to be realized, and the field is considered to be the next great biomedical research frontier.

When I joined the School of Medicine as senior vice president for medicine and dean in October 2013, one of my top priorities was to expand our research capabilities in the related fields of personalized medicine, genomics, and informatics.

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Anath Shalev

## Revolutionary Potential

PROMISING DIABETES DRUG HEADED FOR HUMAN TRIALS

New research conducted at the School of Medicine has shown that the common blood pressure drug verapamil completely reverses diabetes in animal models. Thanks to a three-year, \$2.1 million grant from the JDRE, UAB researchers are in the process of conducting a potentially groundbreaking clinical trial in 2015 to see if it can do the same in humans. The trial, known as “the repurposing of verapamil as a beta cell survival therapy in type 1 diabetes,” has come to fruition after more than a decade of research in the UAB Comprehensive Diabetes Center. It will focus on promoting specialized cells in the pancreas called beta cells, which produce insulin the body needs to control blood sugar. UAB scientists have proven that high blood sugar causes the body to overproduce a protein called TXNIP, which is increased within beta cells in response to diabetes, but had never previously been known to be important in beta cell biology. Too much TXNIP in the pancreatic beta cells leads to their deaths and thwarts the body’s efforts to produce insulin, thereby contributing to the progression of diabetes.

UAB scientists have also discovered that the drug verapamil, which is widely used to treat high blood pressure, can lower TXNIP levels in these beta cells—to the point that, when mouse models with established diabetes and blood sugars above 300 milligrams per deciliter were treated with verapamil, the disease was eradicated. “We have previously shown that verapamil can prevent diabetes and even reverse the disease in mouse models and reduce TXNIP in human islet beta cells, suggesting that it may have beneficial effects in humans as well,” says **Anath Shalev**, M.D., the Nancy R. and Eugene C. Gwaltney Family Endowed Chair in Juvenile Diabetes Research, director of the UAB Comprehensive Diabetes Center, and principal investigator of the clinical trial. “That is a proof-of-concept that, by lowering TXNIP, even in the context of the worst diabetes, we have beneficial effects. All of this addresses the main underlying cause of the disease—beta cell loss. Our current approach attempts to target this loss by promoting the patient’s own beta cell mass and insulin production. There is currently no treatment available that targets diabetes in this way.”

Watch a video about the new human clinical trial of verapamil on UAB Medicine’s iPad app.

## Propelling Knowledge

NEW STUDY HIGHLIGHTS ROLE OF IMMUNE RESPONSE IN AUTISM

Brains affected by autism share a pattern of ramped-up immune responses, an analysis of data from autopsied human brains reveals. The collaborative study between Johns Hopkins and UAB included data from 72 autism and control brains. It was published online in the journal *Nature Communications*.

The causes of autism are a frequent research topic for geneticists and neuroscientists. But Dan Arking, Ph.D., an associate professor in the McKusick-Nathans Institute for Genetic Medicine at the Johns Hopkins University School of Medicine, noticed that studies of whether and how much genes were being used—known as gene expression—involved too little data to draw many useful conclusions about autism. Gene-expression testing has to be performed on the specific tissue of interest—in this case, brains that could be obtained only through autopsies.

Arking and his colleagues, including **Andrew West**, Ph.D., the John A. and Ruth R. Jurenko Endowed Professor in the UAB Department of Neurology and co-corresponding author of the study, analyzed gene expression in samples from two different tissue banks, comparing gene expression in people with autism to that in controls without the condition. All told, they analyzed data from 104 brain samples from 72 individuals—the largest data set so far for a study of gene expression in autism.

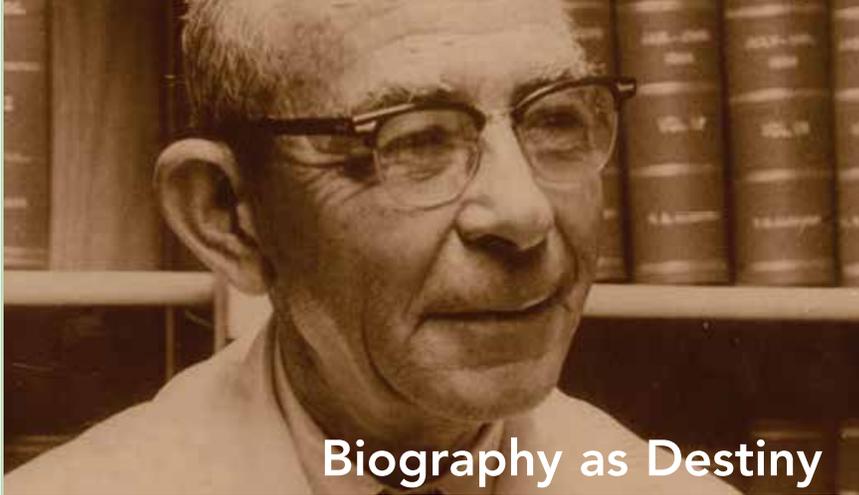
Previous studies identified autism-associated abnormalities in cells that support neurons in the brain and spinal cord. In this study, the research team zeroed in on a specific type of support cell known as a microglial cell, which polices the brain for pathogens and other threats. In the autism brains, the microglia appeared to be perpetually activated—and the genes for inflammation responses turned on. “This type of inflammation is not understood well, but it highlights the lack of current understanding about how innate immunity controls neural circuits,” says West.

## THE HEART OF THE MATTER



UAB Paper Among Year’s Top Five

Two UAB researchers received awards from the journal *Circulation Research* for writing one of the five most outstanding papers of 2014. The Division of Cardiovascular Disease’s **Ameen Ismail**, Ph.D., and **Sumanth Prabhu**, M.D., the Mary Gertrude Waters Chair of Cardiovascular Medicine, are authors of an article that showed white blood cells located in the spleen called splenocytes are intricately involved in the heart failure that follows an infarction in a mouse model. Ismail and Prabhu provided, “... exciting new evidence implicating the spleen in the immunoinflammatory response after myocardial infarction,” said Nikolaos Frangogiannis, M.D., Albert Einstein College of Medicine, in an accompanying editorial in *Circulation Research*. The UAB team is in the initial stages of expanding the observations in mice to humans with ischemic heart failure.



## Biography as Destiny

*Former Dean Chronicles Life of Tinsley Harrison, M.D.*

The life and career of **Tinsley R. Harrison, M.D.**, founding chair of the Department of Medicine, founding dean of the School of Medicine, and one of the most important medical figures of the 20th century, are the subject of a first-of-its-kind biography. Manuscripts penned by the late **James A. Pittman Jr., M.D.**, another longtime dean of the School of Medicine, served as the basis for the biography, entitled *Tinsley Harrison, M.D.: Teacher of Medicine*.

Born in Talladega, Ala., Harrison was dean of three medical schools, but served longest at the School of Medicine at UAB, which rose to international prominence under his leadership. Harrison's seminal book, *Harrison's Principles of Internal Medicine*, has been reprinted 16 times and translated into 14 languages, and is the most-used and best-selling internal medicine textbook in the world.

Pittman, a friend, colleague, and one-time chief resident under Harrison, collected six years of interviews with Harrison in the biography. Soon after submitting nearly 1,000 pages of manuscript to NewSouth Books, Pittman became unable to assist with editing due to declining health. A team of doctors who worked with Pittman and Harrison over the years were enlisted as proofreaders and fact-checkers. Pittman passed away January 12, 2014.



James Pittman Jr.

"In the end, we hope that we have delivered a version of Dr. Pittman's manuscript that does justice to his intentions, to the prodigious effort that went into research and writing, and finally, to his devotion to Tinsley R. Harrison, M.D., and to Harrison's medical school—make that Harrison's and Pittman's medical school," says Randall Williams, editor-in-chief of NewSouth Books.

## Fond Farewell The Passing of an Icon



**H. Cecil Coghlan, M.D.**, professor emeritus in the Division of Cardiovascular Disease, died on December 23 after a long illness. A native of Santiago, Chile, Coghlan received his medical degree in 1956 from the University of Chile Medical School, where he served as

chief resident at Sewell Hospital. While chief resident, Coghlan served as a translator for **Tinsley R. Harrison, M.D.**, then chair of the Department of Medicine, during a visit to Sewell Hospital. Harrison invited Coghlan to Birmingham as a visiting researcher and clinical fellow in cardiology.

Coghlan spent three years at the School of Medicine before returning to the University of Chile Medical School. He was recruited back to UAB in 1973 and achieved the rank of full professor in 1981. He retired in 2008.

Coghlan is remembered as an excellent clinician, a master teacher, and a kind and gracious friend. Colleagues and friends have established the H. Cecil Coghlan, M.D., Endowed Support Fund in Cardiovascular Medicine to help the division recruit and retain top-notch physician-scientists. Gifts to the endowment may be made online or sent to the School of Medicine Development Office, FOT 1230, 1720 Second Avenue South, Birmingham, AL 35294-3412.

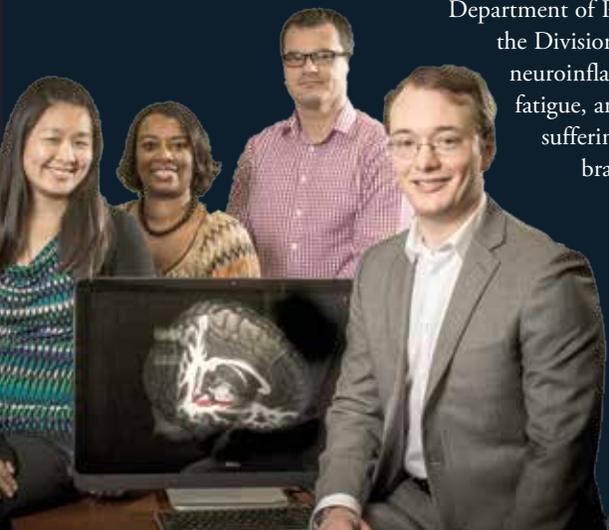
## Combatting Chronic Conditions

NEUROINFLAMMATION AND CHRONIC PAIN AND FATIGUE

Chronic pain (fibromyalgia) and fatigue syndromes are difficult to diagnose and treat, and may affect more than 200,000 Alabamians. Research by a new UAB associate professor reveals that the best way to end chronic pain and fatigue conditions may be by stopping inflammation in the brain. **Jarred Younger, Ph.D.**, who came to UAB from Stanford University's School of Medicine, has a primary appointment in the

Department of Psychology and secondary appointments in the Department of Anesthesiology and the Division of Clinical Immunology and Rheumatology. His focus is diagnosing and treating neuroinflammatory disorders. Younger's work at Stanford already yielded new treatments for pain and fatigue, and he is continuing that work at UAB. "We believe that in many cases when someone is suffering from chronic pain or fatigue, they may be suffering from low-level inflammation in their brain," Younger says. "We are investigating ways to return the brain to its normal state."

In Alabama, there are no clinical research centers that specialize in conditions such as fibromyalgia and chronic fatigue syndrome. Younger's Neuroinflammation, Pain, and Fatigue Laboratory will be conducting several research projects in the Birmingham area. The first large study, funded by the National Institutes of Health, will explore chemicals in the blood that may overly sensitize the brain's immune system, causing pain and fatigue. Younger's group recently found that an inflammatory chemical called leptin that is released by fat tissue might be involved in chronic pain and fatigue, especially in women.



## A Rising Tide

NEW RECRUITS BOOST ANESTHESIOLOGY RANKING

New recruits to the Department of Anesthesiology are projected to boost the department into the top 10 in funding from the National Institutes of Health. In 2014, the department added five new research faculty with active research grant funding totaling more than \$5 million. New faculty include:

- **Jiangou Gu**, M.D., Ph.D., who was recruited from the University of Cincinnati. He serves as editor-in-chief of the journal *Molecular Pain* and will be the director of pain research for the department.
- **Aftab Ahmad**, Ph.D., and **Shama Ahmad**, Ph.D., who came from the University of Colorado, Denver. The Ahmads join other UAB researchers in the federal CounterACT program, funded by the NIH. CounterACT is a translational research program aimed at discovering and identifying better therapeutic medical countermeasures and technologies against chemical threat agents.
- **Jennifer J. DeBerry**, Ph.D., who returned to UAB from the University of Pittsburgh. DeBerry earned her undergraduate and doctoral degrees at UAB. Her research focus is understanding the sensory pathways and mechanisms underlying urinary bladder pain and dysfunction and ulcerative colitis.
- **Kevin Harrod**, Ph.D., joined UAB from the Lovelace Respiratory Research Institute in Albuquerque, N.M. He is an expert in influenza and respiratory syncytial virus and is leading research into emerging respiratory viruses such as avian influenza and SARS-COV.

Pictured (front row, left to right) **Shama Ahmad**, Ph.D.; Professor and Alfred Habeeb Professor and Chair in Anesthesiology **Keith A. Jones**, M.D.; and **Jennifer DeBerry**, Ph.D.; (back row, left to right) Distinguished Professor and Alice McNeal Endowed Chair of Anesthesiology **Sadis Matalon**, Ph.D., **Aftab Ahmad**, Ph.D., **Jiangou Gu**, Ph.D., and **Kevin Harrod**, Ph.D.

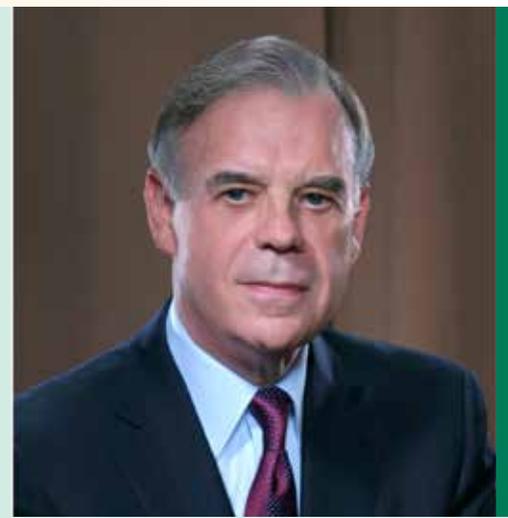
## DROPPING BEATS

### *Kidney Disease Rap Video Debuts*



The UAB Division of Nephrology has teamed up with nurse and rap stylist **Craig Barton** to create an educational video about kidney disease and transplants. Barton, currently an RN in the UAB Heart and Vascular Unit, has previously created rap videos for the Department of Emergency Medicine ("ER Rap"), UAB Hospital ("UAB Is the Place to Be," "The Handwash Rap"), and the School of Nursing ("Stroke Rap").

Watch "The Kidney Rap"  
on UAB Medicine's iPad app.



## Bland to Step Down

After 15 years as chair of the Department of Surgery in the School of Medicine and surgeon-in-chief at UAB Hospital, **Kirby I. Bland**, M.D., has announced he will step down from those positions effective July 1, 2015. Bland will remain at UAB where he will continue to care for patients, complete his translational research, and educate and train the next generation of surgeons. "I'm proud of all that the UAB leadership and surgical faculty have accomplished during my tenure as chair in the Department of Surgery," says Bland, the Fay Fletcher Kerner Professor of Surgery. "We built upon the excellent academics already in place, and we recruited heavily to put in place several extramurally-funded investigators, which allowed us to grow in both education and research."

An Alabama native, Bland graduated from the University of Alabama School of Medicine in 1968. He completed his internship and one year of residency at the University of Florida in general surgery before entering the U.S. Army. After his tour of duty, he completed his residency training and a fellowship in surgical oncology at M.D. Anderson Cancer Center. He served on the faculties at University of Louisville, University of Florida, and Brown University before joining UAB as chair of the Department of Surgery.

During his tenure as chair, UAB's Department of Surgery has ranked in the top 10 of National Institutes of Health-supported surgery departments and was the only one to have two Specialized Project of Research Excellence grants, in breast and pancreatic cancer.

# Power Couple

## Acclaimed Cancer Researchers Join UAB

Two highly acclaimed cancer researchers, **Ravi Bhatia, M.D.**, and **Smita Bhatia, M.D., M.P.H.**, joined UAB in January 2015. Ravi Bhatia, professor in the Department of Medicine, has been appointed director of the Division of Hematology and Oncology and as the deputy director of the UAB Comprehensive Cancer Center. He specializes in leukemia research, specifically studying the role of stem cells as it relates to blood cell cancer progression. Smita Bhatia, professor in the Department of Pediatrics, has made significant scientific contributions toward identifying chronic health issues among cancer survivors, including patients undergoing hematopoietic cell transplantation. She holds new positions as director of the Institute for Cancer Outcomes and Survivorship in the School of Medicine, vice chair for outcomes in the Department of Pediatrics, and associate director for cancer outcomes research at the UAB Comprehensive Cancer Center. She will also serve as co-director of the Center for Outcomes and Effectiveness Research and Education. The pair came to UAB from City of Hope in Duarte, Calif.

“These exceptional researchers bring an array of expertise to our cancer research enterprise,” says **Edward E. Partridge, M.D.**, the Evalina B. Spencer Endowed Chair in Oncology and director of the UAB Comprehensive Cancer Center. “Their multidisciplinary approach to cancer research and treatment will strengthen our ability to take critical scientific findings and move them rapidly to clinical settings, ultimately benefiting our patients.”



Smita and Ravi Bhatia

## IN BRIEF

- **Anupam Agarwal, M.D.**, the Marie S. Ingalls Endowed Chair in Nephrology Leadership and director of the Division of Nephrology, has been named executive vice dean of the School of Medicine.
- **Kirby I. Bland, M.D.**, the Fay Fletcher Kerner Professor and chair of the Department of Surgery and surgeon-in-chief of the UAB Health System Hospitals and Clinics, was named the 2014 Distinguished Faculty Lecturer, the highest honor bestowed by the UAB Academic Health Center.
- **Etty “Tika” Benveniste, Ph.D.**, the Alma B. Maxwell-UAHSF Endowed Chair in Biomedical Research in the Department of Cell, Integrative, and Developmental Biology, has been appointed interim senior associate dean for research administration and development in the School of Medicine.
- **Cynthia J. Brown, M.D., MSPH**, has been named director of the Division of Gerontology, Geriatrics, and Palliative Care, as well as of the UAB Comprehensive Center for Healthy Aging. Brown has also been named a fellow of the American Geriatrics Society Board of Directors.
- **S. Dawn Bulgarella, C.P.A., MSHA**, has been named chief financial officer for UAB Health System and senior associate dean for administration and finance in the School of Medicine.
- **Waldemar A. Carlo, M.D.**, director of the Division of Neonatology, won the Douglas K. Richardson Award in Perinatal and Pediatric Healthcare Research from the Society for Pediatric Research.
- **Robert M. Centor, M.D.**, dean of the UAB Huntsville Regional Medical Campus, was named 2014-2015 chair of the Board of Regents of the American College of Physicians, the nation’s largest medical specialty organization.
- **Mitchell B. Cohen, M.D.**, a national leader in pediatric medicine and an internationally renowned specialist in children’s digestive disorders, has been named chair of the Department of Pediatrics and physician-in-chief of Children’s of Alabama.
- **Mona Fouad, M.D., M.P.H.**, director of the Division of Preventive Medicine and of the Minority Health and Health Disparities Research Center, has been named senior associate dean for diversity and inclusion in the School of Medicine.
- **G. Yancey Gillespie, Ph.D.**, professor in the Department of Neurosurgery and co-leader of UAB’s Neuro-Oncology Program, has been appointed to the Pediatric Brain Tumor Foundation’s Research Advisory Network.
- **Bruce R. Korf, M.D., Ph.D.**, the Wayne H. and Sara Crews Finley Chair of Medical Genetics in the Department of Genetics, has been named a fellow of the American Association for the Advancement of Science, the world’s largest general scientific society and publisher of *Science*, *Science Translational Medicine*, and *Science Signaling*.

(continued on page 7)

## Allies in Advancement New Partnership Targets Cancer Health Disparities

The UAB Comprehensive Cancer Center and Alabama State University have received a \$1.5 million grant from the National Institutes of Health/National Cancer Institute that establishes a partnership to create a critical mass of research and researchers to reduce cancer health disparities in minorities. The grant will allow both institutions to conduct cancer-related research and career development training in order to aid underserved communities.

The aims of the partnership are to enhance, by development and mentoring of junior faculty members, the research and administrative infrastructure necessary to conduct competitive basic and community-based cancer research at ASU; to develop investigators committed to research in cancer disparities at both institutions; and to establish a pipeline of minority cancer disparity researchers and health professionals between ASU and UAB.

"The idea is that, in light of the unequal burden of cancer borne by African-Americans, the locations of ASU and the UAB Comprehensive Cancer Center place this partnership in an ideal geographic region to address cancer health disparities in Alabama by developing a pipeline of students, scientists, and health care professionals from minority and medically underserved populations," says



Upender Manne

Upender Manne, Ph.D., M.S., professor in the Department of Pathology, lead principal investigator on the grant, and a senior scientist at the Comprehensive Cancer Center. "Both institutions possess unique strengths that supplement each other."

## COMMAND AND CONTROL UAB GRANT PROBES CONTROL OF VIRAL INFECTIONS

UAB has received a \$10 million, five-year grant from the National Institute of Allergy and Infectious Diseases that aims to increase understanding of the key molecular and cellular steps in the natural control of viral infections. The grant includes three UAB labs working with mouse models and one lab at the University of California-Davis, as well as a series of human experiments run at Emory University. The UAB grant focus—one of eight U19 grants funded—is viral-induced cell-fate decisions in anti-viral immunity. The NIH grants are meant to help improve protective immunity after vaccination, or help tamp down the destructive, out-of-control immune response that sometimes follows a viral infection. Troy Randall, Ph.D., professor in the Division of Clinical Immunology and Rheumatology, is principal investigator on the grant.

## UAB NIH Rankings Rise

Funding for UAB from the National Institutes of Health (NIH) rose more than 20 percent in fiscal year 2014 compared to the previous year. NIH funding to the university totaled \$225 million (including contracts), up from \$188 million in FY 2013, placing UAB 10th in NIH funding among public universities. The School of Medicine secured more than \$156.3 million in 2014. This moves the school ranking to No. 26 nationally, up from No. 31 the previous fiscal year and the first positive growth in 12 years.

"Garnering research support at this level furthers our goal of becoming the preferred academic medical center of the 21st century," says Selwyn M. Vickers, M.D., FACS, senior vice president for medicine and dean of the School of Medicine. "This vital funding helps us grow our footprint in the fields of genomics, personalized medicine, and other key areas."

## Momentous Milestones Campaign for UAB Achieves New Heights

Last summer, the Campaign for UAB, the largest and most comprehensive philanthropic campaign in the university's history, reached the halfway mark toward its ambitious \$1 billion goal. By the end of the year, the Campaign total had climbed to more than \$555 million. That remarkable milestone was especially meaningful to the School of Medicine, because more than 65 percent of the funds raised was given to support our faculty and programs. More than 19,000 generous individuals—patients, alumni, and friends—and organizations have contributed upward of \$366 million to support diverse initiatives across the school, directing their gifts to the projects that resonate most deeply with them.

Learn more about the Campaign, follow its progress, or make a gift at [www.uab.edu/campaign](http://www.uab.edu/campaign).

CAMPAIGN GOAL: \$1 BILLION



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## Joining Forces

### UAB Launches Joint Department of Biomedical Engineering



Timothy Wick and Steven Theiss

Last year, UAB announced the establishment of a joint Department of Biomedical Engineering between the Schools of Engineering and Medicine. Since 1979, the department resided solely within the School of Engineering. **Timothy M. Wick**, Ph.D., has been chair of the department since 2005.

The creation of a joint department brings engineering faculty and students

closer to clinicians and researchers in the School of Medicine, which, in turn, will expand collaborative research and education opportunities. “Students will be able to watch clinicians work, ask questions, and then go back and try to invent something that will improve clinical care,” says **Steven M. Theiss**, M.D., the John D. Sherrill Chair in the Division of Orthopaedic Surgery. “The goal is that they will design things that will be relevant to the work happening in medical clinics right here at UAB.”

With the creation of the joint department, UAB joins the ranks of several elite universities that have biomedical engineering departments with similar partnerships with medical schools. “A focus on patient health has always been implicit in our mission as biomedical engineers,” Wick says. “Working more closely with research scientists and clinicians will allow us to accelerate understanding of disease processes and develop new therapies and devices faster to treat chronic and acute disease conditions.”

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## IN BRIEF

(continued from page 5)

• **Jessica S. Merlin**, M.D., M.B.A., assistant professor in the Division of Infectious Diseases, has been selected as one of Hospice and Palliative Medicine’s Inspirational Leaders Under 40 by the American Academy of Hospice and Palliative Medicine.

• **Jean-Francois Pittet**, M.D., the David Hill Chestnut Endowed Professor of Anesthesiology and vice chair and director of the Division of Critical Care and Perioperative Medicine, has been named the incoming editor-in-chief of *Anesthesia & Analgesia*, the monthly journal of the International Anesthesia Research Society. His five-year term will begin in spring 2016.

• **David M. Pollock**, Ph.D., was awarded the Nephrology Research and Training Center Endowed Professorship and has been appointed director of the Cardio-Renal Physiology and Medicine section in the Division of Nephrology. **Jennifer S. Pollock**, Ph.D., codirector of the section, was recently awarded the American Physiological Society 2015 Bodil M. Schmidt-Nielsen Distinguished Mentor and Scientist Award.

• **Kenneth G. Saag**, M.D., M.Sc., the Jane Knight Lowe Chair of Medicine in the Division of Clinical Immunology and Rheumatology, has been appointed vice chair for faculty development in the Department of Medicine.

• **Isabel C. Scarinci**, Ph.D., M.P.H., professor in the Division of Preventive Medicine, has been appointed to the Advisory Committee on Minority Health at the Office of Minority Health, part of the U.S. Department of Health and Human Services.

• **Gene P. Siegel**, M.D., Ph.D., endowed professor and executive vice chair of the Department of Pathology and director of the Division of Anatomic Pathology, is the 2015 recipient of the Robbins Distinguished Educator Award from the American Society for Investigative Pathology.

• **Keshav K. Singh**, Ph.D., senior scientist in the UAB Comprehensive Cancer Center’s Cancer Cell Biology Program, director of the Cancer Genetics Program, and the Joy and Bill Harbert Endowed Chair in Cancer Genetics, is one of 12 extramural researchers invited to a National Cancer Institute Mitochondrial Information Transfer Strategic Workshop.

• Professor Emeritus **Robert J. Stanley**, M.D., FACR, former chair of the Department of Radiology, has been selected as one of the inaugural recipients of the Society of Computed Body Tomography and Magnetic Resonance Gold Medal, the society’s highest honor.

• **Rodney O. Tucker**, M.D., M.M.M., director of the UAB Center for Palliative and Supportive Care, has been elected director-at-large for the American Academy of Hospice and Palliative Medicine.

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# Frontiers OF THE FUTURE

## How Personalized Medicine, Genomics, and Informatics Are Transforming Health Care

By Jane Longshore & Gail Allyn Short

Personalized medicine—the study of how individual genetic variations affect a person’s susceptibility to disease or response to treatment—isn’t a new concept, but the reduction in gene sequencing costs and other advances in science and technology have brought the revolutionary promise of personalized medicine closer to reality than ever before.

In 2014, the School of Medicine launched three new initiatives meant to align and integrate researchers and clinicians in the pursuit of high-impact discovery and implementation research in personalized medicine and related fields. The Hugh Kaul Personalized Medicine Institute, the UAB-HudsonAlpha Center for Genomic Medicine, and the UAB Informatics Institute are paving the way for expanding the application of personalized medicine across Alabama, throughout the region, and beyond.

Scientists are already conducting a number of exciting research projects under the auspices of these new programs, all with the common goal of replacing the guesswork that is still too prevalent in diagnosis and treatment with methods that offer greater precision and effectiveness. On the following pages, we present a case study of a hypothetical patient in relation to each of these research efforts, and explore how UAB’s new initiatives may improve health care for patients suffering from a wide range of diseases.

### Personalized Medicine and Heart Disease

Richard, 60, is at home with his wife when he begins to feel a painful tightening in his chest, along with shortness of breath and dizziness. The sensations eventually subside, but when they return his wife insists that they head for the emergency room. At the hospital, Richard discovers that he has plaque buildup in a coronary artery, a condition called atherosclerosis. He is scheduled for angioplasty and stenting to reopen the



**NITA LIMDI, INTERIM  
DIRECTOR OF THE HUGH  
KAUL PERSONALIZED  
MEDICINE INSTITUTE**



blocked artery. After the procedure is completed, Richard is prescribed antiplatelet therapy to prevent the formation of blood clots around the stent.

Pharmacogenomics, a cornerstone of personalized medicine, is the science of tailoring medicine to a patient's genetic makeup. The goal is to include patients' genetic information in clinical decision making to tailor selection and dosing of drugs, thus reducing side effects and improving efficacy.

According to **Nita Limdi**, Pharm.D., Ph.D., professor in the Department of Neurology and interim director of the Hugh Kaul Personalized Medicine Institute, one of the first PMI projects will use genetics to guide antiplatelet therapy in patients who receive stents. Limdi is collaborating with **Brigitta Brott**, M.D. professor in the Division of Cardiovascular Disease and an interventional cardiologist in the UAB Adult Catheterization Lab, and **Shuko Harada**, M.D., assistant professor in the Department of Pathology. Interventional cardiologists in the Catheterization Lab will, as part of clinical care and when applicable, order an FDA-approved genotyping test for patients who consent to genotype-guided therapy.

Limdi explains that, after stenting, clinical protocol calls for patients to be prescribed two antiplatelet agents— aspirin and either clopidogrel (Plavix), prasugrel (Effient), or ticagrelor (Brilinta). The most widely used combination is aspirin and clopidogrel, which is the oldest of the three drugs and is available in generic form, and therefore at lower cost.

Each patient who agrees to genotype-guided therapy and whose doctor orders the test will

be checked for three markers for the gene that activates Plavix. "If you have variants in the gene that cause the enzyme to function less effectively, you won't produce enough active metabolite of Plavix, which is what inhibits the platelets," Limdi explains. "The genotyping test will allow physicians to identify patients who will not activate the Plavix in adequate quantities and use this information, along with other patient factors, to prescribe another medication for them. It also tells them which patients will activate the Plavix enough so they know they don't have to prescribe a more expensive medication."

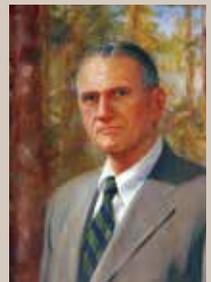
Limdi says the patient's genotype information will be added to their medical records, so physicians can use the information in the future. "We'll provide guidance for doctors by creating an alert for that patient, stating that people who have this genotype do not activate Plavix enough, that they have higher risk of stent thrombosis and cardiovascular events after having a stent put in, and what the recommendations are, along with any contraindications. The clinician can then cancel the Plavix and select one of the other drugs or override the alert."

This study will follow patients who received the genotype-guided therapy as well as a control group of patients who did not for a year in order to compare the incidence of post-stent complications between the two groups. "We will be looking at whether they were readmitted within 30 days; did they have bleeding; did they have any clots such as heart attack or stroke; or did they have to have a stent revascularization procedure," says Limdi. "We can then understand what the tradeoff is in terms of outcomes and costs between those who got genotype-guided platelet therapy and those who didn't."

According to Limdi, this type of initiative is applicable to treatments for a wide range of diseases. And, as genotyping costs continue to drop, more hospitals and insurers may begin to adopt it as a cost-saving measure. "Eventually we plan to implement similar initiatives on, for example, genotype-guided therapy to select antidepressants and antipsychotics," she says.

## Major Gift Strengthens Personalized Medicine Research

The Hugh Kaul Foundation has committed a \$7 million gift to the School of Medicine for the creation and naming of the Hugh Kaul Personalized Medicine Institute.



Hugh Kaul

The gift will be used to establish an endowed chair that will facilitate the recruitment of a national and international leader in the field to head the institute, and to create a research endowment to accelerate drug development and hasten groundbreaking medical discoveries.

A steadfast supporter of UAB and the School of Medicine, the Hugh Kaul Foundation previously provided the lead gift for the Hugh Kaul Human Genetics Building as well as generous gifts for research and faculty retention in arthritis, diabetes, infectious diseases, stem cell, neurology, and neurosurgery.

The Hugh Kaul Personalized Medicine Institute assembles and integrates UAB researchers and clinicians in an interdisciplinary program for the pursuit of high-impact discovery in the School of Medicine's signature programs, including cardiovascular disease, transplantation, cancer, diabetes, infectious diseases, immunology, and the neurosciences.

## Genomics and Cancer

John, 63, has felt fatigued and short of breath for several weeks. During visits to his doctor, he undergoes blood and bone marrow tests and afterward is told that he has a type of blood cancer called acute myeloid leukemia (AML). He spends a month in the hospital undergoing intensive chemotherapy, the side effects of which can be brutal, says **Harry P. Erba, M.D., Ph.D.**, the Albert F. LoBuglio Endowed Chair for Translational Cancer Research and director of UAB's Hematologic Malignancy Program.

"About five percent of young people under 60 and 10 to 15 percent of older adults will die in the hospital from infectious complications or bleeding," Erba says.

Those who survive and go into remission face several more months of chemotherapy. If, however, the cancer returns, the next step may be a bone marrow transplant, a procedure associated with significant risk of serious complications, some potentially fatal. Erba says that for older patients, the prognosis is even worse. Only 50 percent

of older patients achieve a remission and the majority will relapse and die of the disease within one to two

years. Their best option may be to enroll in a clinical study of an experimental drug, but determining which drug is most likely to be effective is a huge challenge for oncologists, Erba says.

Researchers like Erba believe that the answer may lie within a patient's own genes. To find out, investigators with the UAB Comprehensive Cancer Center and the new UAB-HudsonAlpha Center for Genomic Medicine have formed a joint research consortium dedicated to studying the human genome in the fight against cancer.

The human genome is the complete set of DNA in the body, and genomics is the study of an organism's entire DNA. Through a laboratory method known as whole gene sequencing, researchers can look for genes that have variations or mutations that can make people more prone to certain cancers and other diseases. Once a mutated gene is discovered, oncologists can then match cancer patients to new and experimental drugs that are specifically designed to target the type of cancer caused by a particular gene mutation.

"We've known for a long time that there is a gradual accumulation of genetic changes that underlies cancer," says **Bruce R. Korf, M.D., Ph.D.**, the Wayne H. and Sara Crews Finley Professor of Medical Genetics and co-director of the UAB-HudsonAlpha Center for Genomic Medicine. "But it has not been easy until recently to catalogue all of those genetic changes and then use them as the basis of medical decision-making. But there is evidence that different cancers are characterized by different mutations and respond to different drugs."

For example, an estimated 25 percent of patients with AML have a mutation in a gene called the FMS-like tyrosine kinase 3 (FLT3), which encodes a tyrosine kinase receptor that plays an important role in controlling hematopoiesis, the process the body uses to create new blood cells.

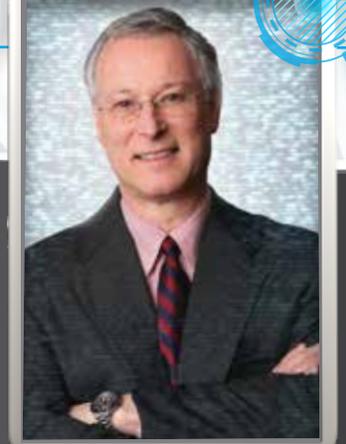
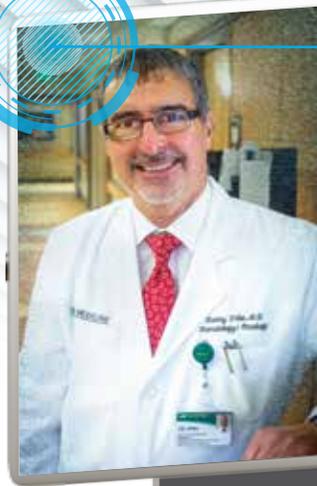
"We know that people who have that genetic change have a poor prognosis," says

Erba, "and even with bone marrow transplants and chemotherapy, the cure rates are low. So a number of drug companies have made drugs that turn off the FLT3 gene. If I identify a patient who has a mutation in FLT3, and chemotherapy doesn't work, I'll offer them participation in a clinical trial of drugs that have been designed to specifically turn off the FLT3 gene."

One of the first major projects of the UAB-HudsonAlpha Center for Genomic Medicine and the UAB Comprehensive Cancer Center-HudsonAlpha joint cancer research consortium is being funded by the Hugh Kaul Personalized Medicine Institute and the UAB Comprehensive Cancer Center. The project, which is spearheaded by Erba and the Department of Microbiology's **Christopher A. Klug, Ph.D.**, involves collecting DNA samples from patients to perform genome sequencing. The goal is to identify gene mutations that are known to be associated with leukemia, which will help clinicians make important treatment decisions. Patients will also be consented for genome sequencing as part of a research effort to identify new treatment targets.

"Drugs are being developed that target those mechanisms precisely and can much more selectively treat cancer cells and avoid side effects to the non-cancer cells," says Korf. "But choosing the right drug requires that you do genetic testing on the cancer to see not just if it's leukemia, for example, but a particular variety of leukemia that's likely to respond to a drug."

"If you figure out that a patient does not have the kind of genetically programmed cancer that is going to respond to a particular drug, you can move on to something else and not waste valuable time treating it with something that's going to be futile," says Korf.





LEFT TO RIGHT: HARRY ERBA,  
BRUCE KORF, S. LOUIS BRIDGES,  
AND JEFFREY CURTIS

Erba says that he is optimistic that this kind of approach for treating cancers like AML will someday lead physicians away from administering toxic chemotherapies to more personalized treatments that are based on a patient's own genes.

"That's many years and a lot of research away," Erba says, "but we have to start, and this is where we're starting."

### Informatics and Rheumatoid Arthritis

Ellen, 55, arrives at a clinic for a regular checkup on her rheumatoid arthritis (RA), an autoimmune disease that attacks the joints, causing pain, inflammation, and joint damage. But this time, as she waits to see her doctor, a nurse asks Ellen to fill out a questionnaire concerning her pain level and mobility. Afterward, based on her answers, lab test results, and her doctor's own examination, he changes Ellen's medication to one he believes will be more effective at controlling her disease.

Ellen's doctor is among a growing number of clinicians using a more aggressive treatment strategy called Treat to Target in which clinicians strive to bring patients' RA into remission. To do that, clinicians use several tools, including patient self-assessments and electronic health records. They also switch out patients' medications until they find the treatment plan that brings about remission or low disease activity. The effectiveness of Treat to Target in controlling RA is supported by several studies and the American College of Rheumatology (ACR), which says that taking quantitative measures of RA should be a part of a routine doctor's visit.

"In arthritis, there's a growing notion that to take the best care of patients, we should be quantifying and measuring patients' dis-

ease activity," says **Jeffrey Curtis**, M.D., M.S., M.P.H., William J. Koopman Professor of Medicine and director of the UAB Arthritis Clinical Intervention Program. "We want

to know how active the disease is and how much inflammation they have because that's what our medicines are targeting." Researchers like Curtis in the UAB School of Medicine's Division of Clinical Immunology and Rheumatology are trying to determine if they can collect RA patient data in an efficient and consistent way that not only improves communication between clinicians and patients, but also helps them reach Treat-to-Target goals.

Researchers in the Division will ask RA patients to complete surveys stored on iPads that list questions about their pain, fatigue, functionality, and physical limitations. Clinicians will have the option of pre-programming the kinds of questions they ask their patients, says Curtis. "Its flexibility is its strength."

The focus on the collection and use of data is part of another emerging discipline in the biomedical sciences called clinical informatics. With informatics, biomedical scientists collect and analyze "Big Data," including large, complex datasets and electronic patient records, to conduct studies on everything from cancer to diabetes and arthritis. The trend led UAB to establish an Informatics Institute to develop software, collect data, and manage access to local and national databases for research.

In the Division of Clinical Immunology and Rheumatology, Curtis has developed an electronic measurement tool called READY (Rheumatoid Arthritis Disease activiTY) that is designed to collect a series of data, including patient-reported outcomes, the clinician's assessment, and laboratory results, and, based on that information, assign a disease activity score. Doctors can then compare it to a patient's last score and make decisions about treatment.

This NIH-funded project aims to determine whether a higher percentage of patients whose doctors obtain instant feedback from electronic evaluation experience remission than patients whose doctors do not, says Division Director **S. Louis Bridges**, M.D., Ph.D., the Anna Lois Waters Endowed Chair in Rheumatology.

"So we now have an objective measure to say this patient is doing well or not so well," says Bridges. "The goal of Treat to Target is to get them to the [score] that defines remission. If they are not at that target, we adjust the medications at their visit."

Bridges says the project began in 2013, and that the team will recruit other clinicians to participate. He is also leading the Rheumatology Arthritis Database and Repository (RADAR) that is collecting blood samples and other clinical data, including disease activity scores.

"I'm hopeful that this tool will help improve remission rates, going from 60 percent of patients in remission to 70 or 80 percent of patients," Bridges says, "It can bring us closer to an ideal world."

### Cimino to Lead UAB Informatics Institute



**James J. Cimino**, M.D., has been named the inaugural director of the UAB Informatics Institute and co-director of the Center for Clinical and Translational

Science in the School of Medicine. He will hold the inaugural University Endowed Chair in Informatics. Cimino, who was previously the chief of the Laboratory for Informatics Development at the National Institutes of Health and a senior scientist at the National Library of Medicine, is a national leader in the burgeoning field of informatics. He is one of the few informaticians in the prestigious Institute of Medicine.

# Two Steps Forward

UAB Celebrates Achievements in Kidney Transplantation

By Clair McLafferty

**R**ight now, more than 100,000 Americans are waiting for a kidney. Of them, about 3,600 are here in Alabama—the second longest waiting list in the country. Few options are available for those on the wait-list, and many will die before a suitable kidney becomes available.

Kidneys from living donors often provide better and longer lasting outcomes than deceased donor transplants. Traditionally, a friend or family member volunteers to donate a kidney to a specific recipient. However, due to differences between blood types or cell/tissue marker proteins called human leukocyte antigens (HLA), only about 50 percent of suitable living donor candidates are compatible with their intended recipients.

“If you look at blood group frequencies, about 35 percent of donors will be incompatible with their intended recipient based on blood group,” says **Jayme E. Locke**, M.D., M.P.H., director of UAB’s Incompatible Kidney Transplant Program. “Another 11 percent will be incompatible based on tissue. With traditional means of transplantation, they will not be able to give directly to that individual.”

To make more kidneys available for more patients, doctors at UAB are developing new ways to increase the number of living donors via the Incompatible Kidney Transplant Program. This innovative effort facilitates previously unperformable transplants by either treating the blood or tissue incompatibility (desensitization), or by finding a different compatible living donor (kidney paired donation). It is the only program of its kind in the Southeast.

Transplant innovations aren’t new to UAB—in fact, UAB performed its first kidney transplant almost 50 years ago. “We’ve now performed more than 9,000 transplants,” says **Robert S. Gaston**, M.D., the Robert G. Luke, M.D., Endowed Chair in Transplant Nephrology and co-director of the UAB Comprehensive Transplant Institute. “Only one other place in the country has performed more transplants than we have.”

Recently, UAB’s transplant program has earned some highly visible accolades. The UAB Kidney Chain, a variant of kidney paired donation (KPD), has become the longest kidney transplant chain ever at a single site, giving 34 people so far a new lease on life. The Kidney Chain was featured on ABC News’ “Nightline” last July. The second notable initiative, a seven-year, \$17 million multicenter study funded

by the National Institutes of Health, aims to help transplant recipients’ kidneys remain healthy for longer.

## Give and Take: UAB Kidney Chain

UAB’s program in kidney paired donation was developed to promote access to lifegiving transplants for more people in need. In such a program, a transplant candidate becomes eligible to receive a kidney if a family member or friend volunteers to donate a kidney to another patient. Doctors, nurses, and staff work to find the best possible match for each patient out of the pool of willing donors.

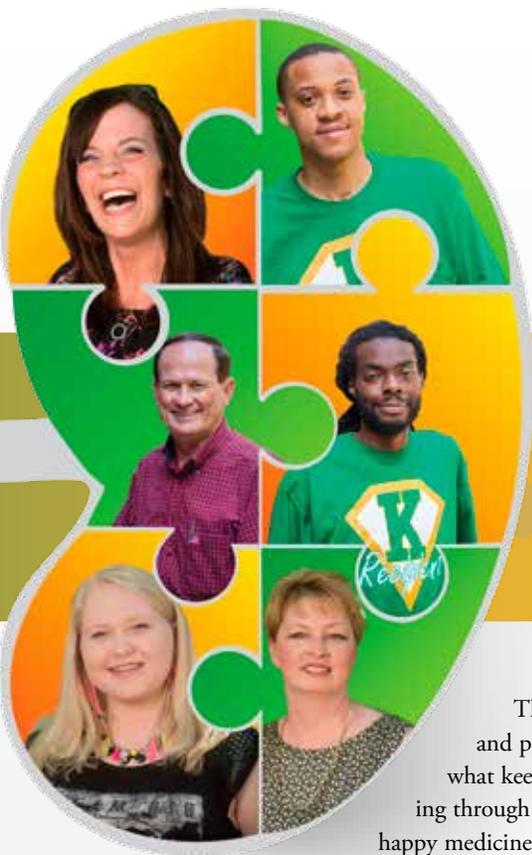
“It all started when one altruistic donor came forward who wanted to donate a kidney,” says **Vineeta Kumar**, M.D., program director for the Transplant Nephrology Fellowship Program and medical lead for the Incompatible Kidney Transplant Program. “She was able to give to a recipient, which freed up that person’s donor to give to another recipient, and then it’s a matter of getting creative.”

For some patients, creative solutions are the only way they can receive a kidney. Many of these individuals have such high concentrations of antibodies in their blood stream that they’re incompatible with almost every potential donor. In cases such as these, the transplant surgery is preceded by desensitization treatments, which remove harmful antibodies from the blood stream with immunosuppressant drugs.

If a more compatible donor can be found, the recipient will require less intense immunosuppression and the likelihood that the kidney will be rejected also decreases. “The kidney chain offers transplants to people who potentially wouldn’t have gotten them before,” says **Devin E. Eckhoff**, M.D., the Arnold G. Diethelm Endowed Chair for Transplantation Surgery and co-director of the UAB Comprehensive Transplant Institute.



Far left: recipients and donors from the UAB Kidney Chain. Left: Devin Eckhoff, Jayme Locke, Vineeta Kumar, and Robert Gaston. Below: Roslyn Mannon.



The positive outcomes and patients' reactions are what keep the doctors working through the setbacks. "It's like happy medicine," says Eckhoff. "You take people who are sick and dealing with chronic illnesses. When they get a new organ, they get a new lease on life."

According to the Kidney Chain team, this same strategy could be expanded to encompass the entire country. "If we could do this nationally, we could optimize living kidney donation in this country in a way that we have never been able to do before," says Locke. "I think we can actually begin to make a significant dent in our waiting list."

### NIH Multicenter Grant

If it comes from a living donor, a new kidney will work for an average of 15 to 20 years. Another part of UAB's multifaceted approach to patient care is finding ways to extend the life of transplanted organs. In collaboration with the University of California San Francisco (UCSF) and Emory University, UAB has received a seven-year, \$17 million grant funded by the National Institutes of Health to research novel ways to reduce or eliminate inflammation in kidney transplants.

Through this study, physicians will explore different treatments for people who recently underwent transplant, says **Roslyn B. Mannon, M.D.**, professor in the Divisions of Nephrology and Transplantation and director of research in the UAB Comprehensive Transplant Institute. "We're trying to see if we can impact patients over the long-term."

To do so, the team is researching novel anti-inflammatory agents. One such approach is called adoptive cellular therapy. In this treatment, a type of white blood cells called regulatory t-cells, which

suppress the activity of other immune cells, will be used to try to suppress specific immune responses.

The other part of the project will examine the use of a rheumatoid arthritis drug called tocilizumab. Tocilizumab is an immunosuppressive drug that works by blocking interleukin 6 (IL-6) receptors. In this particular study, researchers will look at noninvasive markers of inflammation as well as outcomes to see if they can develop ways of monitoring patients more sensitively so physicians can better predict how patients will do after the transplant.

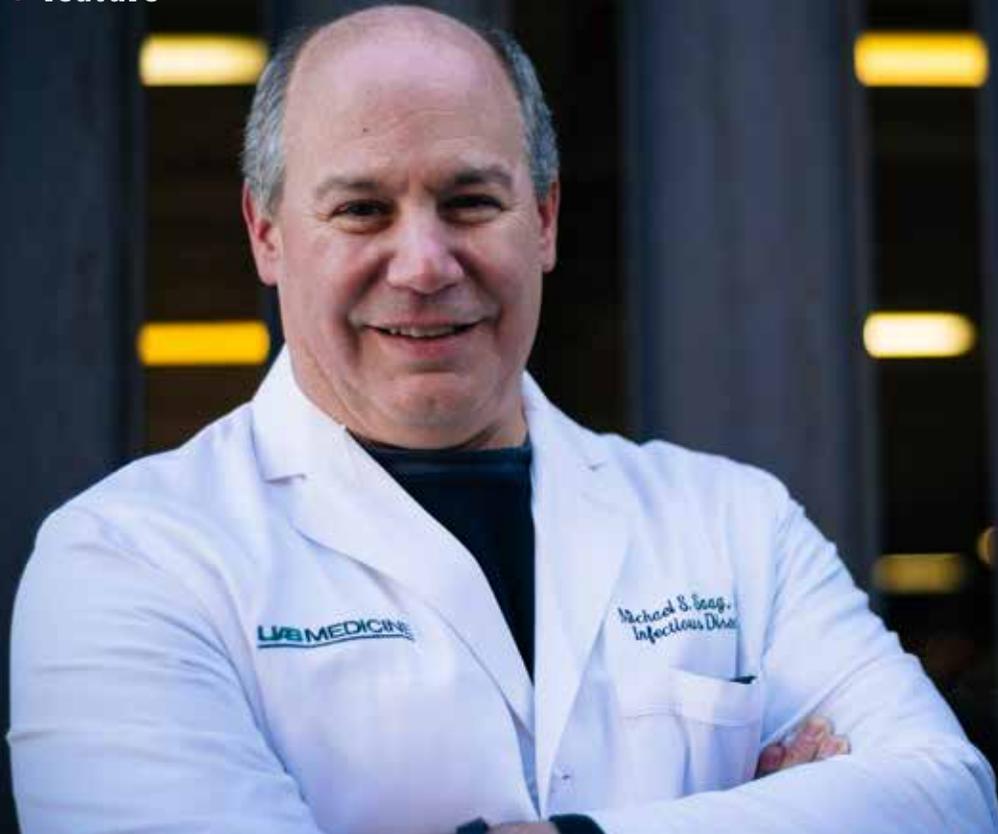
UAB became part of this grant in part because of its previous collaborations with UCSF and Emory and also because of the diversity of the population it serves, says Mannon. In addition, UAB's long history with kidney transplantation means that it has the infrastructure to support new initiatives.

Moreover, with the recent emphasis on precision medicine, Mannon, in collaboration with **Nita Limdi, Pharm.D., Ph.D.**, interim director of the Hugh Kaul Personalized Medicine Institute, submitted a multicenter collaborative study on the impact of genes on responses to immunosuppression. "With this new grant, along with other novel interventions, we are launching into a new era of personalized medicine," says Gaston. "Our reputation and experience, coupled with the hard work of all our physicians and surgeons, will keep us at the forefront of innovation in transplantation."

Even after the grant ends, UAB physicians and researchers will continue to develop and refine techniques to increase the number of transplants they perform every year. By doing so, they'll be better able to optimize these precious resources.

In Eckhoff's words, "We've got to make the best use of every gift we have."

Watch the "Nightline" segment on the UAB Kidney Chain on UAB Medicine's iPad app.



HIV/AIDS pioneer Michael Saag's desire to become a physician was sparked by a third-grade book report on the human ear. Photos by Dustin Massey.

## Positive Thinking

*Memoir Recounts Career on the Front Lines in the Battle Against HIV/AIDS*

By Cindy Riley

“Throughout my career, colleagues have complained—sometimes in colorful terms—that it would take a magician to pull off the goals I set for our work together. Maybe. But my reigning belief is that aiming high is reasonable, even fun. Saying we’re going to achieve what hasn’t been achieved before is a perfect objective for research; otherwise, why do it? Saving a life that would otherwise be lost is a mandatory hope for a physician. Looking to change a procedure that doesn’t work, or a policy that results in patients dying—this isn’t magic. It’s necessary.”

So writes internationally acclaimed AIDS researcher and pioneer in the field of HIV **Michael S. Saag, M.D.**, in his memoir *Positive: One Doctor’s Personal Encounters with Death, Life, and the U.S. Healthcare System*, which was published last year by Greenleaf Book Group.

“My goal in writing this book was to tell the story of HIV for those who lived through it and those who had heard about it but didn’t know the details,” explains Saag, the Jim Straley Endowed Chair in AIDS Research and director of the UAB Center for AIDS Research. “But the bigger goal was to shine a light on the cracks in our health care delivery system in the U.S., in order to spark a dialogue about what we need and

deserve in this country.”

The founder of the 1917 Clinic, UAB’s HIV outpatient clinic that provides comprehensive patient care in conjunction with research and high-quality clinical trials, Saag has participated in numerous studies of antiretroviral therapy as well as novel treatments for opportunistic infections that prey on a weakened immune system. He has published more than 350 articles in peer-reviewed journals, contributed more than 50 chapters to medical textbooks, and served on the editorial boards of the journal *AIDS* and the *Sanford Guide to Antimicrobial Therapy* as well as on the board of directors of the American Board of Internal Medicine. Among his many awards and honors, Saag was listed as one of the top 10 cited HIV researchers by *Science* (1996), and has been listed as one of the Best Doctors in America since 1994. In 2014, he was inducted into the Alabama Healthcare Hall of Fame and was awarded one of three National Physician of the Year awards by Castle Connolly Medical Ltd.

Whether writing hunched over his keyboard on an airplane or dictating notes from the back seat of a taxi, Saag opened up on a personal level in *Positive*, while painting an unvarnished picture of what he sees as major flaws in our nation’s health care system. Witnessing the disparities in health care delivery for the insured versus the uninsured has had a profound impact on Saag since the early days of his remarkable career.

“The most consistent examples were generated from my experiences as a house officer at Cooper Green Hospital [the county-owned hospital for the poor],” he says. “I was struck by the constraints placed on us as providers when taking care of indigent patients, compared to what we were able to do for folks at UAB Hospital or the VA Hospital. Two specific things stuck with me: How striking the differences were, and how

little people seemed to notice or comment. No one seemed to ask the questions, ‘Why is this okay?’ ‘Why do we put up with this?’”

A Tulane University honors graduate who earned his medical degree from the University of Louisville and completed his residency in infectious disease at UAB, Saag is especially proud of the rapid translation of HIV/AIDS laboratory findings into clinical care that he helped to bring about.

“Working on construction sites as a 10-year-old taught me how the working man lived. I gained enormous respect for their life and lifestyle. But I also learned that I didn’t want to do manual labor every day, so studying became more important to me. My passion to become a physician grew from those early experiences.”

“We would make discoveries, such as the development of viral load testing, and rapidly employ this technology to assess whether a new drug or new drug regimen was working,” he says. “The viral load test allowed us to make this determination in just four to seven days after starting a new regimen. If it was a new drug, and there was no movement in the viral load, we could quickly declare that this particular therapy was not worth spending more time on and move on to the next. Conversely, when the drugs worked, we could see a dramatic drop in the amount of virus in just a week or two and we knew we had a winner.”

Saag also tirelessly fought the stigma surrounding HIV/AIDS, which especially devastated the gay community. But no matter the individual circumstances, each patient’s journey has touched him in some way.

“Their suffering, desperation, and hopelessness in the early days made me more determined to move aggressively and quickly to make a difference,” he says. “The HIV/AIDS epidemic was my Vietnam War, my civil rights movement. Unlike those other struggles where I was a witness, I was right in the middle of the HIV movement. It was scary, overwhelming, exciting, motivating, moving, and inspiring. It created a chance for me and my colleagues to make a tangible difference in the here and now.”

In his memoir, Saag notes that while HIV has been transformed from a death sentence to a chronic, manageable condition, the prognosis for the nation’s fragmented health care system is unclear.

“We need to be intelligent about analyzing the system as it exists, compare our health outcomes to other industrialized countries whose outcomes are much better than ours in terms of population health and costs, ask what they are doing right and what we are doing wrong, and fix it,” he says.

**James L. Raper**, Ph.D., director of the 1917 Clinic, has worked with Saag for almost 30 years. “I’ve had the good fortune of working with two incredible health care leaders,” he says. “Both Drs. **John Kirklin** and Michael Saag have contributed greatly to improving the lives of people in need all over the world. Dr. Saag’s dedication to hard work, his superior intellect, his sense of humor, and his creativity allow



Photo by Dustin Massey

Left to right: Saag with fellow AIDS investigators Lilly Kong, D.V.M., Beatrice Hahn, M.D., George Shaw M.D., Ph.D., Maria Taylor, and Paul McNeely in 1986. Image courtesy of UAB Archives.

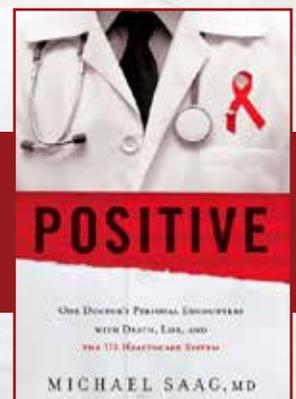
him to take risks as he advances our programs.”

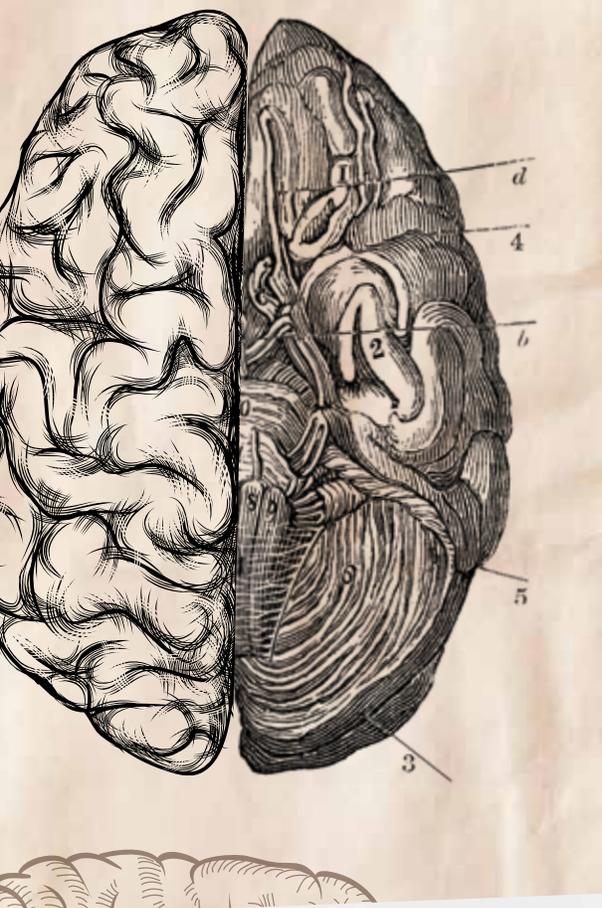
“In the darkest days of the epidemic, those of us infected fell into rage at politicians and preachers, at ignorance and discrimination, at brutalities exercised on the dying and disappointing outcomes of every new drug,” says Mary D. Fisher, AIDS activist and founder of the Mary Fisher Clinical AIDS Research and Education Fund at UAB. “Despite our rage, Mike Saag carried on, through days with patients and nights in the laboratory, until he made the find. In the end, he taught us all the meaning of ‘viral load,’ which ultimately canceled our death sentences.”

A frequent lecturer at AIDS conferences across the globe, Saag credits his family for tolerating his demanding schedule. “I couldn’t have done what I did over the last 30 years without their incredible support,” he says. In his off time, Saag enjoys playing golf and making films. He teases he may one day pursue his desire to become an actor, director, or playwright, although his priority will always be medicine.

As for the legacy he hopes to leave, “I simply want to be known as someone who cared and who made a difference. That’s all any of us can hope to achieve.”

Watch a video interview with Dr. Saag about his memoir on UAB Medicine’s iPad app.





# Brainstorm

Brain Cancer Research Advances  
Offer New Hope to Patients

By Cary Estes

For centuries, as medical knowledge gradually increased about most parts of the human anatomy, the brain remained the final frontier. As a result, as recently as 10 to 15 years ago, there were few answers for patients suffering from brain cancer. Tumors often could not be surgically removed or combated with radiation or chemotherapy without drastically damaging the patient's quality of life. Treatment options were limited and research breakthroughs were few and far between.

We had a very poor understanding of this kind of cancer, and an even poorer understanding of the central nervous system," says **L. Burt Nabors, M.D.**, Neuro-oncology Leader at the UAB Comprehensive Cancer Center. "We had some limited treatments we could employ, and once they were done, there wasn't much else we could do."

Now, there is a greater understanding of how the brain operates, which has created a different approach to the way the disease is studied. This, in turn, has led to an unprecedented wave of neuro-oncologic advances in UAB's brain cancer research program across multiple departments.

## Blood-Brain Barrier Breakthrough

"We have gained such a tremendous neurobiological understanding of this cancer," says **Harald W. Sontheimer, Ph.D.**, professor in the Department of Neurobiology. "The field has moved toward taking a neurocentric view of the cancer, looking at it from the perspective of how the tumor interacts with the brain and reshapes the functioning of the brain, rather than focusing on the cancer itself."

"I've been at UAB for 20 years, and I think we've reached the most exciting stage in discovery and translational science. This is meaningful stuff. This has real potential to change a patient's life in a short period of time."

Sontheimer had a study published in *Nature Communications* in June 2014 detailing how glioma cells migrate and metastasize within the brain, a finding that could lead to new therapies. His team discovered that, instead of traveling inside the blood stream, glioma cells stay on the outside of the blood vessel and use it as sort of a guiderail.

As the glioma cells move along the blood vessel, they disrupt proteins that are involved in creating the blood-brain barrier, which prevents large molecules and immune cells from entering the brain. This breach enables the cancer to form inside the brain.

"This is exciting because scientists have operated under the assumption that the blood-brain barrier prevents us from gaining access to the tumor cells with chemotherapeutic drugs," Sontheimer says. "Our study challenges that notion; it suggests that the exact opposite is true. The very early stages when the disease spreads are when the tumor itself opens up that barrier. So if we were to aggressively treat patients

"The brain has always been a challenging area of the body to study, because we didn't have a great understanding of it. Now there is a major effort to understand how the brain functions. It's an extremely exciting time because we have a lot of information now, and it's only continuing to grow. The future in this field is definitely bright."

- Christopher Willey

with chemotherapeutic drugs, you would get the very cells that are in the active process of invasion. That means we have to reverse the way we're doing treatment—before we do surgery, the very first thing we should do is aggressive chemotherapy, and leave the surgery and radiation for a later stage.

“General cancer treatment is to stop the cell from growing. We're not doing that. We're asking, what is different about this cancer from normal brain cells? How are they moving and interacting with blood vessels, and can we interfere with this process? There is a unique biology at work in the brain, and we're exploiting that. That's why I'm so optimistic that we're going to beat this cancer.”

### From Alternative Splicing to Mimicking MARCKS

There is a similar sense of optimism in the UAB Department of Radiation Oncology, where **Markus Bredel**, M.D., Ph.D., and **Christopher D. Willey**, M.D., Ph.D., are each working on new strategies to combat the disease. Bredel, a professor in the Department of Radiation Oncology and deputy associate director for translational research in the UAB Comprehensive Cancer Center, is focusing on the genetic level while Willey, an associate professor in the Department of Radiation Oncology, is concentrating on the protein level.

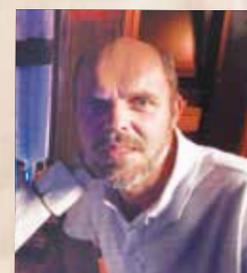
Bredel's study, published in *The Journal of Clinical Investigation* in May 2014, identified how alternative splicing, a phenomenon that involves the beading together of different parts of a gene, allows brain tumors to incapacitate a key tumor suppressor gene. While scientists have been aware of alternative splicing as a biological mechanism for decades, Bredel says the concept of splicing that is specific to brain tissue and different cell lineages in the brain has only recently emerged.

“The work we do involves mostly looking at genes and their function, and seeing how the function of those genes affects patient outcomes when the genes are changed,” Bredel says. “As part of this work we identified this one new gene, the tumor suppressor gene, which keeps normal tissue from transforming into a cancerous tissue. We found that this gene seems to be missing in a certain portion of brain cancers.

“We also looked at the potential mechanism that links that suppressor gene and the EGFR (epidermal growth factor receptor) gene, which is an important gene in many types of cancer. We found that the suppressor gene keeps the EGFR gene in a quiet stage. When it's incapacitated through splicing, the cell cannot regulate EGFR by that mechanism. And we found that the splicing event was already present in those potential tumor-initiating precursor cells.

“That led us to the theory that this whole process affects only certain cells in the brain tissue. You have a splicing trait that is present in a potential cell of origin of a cancer, and it's basically inherited by the cancer cells, which exploit that trait and increase the growth of the tumor. So instead of trying to restore tumor suppressor genes, which has proven to be very difficult, we can work toward inhibiting this splice mechanism.”

Willey's research also focuses on the most aggressive and deadly form of brain cancer, glioblastoma multiforme (GBM), which accounts for more than half of all brain tumor cases. Willey has been awarded a \$792,000 grant from the American Cancer Society to study a protein called MARCKS, which he believes is important for regulating how GBMs grow, spread, and resist treatment.



Clockwise from top left: L. Burt Nabors, Harald Sontheimer, Christopher Willey, and Markus Bredel.

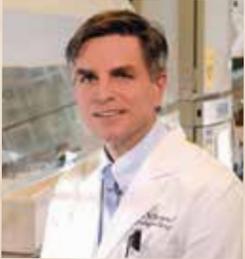
“I've been at UAB for 20 years, and I think we've reached the most exciting stage in discovery and translational science. This is meaningful stuff. This has real potential to change a patient's life in a short period of time.”

— Harald Sontheimer

“MARCKS is not an enzyme, so targeting it is tricky,” Willey says. “With this grant we're trying to identify what part of MARCKS is most critical for regulating GBM cells' behavior. When tumors have high levels of MARCKS, they tend to grow very slowly. When the tumor cells lacked MARCKS or had low levels of it, they were very aggressive.

“We're trying to pinpoint what exactly it is about MARCKS that dictates this response. If we can, then we may be able to develop therapies toward that. We try to mimic what we believe is the most important part of MARCKS and see if we can trick the cancer cell into thinking that there is lots of MARCKS present.

“The brain has always been a challenging area of the body to study, because we didn't have a great understanding of it. Now there is a major effort to understand how the brain functions. It's an extremely exciting time because we have a lot of information now, and it's only



Top to bottom: G. Yancey Gillespie, James Markert, and Corinne Griguer.

continuing to grow. The future in this field is definitely bright.”

### Viral Therapy and Countering Chemoresistance

In the UAB Department of Neurosurgery, researchers led by **G. Yancey Gillespie**, Ph.D., professor of neurosurgery, and **James M. Markert**, M.D., M.P.H., the James Garber Galbraith Chair in Neurosurgery, are studying the application of a genetically engineered viral therapy in the fight against brain cancer—research that was funded by a Program Project grant from the National Institutes of Health. A project to develop cancer-killing herpes simplex viruses was also part of the prestigious Specialized Program of Research Excellence (SPORE) grant from the National Cancer Institute that the department, along with the UAB Comprehensive Cancer Center, was awarded in 2011.

In April 2014, Gillespie and Markert published promising findings in the journal *Molecular Therapy* indicating that a genetically engineered herpes simplex viral therapy is safe when used in conjunction with radiation in the treatment of malignant gliomas. In two previous UAB clinical trials, the virus, G207, was shown to be safe when used as a sole therapy.

“The initial trial was a phase one study designed foremost to see whether the

therapy was safe,” says Markert. “While this study, with a limited number of patients and no controls, prevents any conclusions about the efficacy of this treatment, the decrease in tumor size seen on MRIs in eight of the 20 patients, as well as an increase in survival in some patients without other proven treatment options, is highly encouraging.” The report of one patient who lived more than 6.5 years in this initial Phase I trial was recently published in the journal *Oncolytic Virotherapy*.

The virus, which has been genetically modified so that it can reproduce only in tumor cells, works by infecting tumor cells and replicating until it causes them to rupture and die, releasing new viral particles, which then move on in search of new tumor cells to infect.

Researchers have begun a new Phase I clinical trial with a modified version of herpes simplex virus called M032 that was created at UAB. Preliminary findings indicate that M032 may be even more effective than G207. The M032 virus includes a genetically engineered protein called IL12, which the researchers believe will induce a stronger immune response and increase anti-angiogenesis. Anti-angiogenesis is the process of shutting off the blood supply to tumor cells, thus denying them oxygen and nutrients essential for survival.

Research led by **Corinne E. Griguer**, Ph.D., associate professor in the Department of Neurosurgery, has identified a mechanism

that may provide a more accurate way to predict how long GBM patients will live, findings that can guide drug discovery efforts. Griguer’s team examined tumors from patients with GBM, who typically survive 12 to 15 months with a combination of surgery, radiation, and the chemotherapy drug temozolomide. While radiation and temozolomide usually kill most GBM cells, tumor cells that survive can quickly multiply. Tough, treatment-resistant tumor cells comprise most of the recurring tumor, and 90 percent of recurring tumors show no response to temozolomide, leaving patients with few treatment options.

Griguer’s study found that the 25 to 30 percent of GBM patients

“We’re asking, what is different about this cancer from normal brain cells? There is a unique biology at work in the brain, and we’re exploiting that. That’s why I’m so optimistic that we’re going to beat this cancer.”

– Harald Sontheimer

whose tumor cells have an overactive version of the enzyme cytochrome c oxidase (CcO) have shorter survival times than patients with a less active version. “Our study reported for the first time the role of CcO as a prognostic marker in GBM patients’ tumor tissues,” says Griguer. “High CcO activity comes with a 25-fold increase in risk of death.” Clues about how this overactive enzyme promotes the survival and re-growth of treatment-resistant tumor cells were published in the January 2015 edition of *OncoTarget*.

Previous cancer cell studies in Griguer’s lab had interfered with CcO activity by shutting off related genes or blocking its action with drugs. While these studies demonstrated in principle that blocking CcO counters chemoresistance, the drugs and methods used do not lend themselves to clinical use. Griguer’s team is now trying to identify drug candidates for human testing with the help of the Alabama Drug Discovery Alliance, a collaboration between the School of Medicine and Southern Research Institute.

“Giving some GBM patients bad news about their prognoses without also giving them better treatment options doesn’t seem right to me,” says Griguer. “That’s why our ultimate goal is to use the same mechanism that predicts shorter survival in some to design drugs that target cells not killed right away by chemotherapy.” — *Contributed by Greg Williams*

# MOTHER OF INVENTION

*UAB Leads Multicenter Study on Hypertension Medication in Pregnancy*

By Tara Hulén

It's a common question that for too long has not had a well-defined answer: Is it safer to keep pregnant women with chronic mild hypertension on medication or drop it for the duration of the pregnancy? UAB is leading an unprecedented, six-year, nationwide multicenter study that hopes to discover which approach is in the best interest of the mother and infant.

UAB will be the clinical coordination center and statistical data center for the \$19.31 million Chronic Hypertension and Pregnancy Project (CHAP), funded by the National Institutes of Health's Heart, Lung, and Blood Institute. The goal of the study, which will involve 16 academic centers and at least 30 hospitals across the country over six years, is to identify the benefits and potential harms of pharmacological antihypertensive therapy, compared to no treatment. Participants will be followed through pregnancy, delivery, and six to 12 weeks postpartum.

Chronic hypertension is one of the most common and serious pre-existing conditions for pregnant women, says **Alan Thevenet N. Tita**, M.D., Ph.D., professor of obstetrics and gynecology and principal investigator/project director for the study. It affects 5 to 10 percent of the reproductive age population and can cause increases in preeclampsia (worsening hypertension due to pregnancy), fetal death, preterm birth, poor fetal growth, and bleeding due to separation of the placenta from the wall of the uterus, as well as an elevated risk of cardiovascular events and renal failure for the mothers.

Experts in UAB's Department of Obstetrics and Gynecology and the Department of Biostatistics will coordinate clinical and data centers for the study. In the randomized trial of 4,700 to 5,700 pregnant women with mild chronic hypertension (not gestational hypertension), half will get the most commonly recommended alpha/beta blocker and half will not unless their condition worsens and medication is needed.

Currently, physicians' primary guidance—recommendations from the American College of Obstetricians and Gynecologists and the American Society of Hypertension—call for stopping or not starting medication for mild hypertension unless the mother's condition worsens.

Those guidelines were primarily based on observational studies, says **Gary R. Cutter**, Ph.D., professor of biostatistics in UAB's School of Public Health and principal investigator of the trial's data coordinating center. There hasn't been a large randomized clinical trial on the subject in about 30 years, when a placebo versus medication study was conducted (which also happened to be Cutter's first job).

The enormity of the project was a daunting hurdle. "It's a difficult trial to put together—you need a large sample size, you need multiple centers," Tita says. The study came about largely through Tita's tenacity over at least three years of federal paperwork, reviews,

and recruiting other sites, says **Joseph R. Biggio**, M.D., director of the Division of Maternal-Fetal Medicine, vice chair for research and quality in obstetrics and gynecology, and director of the UAB Center for Women's Reproductive Health. Collaborators on the study include **Jeff Szychowski**, Ph.D., associate professor of public health, who will help Cutter manage the data coordinating center as the deputy director; Distinguished Professor of Medicine **Suzanne Oparil**, M.D., and Professor of Pediatrics-Neonatology **Namasivayam Ambalavanan**, M.D., as co-investigators on the grant; and **William W. Andrews**, Ph.D., M.D., the Charles E. Flowers Jr., Endowed Chair of Obstetrics and Gynecology, who will serve as CHAP steering committee chair.

The researchers' main goal is to reduce mortality and suffering for infants, mothers, and their families. Pre-term or growth-restricted infants can have lifelong health problems and require special care, and mothers can experience long-term health issues as well.

And, providing care for the infants is enormously expensive, which doesn't end when they leave the NICU.

"There had long been a pervasive attitude that pregnancy is a finite period of time, and if someone had to come off medications during their pregnancy, it probably would be OK in terms of long-term health," Biggio says. "Now we have to really look at that. Maybe it's not OK; maybe the best way to optimize the health of a baby is to optimize the health of the mother."



# Student Rounds

## Field Studies

Student Summer Research Projects Highlight  
Compassionate Care

In 1988, Arnold P. Gold, M.D., launched the foundation that bears his name in response to a trend that he found alarming—with the ever-quickening pace of scientific discoveries and technological advances, he felt that the focus of medicine was shifting from caring for the whole person to an over-reliance on technology. While the physician trainees he encountered were scientifically and technically proficient, he worried they often failed to demonstrate compassion.

Today, the Arnold P. Gold Foundation works with medical students and residents as well as practicing physicians to promote humanism in medicine. The foundation's Student Summer Fellowship program allows medical students to complete a research or service project related to community health. Projects are focused on studying cultural competency issues, developing skills to become relationship-centered physicians, and addressing a public health need in an underserved community or population.

Below, two School of Medicine students reflect on the Arnold P. Gold Foundation fellowship-sponsored projects they completed last summer, and share their thoughts about the role of compassion in the practice of medicine.

### Breaking the Language Barrier

Second-year medical student Rebecca Duron spent the summer of 2014 completing an internship at Clinica Verde in Boaco, Nicaragua. During her time there, she learned far more than how to better speak Spanish; she learned how to be a better doctor.

While in Nicaragua, Duron worked on a service project focused on increasing cervical cancer screenings in the area. "One of the primary health goals in Nicaragua right now is combating cervical cancer," Duron says. "It's a huge problem."

Many Nicaraguan women don't get regular pap smears for a variety of reasons, Duron explains. Health care often is inaccessible to those living in poverty or in rural areas. Hospitals and clinics are frequently overcrowded, and some women erroneously believe that pap smears can cause infertility.

During her six-week stay in Nicaragua, Duron created an informational poster and brochures on cervical cancer for Clinica Verde. The brochures were also used in the clinic's outreach programs, meaning her work had an



Rebecca Duron

impact long after she left Nicaragua.

Duron also was able to assist doctors performing cervical cancer screenings and witnessed how important it is to provide health care with compassion. By simply placing her hand on a patient's arm and offering a sincere smile, she was able to reassure women who were nervous about the procedure, many of whom were getting pap smears for the first time.

Duron learned firsthand the importance of communication in health care when she found herself on the receiving end of the stethoscope. When she fell ill with a head cold that she worried had turned into something more serious, she went to Clinica Verde for care.

"It was really difficult to express in Spanish what I wanted to say. I didn't know the exact adjectives to describe everything I wanted to," Duron says. "It made me appreciate what it would be like for someone here in the United States who doesn't speak English well."

After that experience, Duron became even more committed to improving her Spanish and says that as a doctor she will do what she must to have translators available for patients who need them.

For Duron, that's what humanistic medical care is all about. "It's about just talking to patients individually and listening to their challenges and getting them to tell you if they didn't understand something, getting them to tell you what's going on in their lives," she says.

In addition to her work at Clinica Verde, Duron also had the opportunity to shadow doctors at Hospital José Nieborowski in Boaco. There she saw the limitations and lack of resources the country's health care system faces. Often patients had to bring their own blankets or toiletries. Sometimes patients had to send family members out to buy the medication their doctors needed to administer.

"It's so different from what I experience here," Duron says. "That was a real wake-up call to me."

Overall, Duron says her time in Nicaragua made her more empathetic, which she believes will make her a better doctor. "I feel like my world is bigger now," she says. — *Javacia Harris Bowser*

## Door-to-Door Research

Second-year M.D./M.P.H. student **Ynhi Thai** spent her summer knocking on doors in Albertville, Ala., a small city approximately 79 miles northeast of Birmingham, looking to discover which societal and cultural factors could play a role in obesity.

Thai worked as part of a research team for a project with **Andrea Cherrington**, M.D., M.P.H., associate professor in the Division of Preventive Medicine, on the social determinants of obesity within Latino and non-Latino communities. The researchers went door-to-door, asking residents to complete a broad, 90-minute survey about their everyday lives.

“We asked each participant questions about their physical activity, diet and exercise habits, how often they cook at home versus going out to eat, and their social habits with family and friends, along with demographic information such as socioeconomic status and education level,” Thai says. “The surveys often lasted longer than the planned 90 minutes because we also took height and weight measurements from each individual.

“My part of the study specifically looks at the gender aspect of the survey results, so I’ll examine within the Latino community the differences there are in men and women in terms of obesity outcomes,” she says.

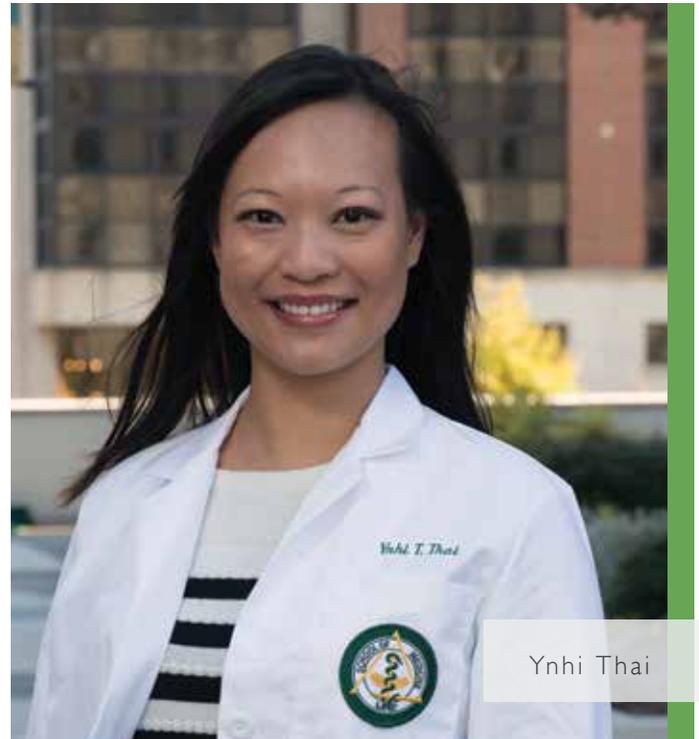
Thai, who earned a Master of Science in Medical Anthropology from Oxford University before coming to the School of Medicine, is already familiar with the idea that obesity can be caused by more than genetics. While at Oxford, she completed a dissertation on the idea that obesity is a social contagion, examining how social networks and other factors contributed to gendered obesity outcomes. She hypothesized that individuals can catch obesity through their social interactions.

“People are very likely to copy the eating habits of their friends, family, or those closest around them, so if your friends have an unhealthy diet, you’re more likely to eat unhealthy as well,” she says. “With the data we collected in Albertville, we’ll look for cultural factors that may contribute to obesity differently in Latino versus non-Latino populations.”

Thai’s summer research opportunity allowed her to work as part of the research team for 10 weeks over the summer and travel back and forth to the city three to four times each week. She is not actively participating in the ongoing research because of her medical school coursework, but Cherrington’s research team has finished collecting all 200 community surveys. Thai is currently working on a manuscript with the data.

Beyond just the implications for the research and demographic information, Thai learned about the level of trust needed from the public while conducting a study in a close-knit community like Albertville.

“It’s hard being from the outside and coming in to do a study like this one, because there has to be a rapport and a sense of trust there, otherwise people will be wary of strangers asking them to participate in research,” she says. “We had a story published about our conducting the research printed in the local newspaper to help us reach out and give the community a better understanding of what we wanted to accomplish. When we knocked on doors after that, people would say, ‘We saw you in the paper—you’re from UAB.’” – *Kendra Carter*



Ynhi Thai

Thai was one of two speakers from the School of Medicine who shared their ideas on poverty and health care at a TEDxBirminghamSalon event in December. Thai is a co-founder of Rethink Coverage, a nonprofit advocacy organization that collects stories from people who lack health insurance and shares them through various media in hopes of raising community awareness. Her presentation, “Turn Your Assumptions Into Empathy,” addressed the preconceptions made about the uninsured, and explored how they can be transformed into empathy for others and a commitment to help.

**Stefan Kertesz**, M.D., associate professor in the Division of Preventive Medicine, also spoke at the event. His research interests include medical care for the homeless and other underserved populations, and he directs a special primary care clinic focused on homeless veterans at the Birmingham VA Medical Center. His talk, “We Don’t Need Heroes to be Helpful,” asserted that a public focus on heroic contributors is a distraction and that a few common sense ideas can help anyone make a difference to others in need.

TEDx is a program of local events that bring people together to share “ideas worth spreading.” Like the annual TED Conferences that inspire them, TEDx events invite leading thinkers and doers in the community to speak on a diverse mix of topics, with the goal of sparking discussion, connection, and action around important issues.

Watch a video of Thai’s presentation on UAB Medicine’s iPad app.



# Admissions Evolution

## Multiple Mini-Interview Added to Admissions Process

By Kendra Carter

In fall 2014, the School of Medicine added a new technique to the admissions interview process to assess qualities essential to being a physician that go beyond academic ability. The school implemented the Multiple Mini-Interview (MMI), which takes applicants one by one through a series of seven to 10 stations. In each station, applicants are presented with realistic scenarios and have eight minutes to come up with a response, which reveals important insight into critical thinking, communication, ethics, and decision making. Applicants also complete a station that gauges teamwork that involves working with another applicant or an actor.

The MMI allows the School of Medicine Admissions Committee to determine not only which students have the academic assets to manage the rigors of medical school, but also to assess attributes that are paramount for patient care in medicine, such as maturity, compassion, and adaptability.

“The MMI is an additional tool in the admissions interview process to get a fuller picture of our applicants’ abilities,” says **Nathan Smith**, M.D., assistant dean for admissions in the School of Medicine. “By having multiple samplings from different interviews, we can find out more about personal qualities that make the applicant a good fit to be a physician.”

The addition of the MMI is part of a movement toward a holistic admissions model, which balances relevant academic and non-academic factors in evaluating applicants. Smith says the model has been shown to identify individuals who will do well in clinical rotations, based on qualities patients say they want in their doctors.

“The MMI and the holistic admissions model aren’t just about which applicants have the best grades and MCAT scores, but which ones will make the best doctors,” Smith says.

According to the Association of American Medical Colleges, 28 mem-

ber schools in the United States and Canada used the MMI in 2011 as part of their admissions interview process, and Smith says the number of schools using the technique grows each year.

While the MMI does not replace the traditional interview between applicants and members of the Admissions Committee, it restructures the interview day to include one 30-minute traditional interview, rather than the three, 25-minute interview format used in previous years. The interview day also is now split into separate morning and afternoon sessions to accommodate the MMI and traditional interview format. Raters who interview applicants in the MMI include Admissions Committee members as well as trained faculty, staff, and students in the School of Medicine.

The MMI ratings, along with academic evaluations and ratings from the traditional interview, are used by the admissions selection committee to make decisions about the applicants’ acceptance to the medical school. “We are fortunate at UAB to receive an abundance of impressive applicants for medical school,” says **Selwyn M. Vickers**, M.D., FACS, senior vice president for medicine and dean of the School of Medicine. “This new process will provide further standardization and objectivity in recruiting the next set of physician leaders in Alabama.”

# Practice Makes Perfect

## The Power of Simulation

By Nancy Mann Jackson

The room buzzes with activity. Health care workers take vital signs and confer with each other to respond to the changing symptoms and responses of various patients. One is experiencing uncontrolled bleeding, while another exhibits signs of respiratory failure. Doctors, nurses, and other members of the health care team collaborate to deliver the proper care to each patient.



Photo by Charles Prince

While the sights, sounds, and activity in this room are almost identical to a real hospital intensive care unit, there is one notable difference: Here, the patients are plastic manikins that exhibit symptoms and behaviors similar to live patients. Practicing with these manikins allows students in medicine, nursing, and other health care professions to develop the skills and confidence needed to collaborate successfully in a real hospital unit.

Known as health care simulation, this form of education has become vital to training future physicians and other health practitioners. Health care simulation includes a wide range of activities that share a broad, similar purpose of improving the safety, effectiveness, and efficiency of health care services. It includes a spectrum of activities from standardized patients to task trainers, manikins, and hybrid simulators.

“Simulation is crucial for health professions education because it puts patients first,” says **Marjorie Lee White**, M.D., assistant dean for clinical simulation in the School of Medicine and vice president of clinical simulation in the UAB Health System. “Practitioners, from novice to expert, from first-day medical student to experienced clinician, can practice both routine and rare procedures and care processes as individuals and teams in the simulated system so that patients are not at risk.”

At UAB, students and practitioners have access to a number of simulation facilities across the system. The Office of Interprofessional Simulation for Innovative Clinical Practice organizes simulation activities in collaboration with faculty from the schools of Health Professions, Nursing, Optometry, Dentistry, Social Work, Public Health, and Medicine. Simulation centers include UAB Hospital’s Center for Patient Safety and Advanced Medical Simulation, the UAB Volker Hall Simulation Sandbox, the Pediatric Simulation Center at Children’s of Alabama, and the UAB School of Nursing Skills and Simulation Center. In addition to health student simulations and faculty development, the Office of Interprofessional Simulation also uses simulation to test the health

system throughout UAB Hospital using in-situ simulations and unannounced mock resuscitations, and provides training for hospital employees and residents.

Students in fields including medicine, nursing, health professions, dentistry, optometry, and social work experience the entire spectrum of simulation during their training, White says. For instance, medical and nursing students participate in team-based simulations that are included in each school’s curriculum. Medical and emergency medicine residents participate in mock resuscitations and procedural skills training on a regular basis. In the UAB Health System, the Ebola preparedness care team is currently being trained using simulation-based methodologies, White says.

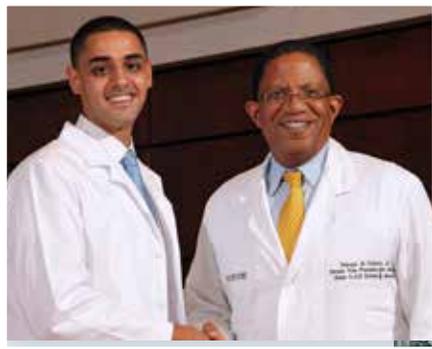
“Participating in simulation training makes educational principles ‘stick’ by placing students in safe yet realistic scenarios where they have to apply what they have learned and can see how their knowledge matters,” says **H. Hughes Evans**, M.D., Ph.D., senior associate dean for medical education. “It builds teamwork which is crucial for successful medical practice. Students are able to take the knowledge that they learn in their coursework and put it to work in simulated scenarios, thus deepening their understanding of basic principles.”

At UAB, plans are under way to boost faculty development in simulation, broadening the technique’s reach. The first step in this plan was White’s recent appointment to the position of director of the Office of Interprofessional Simulation, where she will focus on developing a train-the-trainer model.

“The vision of the Office of Interprofessional Simulation is to embed simulation-based techniques and tools in education and training for the UAB community to improve patient care outcomes, education, research, and health system efficiency,” she says.

In the future, the Office of Interprofessional Simulation plans to add staff members who can be champions for research on the effectiveness of simulation as a teaching and training tool for novice and expert health care practitioners.

# The Class of 2018



## White Coat Weekend 2014

Top left: Montgomery Regional Medical Campus Dean Wickliffe J. Many, M.D., helps incoming medical student Hannah Bowers don her white coat at the 2014 White Coat Ceremony.

Top right: (left to right) Senior Vice President for Medicine and Dean Selwyn M. Vickers, M.D., FACS, with Alyssa Terry Reddy, M.D., professor of pediatrics, neurology, and surgery at the School of Medicine, first-year medical student Alexander Terry Reddy, and Michael S. Reddy, D.M.D., DMSc, dean of the UAB School of Dentistry, at the 2014 White Coat Ceremony Legacy Reception, hosted by the Medical Alumni Association.

Bottom left: Medical student Ramy Bolis with Dean Vickers at the 2014 White Coat Ceremony.

Bottom right: Incoming medical student Amber Dixon (left) poses with family members at the White Coat Weekend Orientation Barbecue, hosted by the Medical Alumni Association.

Age Range:

21-33

169 Alabama Residents

17 Out-of-State Residents

## Scholarship Student Voices

“My scholarship has allowed me to dedicate my education to the population that initially set me on the path toward a career in medicine—the underserved—without the burden of significant financial debt. I am grateful to pursue my passion and work with those who need help the most.”



Corey G. Duke  
 Tecumseh, Okla.  
 Undergraduate: University of Montevallo  
 Class of 2018 President  
 W. Hudson Turner Endowed Medical Scholarship

INTO THE FUTURE

Entering Class: 186

47

Undergraduate  
Colleges  
Represented

103 MEN

7 M.D./Ph.D.  
STUDENTS

83 Women

Average  
MCAT  
Score

30.0

37 DEGREES  
OF STUDY

“The day I found out I was a scholarship recipient was just as rewarding as the day I found out I was accepted to medical school. Knowing I had a scholarship has helped me focus on what I came to UAB for—a quality education.”



Tiffany Freney  
Andalusia, Ala.  
Undergraduate: Auburn University  
African-American Medical Students' Scholarship  
Alma B. Maxwell Scholarship  
The Mineral District Medical Society and Auxiliary Endowed  
Scholarship

“I am incredibly grateful to be chosen as a scholarship recipient because I now have the ability to concentrate on my education and future career goals without the financial burden associated with medical school.”



Elena Gibson  
Madison, Ala.  
Undergraduate: Auburn University  
Jane Knight Lowe Medical Scholarship  
School of Medicine Scholarship Fund

# State of Health



TLC<sup>2</sup> student Elizabeth Junkin (right) works closely with Dr. Julia Boothe (left) in Reform, Ala.

## TUSCALOOSA

### Innovative Program Promotes Community Health

Third-year medical students at the University of Alabama College of Community Health Sciences (CCHS), which also functions as a regional campus of the School of Medicine, can elect to take part in an innovative new program, the Tuscaloosa Longitudinal Community Curriculum (TLC<sup>2</sup>) that allows them to follow patients over time through the health care system.

Unlike traditional, specialty-specific, eight-week medical student rotations, TLC<sup>2</sup> students spend nine months working longitudinally with a community preceptor. During that time they learn family medicine, pediatrics, internal medicine, surgery, psychiatry, neurology, and obstetrics/gynecology simultaneously and in an integrated manner that allows students to have multiple interactions with patients over time and at different points in their health care journey. For example, a student might see an adult patient at an initial visit, accompany him or her to a specialty consultation, assist in surgery on the patient, and then see the patient several times in the primary care doctor's office for follow-up visits. Continuity of care between students and patients provides unique learning opportunities about the processes of diagnosis and treatment decision-making, the evolution of illness, and the importance of the doctor-patient relationship.

**Richard Streiffer**, M.D., dean of CCHS, says TLC<sup>2</sup> is also different from the largely hospital-centric experiences in most medical school curricula. "Students come to understand health and disease in the context of where their patients live and in the variety of locales where health care services are delivered," Streiffer says.

TLC<sup>2</sup> also includes curricula in leadership and community engagement delivered through onsite seminars. "Our focus as a college is on primary care, partnering with communities to improve health and helping to address the inequities and workforce shortages in rural and other underserved areas," Streiffer says. "Our goal is improved population health, the means to it, and our organizational responsibility to prepare physicians to contribute."

## MONTGOMERY

### Campus Welcomes Class of 2018



In July, the UAB Montgomery Regional Medical Campus (MRMC) welcomed 20 students of the class of 2018 to orientation. This class will be the third to serve clinical clerkships for the third and fourth years of medical school in Montgomery.

Orientation day introduces students to the culture of health care in Montgomery, the Baptist Health facilities involved in their education, and the overall community. Students also assisted with the renovation of a Habitat for Humanity home. "In addition to training, recruitment, and retention of physicians, there is a social-consciousness aspect of medical school that we develop," says **Wickliffe J. Many Jr.**, M.D., FACP, Virginia Loeb Weil Professor of Medical Education and dean of the MRMC. "Students have an obligation to give back, as it is indeed a privilege to be a physician."



Students from the class of 2018 helped to renovate a Habitat for Humanity home as part of their orientation.

### New Advisory Board Members

In September, the Advisory Board of the Montgomery Regional Medical Campus appointed seven new community leaders:

**Golson Foshee**, president of Foshee Management; **Robert C. Granfeldt Jr.**, publisher and president of *The Montgomery Advertiser*; **LaTora Todd Jackson**, health adviser at Auburn University at Montgomery; **Audrey Napier-Matthews**, Ph.D., professor of biologic sciences at Alabama State University; **Ben Stakely**, CEO of Kowa Pharmaceuticals; **Mike Tidwell**, director of the Organization Department at the Alabama Farmers Federation; and **Marty Vignes**, executive director of the Southeast Alabama Area Health Education Center.

The role of the Advisory Board is to advocate for the regional campus in the community and to provide counsel to the regional dean and the residency program directors.



UAB Scrubs team members kept things light with pink tutus during the charity softball game.

## SELMA

### Charity Softball Tournament

The UAB Selma Family Medicine Residency Program team may have come up short on runs at the third annual charity softball game supporting Alabama Teen Challenge, a nonprofit drug rehabilitation organization, but all who played and cheered for the teams were winners. The final score of the July 17 game was 18-6 in favor of Teen

Challenge, with donations collected and proceeds from concession sales going to support the organization's programs. UAB Family Medicine in Selma also supports Alabama Teen Challenge by providing blood work for Teen Challenge participants, many of whom lack health insurance, at a reduced rate.

UAB Scrubs team members **Karen Bailey** and **Brenda Dale** wore pink tutus throughout the game to encourage everyone to remember the real purpose of the night's play: to have fun and raise money for a good cause.

### Boosting Diabetes Awareness and Support

Diabetes rates in Dallas County, as in much of Alabama, are higher than the national average. In October, UAB Selma Family Medicine partnered with the Dallas County Extension Office to host group support meetings for local residents affected by the disease. Participants were able to meet with doctors to get a check-up and share their personal stories and tips with others. Topics included diabetic diet, appropriate medication usage, fitness, and maintaining a healthy lifestyle.

The gatherings were built around the concept that support from others with the disease can have a significant impact on a diabetes patient's outlook and behavior. "This idea has actually been going for quite some time," **Aditya Nirmal**, M.D., a resident at the UAB Selma Family Medicine clinic, told *The Selma Times-Journal*. "It's picking up across the country where doing group sessions actually helps people deal better with their diabetes.

"We have people who are very uncontrolled, somewhere in the middle, and those who are well-controlled diabetics," Nirmal says. "It's amazing to see how the controlled will motivate the others."

## HUNTSVILLE

### New Residency Program Enhances Primary Care Mission

The UAB Huntsville Regional Medical Campus is now home to the Huntsville Internal Medicine Residency Program, which graduated its first group of residents in 2014. Offering personalized aspects of educational curricula and unique hands-on experiences, the Huntsville Internal Medicine Residency program joins the existing Huntsville Family Medicine Residency Program, increasing the number of residents who train in North Alabama. **Robert M. Centor** M.D., FACP, regional dean for the Huntsville Regional Medical Campus, says the increase in the number of residents likely will lead to an increase in the number of general practice physicians working in the area. About half of physicians end up practicing within 50 miles of where they trained, he says. "This fulfills one of our missions, which is to train physicians to practice in Alabama."

### Residents Face "Doctor's Dilemma"

The Huntsville campus offers diverse training programs for residents, including the opportunity to participate in a one-of-a-kind competition that enhances a quality medical education. Known as "Doctor's Dilemma," the competition is hosted by the American College of Physicians, with more than 40 residency programs competing across the globe. A team of three Huntsville residents recently made it to the final rounds of "Medical Jeopardy," becoming the first Alabama team in 40 years to make it to finals. The team included **Amir Azarbal**, M.D., **Khushdeep Chahal**, M.D., and **Amir Kamran**, M.D.



Left to right: Khushdeep Chahal, Amir Kamran, Huntsville Regional Dean Robert Centor, Amir Azarbal, and Associate Program Director David Fahey.

## Family Ties

Finley Family Gifts Honor Parents, Beloved Faculty Members

By Lisa Bailey

Thanks to two recent philanthropic gifts honoring a husband-and-wife pair of beloved School of Medicine faculty members, the Finley name will be added to an endowed scholarship and a UAB library in recognition of the innumerable contributions to the field of genetics and to the institution by the late Dr. Sara Crews Finley and Dr. Wayne Finley.



Wayne Finley, daughter Sara Finley, and son Randall Finley.

Along with her husband, **Wayne H. Finley**, M.D., Ph.D., **Sara Crews Finley**, M.D., co-founded the first medical genetics program in the southeastern United States, and was co-director of UAB's Medical Genetics Laboratory for more than 30 years. She served as the first female president of the Medical Alumni Association and the Jefferson County Medical Society, among many other honors and awards.

As a member of the School of Medicine admissions committee for 20 years, Dr. Sara Crews Finley guided and advised hundreds of applicants seeking careers in medicine. To honor her legacy of generous mentorship, the Sara Crews Finley, M.D., Leadership Scholars Program has been established by the Finleys' daughter, **Sara J. Finley**, J.D., their son, **Randall W. Finley**, M.D., a School of Medicine alumnus, and Dr. Wayne Finley to recognize and support the aspirations of top medical students.

Sara Crews Finley, M.D., Leadership Scholars will be selected based on academic achievement and leadership skills, and will receive a full-tuition scholarship for their third and fourth years of medical school. Recipients will also receive a new white coat with special insignia indicating their status as Sara Crews Finley, M.D., Leadership Scholars at the annual White Coat Ceremony in August.

"My mother was a highly respected leader in all aspects of her personal and professional life," says Sara J. Finley. "We felt that a leadership scholarship in medicine was the most appropriate way to recognize her enduring legacy."

The Finley children also have honored their father's dedication

to UAB with a gift to rename the Reynolds Historical Library, a collection of more than 13,000 rare books and manuscripts pertaining to the history of medicine and dating from the 14th century, as the Reynolds-Finley Historical Library. This gift is especially fitting given Dr. Wayne Finley's passion for medical history—he has authored a number of articles and books relating to the history of the medical center in Birmingham, including *University of Alabama Medical Alumni Association, 1859-2003*, and is a founding member of the board of the Reynolds Associates at UAB's Lister Hill Library.

"My father has always had an abiding passion for the study of medicine—its origins, its evolution, and its practitioners," Sara J. Finley says. "We believe that renaming the library in his honor will recognize his legacy as an enthusiastic leader in preserving medical history at UAB."

In addition, the Finley children have established an endowed support fund to enhance the Reynolds Historical Lectureship, which will be renamed the Reynolds-Finley Historical Lectureship. The lectureship will help bring scholars of national stature to campus.

"Adding the Finley name to the library and establishing the scholarship will honor the Finley legacy to our campus now and in the future," says **Shirley Salloway Kahn**, Ph.D., senior vice president for development, alumni, and external relations. "This generous gift will have an invaluable impact on the university, our students, and the field of medicine. Adding the Finley name will elevate the status of these areas."

Learn how you can support the school and its students at [UAB.edu/medicine/development](https://uab.edu/medicine/development)

## A Legacy of Giving

Gillian and Mike Goodrich Continue a Long Tradition of Support for UAB

Through their foundation and their personal giving, Gillian and Mike Goodrich have committed several gifts that will enable UAB to recruit a world-class pediatric cancer researcher; strengthen efforts to eliminate health and cancer disparities, and accelerate breast cancer research at UAB. These latest are among several transformative gifts that Mike Goodrich, the retired chairman and former chief executive officer of BE&K, an international construction and engineering firm headquartered in Birmingham, and his wife, Gillian, have made to UAB since 2008. “We have a passionate desire to support and improve our community—a strong belief in the need to give back at the local level that originates from Mike’s early days at BE&K,” Gillian Goodrich says.



Mike and Gillian Goodrich

Supporting community health care is a family affair for Gillian. Following her father’s example, she has served on the Children’s of Alabama Board of Trustees. In honor of her parents, she and Mike have generously given a gift to establish the Gay and Bew White Endowed Chair of Pediatric Oncology. “This generous, personal gift will enable UAB and Children’s of Alabama to recruit a physician-scientist who can integrate basic and clinical oncological research, advance pediatric cancer research and therapeutics, and allow us to raise our profile as one of the premier pediatric oncology programs in the nation,” says **Edward E. Partridge, M.D.**, the Evalina B. Spencer Endowed Chair in Oncology and director of the UAB Comprehensive Cancer Center. “We are deeply grateful to Mike and Gillian for choosing to honor her parents by establishing this chair for pediatric oncology.”

Through their foundation, Gillian and Mike Goodrich also have donated an annual gift of \$75,000 for the next three years to the Deep South Network for Cancer Control. For almost two decades, the Deep South Network for Cancer Control has worked in Birmingham and other underserved communities in Alabama and the Mississippi Delta through an extensive network of community health advisors to eliminate health and cancer disparities on a grassroots level.

“The Deep South Network is reaching the unreachable, meeting desperate community needs, and changing the landscape of the local community by helping women affected by cancer and their spouses or their partners,” Gillian says.

Through a personal gift to the Breast Cancer Research Foundation of Alabama (BCRFA), the Goodriches also are helping to expedite the development and transition of basic science discoveries in cancer research to the clinical setting. — *Lisa Bailey*

## FUNDING THE FUTURE

Five Things to Know About Planned Giving

**1.** It’s not just for the wealthy. Every bequest is a gift to the future and is greatly appreciated.

**2.** A charitable bequest can be added to your plans in addition to provisions you wish to make for family and loved ones. Tax advantages may apply.

**3.** We would appreciate knowing about your bequest when you decide to make it. In addition to allowing us to thank you personally, knowing about future gifts lets the School of Medicine better anticipate future funding.

**4.** Your gift can be directed to the programs that are most meaningful to you. Planned gifts can be used to create and endow scholarships, enhance residency and fellowship education, help to recruit and retain world-class faculty, and expand and accelerate research in a given area.

**5.** Gifts don’t have to be cash. Donors may bequeath securities, real property, and even personal property. Some of these gifts present excellent opportunities for tax advantages.

For more information on planned giving, contact Virginia Gilbert Loftin • 205-975-5602 • [vgloftin@uab.edu](mailto:vgloftin@uab.edu)

## Faculty Giving Roundup

### Chain Reaction



Robert Koehler

**Support from** Department of Radiology faculty and former chairs have bolstered two funds dedicated to enhancing the department's residency training program and promoting young radiologists' career development.

The Koehler Fund for Education, named for former radiology Chair and current Professor Emeritus **Robert E. Koehler**, M.D., FACR, seeks to ensure that the residency program offers the most effective and up-to-date training equipment and technology now and in the future. Part of that effort will involve renovating the residents' library and lounge and modernizing it into a computer-based learning lab. **Cheri L. Canon**, M.D., FACR, the Witten-Stanley Endowed Chair in Radiology, says the new space will offer residents a comfortable and well-equipped space to collaborate and learn from their peers.



Cheri Canon

The purpose of the Stanley Fund for Leadership, named for former Chair and current Professor Emeritus **Robert J. Stanley**, M.D., is to enable residents and faculty to take advantage of learning opportunities at meetings and conferences that strengthen leadership and business acumen, increasingly key skills for all physicians. "The health care landscape is a moving target," says Canon. "If our residents are going to be successful they have to be trained more in leadership and business skills."



Robert Stanley

**Joseph C. Sullivan III**, M.D., program director for the Diagnostic Radiology Residency Program, has made a gift to be split evenly between both funds. Because gifts to both funds are being matched by the department up to \$300,000, his generosity will have an even greater impact.



Joseph Sullivan III

Koehler's hopes for the impact of his gifts are likely shared by his colleagues, who are all committed to ensuring the continued excellence of the department. "I wanted to make an investment in our ongoing ability to attract the best and brightest residents," he says. "I want to help the program continue to be a strong and competitive place to train and grow well into the future."

To support the Department of Radiology, contact  
**Kate Tully** • 205-934-0792 • ktully@uab.edu

### Leading By Example

**Robert R. Rich**, M.D., and **Susan Marie Jepsen Rich**, Ph.D., have contributed a gift and made planned gift commitments to establish the Robert R. Rich, M.D., Endowed Medical Student Scholarship. The scholarship commemorates Robert Rich's service as senior vice president for medicine and dean of the School of Medicine from 2004 to 2010; his role as faculty accreditation lead from 2012 to 2014, which resulted in the highest level of reaccreditation from the U.S. Liaison Committee on Medical Education for the School of Medicine; his appointment in 2014 as associate vice president and associate vice provost for interprofessional education for UAB; and for his dedication to students as professor of medicine, microbiology, and medical education.

Since 2005, Susan Rich has served as associate and then senior associate dean for life sciences in the Graduate School and professor



Susan Rich



Robert Rich

of microbiology in the School of Medicine. She also directs the interdisciplinary Graduate Biomedical Sciences program, which encompasses approximately 400 graduate students and 350 faculty participants across the university

The Riches say that, in their respective roles at UAB, they have seen the burden placed on students by the cost of medical education firsthand, and hope that the endowed scholarship will have a positive influence and enduring effect on the lives and careers of the students who benefit from it, as well as on the health and well-being of future patients under their care.

### A Legacy That Lives On

**With the June 2014 passing of Robert B. Adams**, M.D., the Department of Pathology and the School of Medicine lost a dedicated supporter and advocate, and the Alabama medical community lost a skilled and trusted colleague.



Robert B. Adams

A Birmingham native, Adams graduated from the Medical College of Alabama in 1956. He went on to become a pioneering force in pathology in the state, establishing two Schools of Medical Technology and The Robert B. Adams Foundation, to support the advancement of clinical laboratory sciences. He served on the faculty of the Department of Pathology at the Medical College of Alabama from 1961 to 1964, when he moved to Montgomery, Ala., to become the first pathologist of the then-new Montgomery Baptist Hospital (now Baptist Health).

Retired Montgomery obstetrician and gynecologist **John M. Ashurst Jr.**, M.D., first encountered Adams while in residency at the Medical College of Alabama. "I was a second-year resident, and he was on the faculty in the Department of Pathology," Ashurst recalls. "We were required to do 10 autopsies in rotation. Lucky for me, Bob was willing to help me sign them out—I joked with him that if he hadn't helped me, I'd still be up there trying to finish my second year of residency."

In June 2013, Adams made a generous planned gift to establish the Dr. Robert B. Adams Endowed Chair in Pathology in the School of Medicine Department of Pathology, capping a lifetime of support for the School. In an interview prior to his death, Adams explained what inspired him to make the gift. "As a graduate of the Medical College of Alabama, I have loyalty to the entire institution and to the Department of Pathology especially," he said. "I think that it can be the number one pathology department in the country, including the Ivy League. I want to continue to support that part of medicine that has been so good to me."

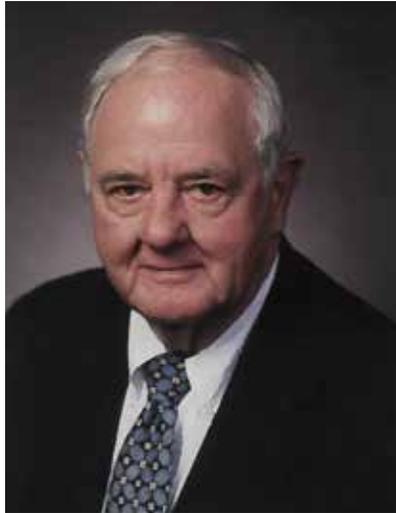
To support the Department of Pathology, contact **Virginia Gilbert Loftin** • 205-975-5602 • vgloftin@uab.edu

## Gift Fosters Entrepreneurial Spirit

The Joy and Bill Harbert Foundation, in care of Billy L. Harbert, has given a gift of \$5 million to name and support the mission of The Bill L. Harbert Institute for Innovation and Entrepreneurship at UAB. This generous act of philanthropy honors the legacy of an admired Birmingham businessman while powerfully advancing a mission of inspiration, discovery, innovation, and success.

Bill L. Harbert, with his brother, the late John M. Harbert III, and Ed Dixon, founded Harbert Construction Corporation in Birmingham in 1949. In 1991, Bill Harbert bought a majority of the international operations of Harbert International, serving as chairman and CEO of Bill Harbert Construction, Inc.

Throughout his career, Bill Harbert was active in the community, and he and his family were integral to the development of UAB. Their financial support created the Mae Schooling Harbert Fund for Resident Physicians. A gift of \$1 million established the Joy and Bill Harbert Endowed Chair in Cancer Genetics. Bill Harbert also was generous with his time, serving on numerous com-



Bill L. Harbert

munity advisory boards and as director of The University of Alabama Health Services Foundation.

“My parents’ advice was simple and heartfelt: Give back,” Billy L. Harbert, son of Bill and Joy Harbert, says. Today, Billy L. Harbert is chairman and CEO of B.L. Harbert International, a company he founded in 2000.

The Joy and Bill Harbert Foundation’s support will have a dramatic impact on the mission of The Bill L. Harbert Institute for Innovation and Entrepreneurship (IIE). The IIE, a key partner for the School of Medicine, was launched in 2013 to promote a strong innovative and entrepreneurial ecosystem through education and experiential learning. The IIE will allow UAB to foster the creation of new companies, products, and licenses. And, like the construction company Bill Harbert founded more than 50 years ago, those ventures will strengthen Birmingham.

“I cannot think of a person who had a more entrepreneurial spirit than my father,” Billy Harbert says. “When Bill Harbert believed

in you, he empowered you to succeed with his trust. He did not acknowledge the word ‘risk.’ He was an eternal optimist.”

## Capitol Campaign

### Gifts Support UAB Montgomery Regional Medical Campus

By Jessica Dean

In 2014, the UAB Montgomery Regional Medical Campus welcomed its first group of third-year medical students to the campus housed at Baptist Health, the longtime home of the UAB Montgomery Internal Medicine Residency Program. Philanthropic partners from across the state have made gifts to support the campus, and in doing so to strengthen health care for the region for generations to come.

**Mr. and Mrs. Robert S. Weil** established the Montgomery Internal Medicine Residency Program Endowed Support Fund several years ago. In 2013, Mr. Weil gave an additional gift to create the Virginia Loeb Weil Endowed Professorship in Medical Education in memory of Mrs. Weil, and in recognition of the care she received from **Wickliffe J. Many Jr., M.D.**, former program director of the UAB Montgomery Internal Medicine Residency Program and current dean of the Montgomery Regional

Campus. Many is the first recipient of the endowed professorship.

The **Arthur Mead Britton Foundation** made a significant contribution to the UAB Montgomery Regional Campus Scholarship Support Fund to provide scholarships for School of Medicine students completing their third and fourth years of education in Montgomery. Britton, a School of Medicine alum and retired Montgomery OB/GYN physician, says the gift allows him to support both his alma mater’s mission of providing top-notch medical education as well as aspiring physicians who are the future of medicine, all while keeping the gift’s impact focused on the Montgomery area.

In addition to these generous gifts, the **Medical Society of Montgomery County** has established the campus’s first endowed medical scholarship. The goal of the scholarship is to ensure that medical students become competent and compassionate physi-



Maureen M. and Arthur M. Britton.

cians who, it is hoped, will ultimately benefit patients in Montgomery County and across the state of Alabama.

The **Baptist Health Care Foundation** and the **Baptist Medical Center South Medical Executive Committee** have both established current-use scholarships for medical students at the Montgomery campus.

To support the UAB Montgomery Regional Medical Campus, give online at [www.uab.edu/mrmcscholarship](http://www.uab.edu/mrmcscholarship) or contact **Jessica Brooks Lane** • 205-975-4452 • [jbplane@uab.edu](mailto:jbplane@uab.edu)

# Investing in Innovation



Left: (left to right) Jodi and James Lee III with Dean Selwyn Vickers and Executive Vice Dean Anupam Agarwal of the School of Medicine. Below: (left to right) Board of Visitors member Thomas Blount, Board Co-chair Ted Love, and Bob Loftin.



## A Meeting of the Minds

*Board of Visitors Supports Dean's Vision with Wealth of Experience and Expertise*

By Jane Longshore

In September, a small group of eminent leaders from business, academia, medicine, science, and public policy gathered for the inaugural meeting of the UAB School of Medicine Board of Visitors. The Board will meet twice a year to advise Senior Vice President for Medicine and Dean **Selwyn M. Vickers**, M.D., FACS, in support of the school's vision to become the preferred academic medical center of the 21st century. Co-chaired by Huntsville native **Ted W. Love**, M.D., and **Gail H. Cassell**, Ph.D., the Board will serve as advocates and advisers on strategy, philanthropic initiatives, and community engagement, and provide independent perspectives on School of Medicine initiatives.

The September meeting agenda included presentations by UAB faculty on key research initiatives in diabetes, neurosciences, cardiovascular disease, and personalized medicine and genomics. The Board concluded their visit with a dinner at Woodward House.

"In the time since I returned to Alabama to serve as senior vice president and dean of the School of Medicine, I have gained a deeper appreciation for this institution, its people, and the promise it holds for transforming medicine and science across a wide range of disciplines," Vickers says. "More than ever, I am convinced we have a compelling and inspiring story to tell, and that we need to do a better job of telling that story outside the Southeast. The Board will help us do that."

"As an Alabama native I'm very proud of our world-class academic medical center, and I'm excited to help it develop to even greater heights under Dr. Vickers' leadership," says Love. "UAB School of Medicine has many strengths, but I'm particularly impressed with its scale and quality of leadership. I believe continuing to build upon our outstanding faculty and research funding is key to our future as a leading medical center."

Cassell says the strength of Vickers' vision for the school compelled her to accept the invitation to co-chair the board. "One of the things I am so encouraged by is his commitment to invest in research, both basic and clinical, as well as his commitment to global health," she says. "I will work hard to try to help him accomplish his vision, and I think other members of the board will do the same. It's a very strong group of people committed to trying to advance the institution." — *Jim Bakken*

## Former Faculty Chair Brings Global Perspective

Cassell is one of two distinguished School of Medicine alumni on the Board of Visitors. Currently senior lecturer in the Department of Global Health and Social Medicine at Harvard Medical School and a senior scientist in the Division of Health Equity at Brigham and Women's Hospital in Boston, she recently retired from Eli Lilly and Co. as vice president for scientific affairs and Distinguished Lilly Research Scholar in Infectious Diseases.

A native of Goodwater, Ala., Cassell earned her bachelor's degree in microbiology at the University of Alabama. She earned her Ph.D. in microbiology from UAB and chaired the Department of



Gail Cassell has served on advisory boards for numerous federal agencies.

Microbiology for 10 years, during which it ranked first in NIH research funding.

During her wide-ranging career, Cassell has served as an advisor to the White House Office of Science and Technology Policy; as an invited participant in numerous congressional hearings related to infectious diseases, anti-microbial resistance, and biomedical research; and on advisory boards for the directors of the National Institutes of Health (NIH) and the Centers for Disease Control, the Secretary of Health and Human Services Advisory Council of Public Health Preparedness, and the Food and Drug Administration's Science Board. She is a member of the Institute of Medicine and recently completed a second three-year term on its governing board.

Cassell's broad experience in academic administration and public policy have given her a powerful perspective from which to assess the landscape for academic medical centers like the School of Medicine. In responding to current regulatory and funding challenges, Cassell says AMCs must take care to avoid certain pitfalls. "The biggest mistake that institutions make in my opinion is that they place so much emphasis on retention of more senior faculty without at the same time renewing within a department and recruiting younger faculty," Cassell says. "They can find themselves kind of empty handed at the assistant professor level, and it becomes more difficult to recruit if you don't have the full spectrum of talent. Then you have more of a challenge recruiting grad students and post docs, so it can have a very big impact. When you get a decline in research funding and the competition increases, there's a tendency to hunker down and avoid risks. I think you have to be mindful that these things can have very long-term consequences and are not easily corrected."

Cassell is optimistic that new models of public/private partnership will develop to counteract the decline in federal research funding. "I see great opportunities to partner with the private sector in all types of medically related industries—the pharmaceutical industry, the medical device industry. I think new models will arise for ways of collaborating that we've not seen in the past." In Cassell's view, globalization is a prime catalyst for these new types of partnerships. "There are major opportunities on the international front," she says. "It's now mandatory in science to have global collaborations, and that brings with it

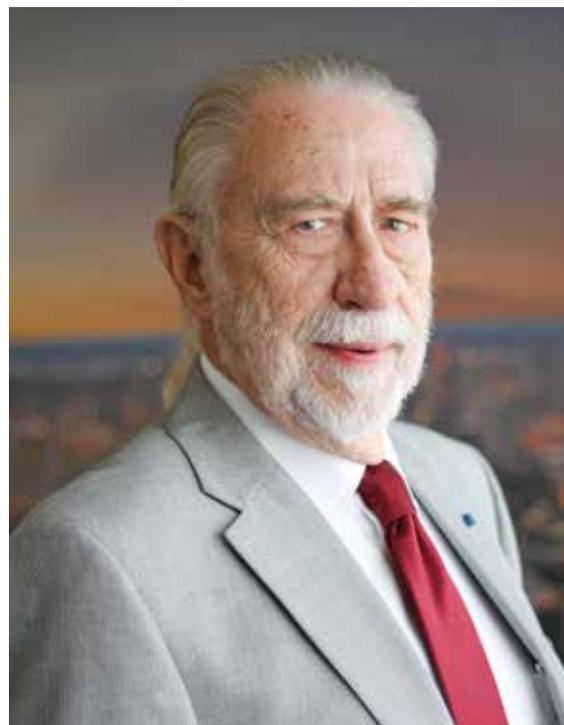
not only the opportunity to expand your research expertise but also to gain access to more and different funders of biomedical research."

Cassell says genomic science holds untold possibilities for institutions like the School of Medicine. "It probably goes without saying that one big area of future opportunity is in the area of genomics in diagnostics, patient management, and treatment," she says. "It seems to me that the recent partnership between UAB and the HudsonAlpha Institute for Biotechnology is a tremendous opportunity going forward to take advantage of each other's strengths and become very competitive internationally in the area of genomic research."

### Talking the Talk

Dubbed "Online Health Care's Medicine Man," **George D. Lundberg**, M.D., has been at the forefront of most major developments in medical communication in the modern era. He has more than 30 years combined experience as editor in chief of *The Journal of the American Medical Association* (JAMA), the 10 AMA specialty journals, *American Medical News*, Medscape, *The Medscape Journal*, e-Medicine from Web MD, and MedPage Today from Everyday Health. He is currently editor in chief, chair of the editorial advisory board, and chief medical officer for CollabRx. He is also president and chair of the board of directors of The Lundberg Institute, a consulting professor at Stanford University, and editor at large for Medscape from WebMD, and is a member of the Institute of Medicine of the National Academy of Sciences.

Born in Florida, Lundberg grew up in rural Silverhill, Ala. He completed his undergraduate degree at North Park College and the University of Alabama before attending medical school at the University of Alabama School of Medicine. He completed a clinical internship in Hawaii and a pathology residency in San Antonio, then served in the U.S. army for 11 years. Lundberg served as professor of pathology and associate director of laboratories at the Los Angeles County/University of Southern California Medical Center for 10



A medical communications veteran, George Lundberg has been dubbed "Online Health Care's Medicine Man."

years, and for five years was professor and chair of pathology at the University of California-Davis.

Not surprisingly given his background, Lundberg maintains that effective communication is an essential part of health care. “The practice of medicine includes surgeons who cut on people, radiologists who shoot ray guns at people, and internists and pediatricians who give chemicals to people, and the rest is communication,” he says. “Handling information—gathering it, evaluating it, discarding it, acting on it, dispensing it—that’s basically the whole practice of medicine.”

The importance of communication was instilled in Lundberg as a child. “My mother wrote for newspapers across Baldwin County,” he says. “I watched her hand write a weekly column for the *Foley*, *Fairhope*, and *Bay Minette* newspapers about what happened in Silverhill that week. Many people in our little town would bring their information to my mother to make sure they made it into the next edition of the *Foley Onlooker* or the *Fairhope Courier*. That is among my earliest memories and it certainly had something to do with conditioning me to the importance of communication.”

While the digital revolution has enabled information to flow at a previously unimaginable pace, Lundberg laments that the application of new research discoveries into clinical care remains agonizingly slow. “Doctors tend to continue to practice what they learned as residents until something jars them into doing something differently,” he says. “There is value to being resistant to change because sometimes the change may not be valid, so you need to keep your eye on it. But even so, the lead time

from putting a real discovery that matters and can improve patients’ lives into routine practice can be as much as 15 years.”

Addressing that delay is at the center of Lundberg’s newest enterprise, CollabRx, a data analytics company that uses cloud-based expert systems to inform health care decision-making. “CollabRx deals exclusively in cancer and is dedicated to moving the best cancer treatment information on the worst cancers, the big killers, from discovery to use as rapidly as possible,” Lundberg says. “We’re trying to cut that 15 years down to a much shorter time.”

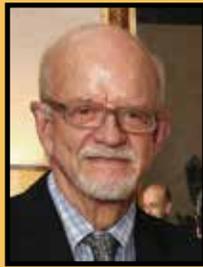
In Lundberg’s view, the School of Medicine is well-positioned to take a leadership role in addressing a number of challenges currently facing the American health care system. “I think that practical realities should cause UAB to try to convert problems into opportunities whenever possible, including the population health problems in that part of the country” Lundberg says. “I would recommend looking at the key problems that are killing and disabling the people who live in that area—I would think that obesity, diabetes, hypertension, heart disease, and cancer are the biggest. UAB should really take advantage of these massive public health problems to try to do population-based research that can be turned into population-based interventions as well as personalized solutions for individuals.”

Health disparities is another area in which Lundberg sees unique opportunities for the School of Medicine. “Those are really big challenges but that’s where the payoff will be—in tackling huge issues and at least trying to stop them from getting worse, and then working to try and make them better.”

## School of Medicine Board of Visitors



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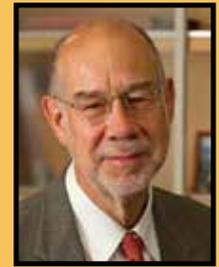
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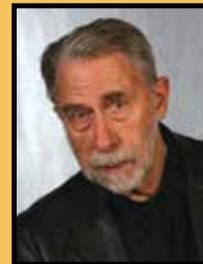
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## Paying It Forward

### Alumni Support Students' Aspirations Through Scholarship Giving

By Jessica Dean

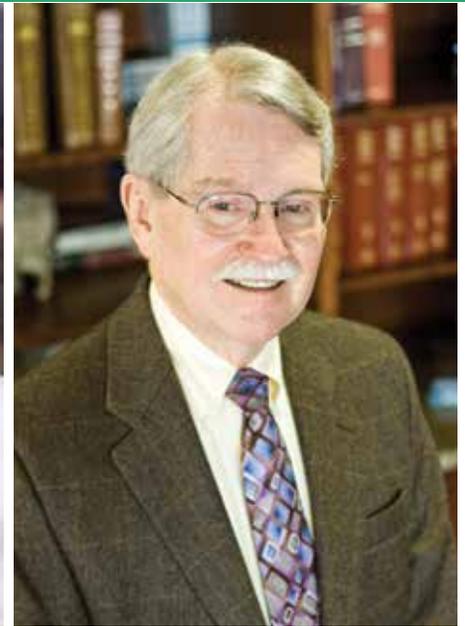
According to the Association of Academic Medical Colleges, 84 percent of 2014 medical school graduates graduated with education debt; their median debt was \$180,000. But countless School of Medicine alumni are stepping up to help current students earn a quality education and pursue their passions through scholarship giving.

#### Inspired by Excellence

"I went into the field of psychiatry because it's what I loved," says **F. Cleveland Kinney**, M.D., Ph.D., professor emeritus in the UAB Department of Psychiatry and Behavioral Neurobiology. "Medical students should have the opportunity to choose a specialty that brings them joy instead of worrying about the costs associated with graduating."

A native of Birmingham, Kinney received his undergraduate degree from Birmingham-Southern College. In 1976, he completed his Ph.D. in anatomy with an emphasis in neuroanatomy, and in 1985 he earned his medical degree from the School of Medicine, followed by a general psychiatry residency and a geriatric psychiatry fellowship in 1989. "Birmingham is my home, and for the past 42 years the School of Medicine has been my emotional and intellectual home," he says.

Kinney looked to his own early career for inspiration for his personal philanthropic endeavors. "During my residency, the director of psychiatric nursing, **Christine L. White**, had a significant influence on who I would become as a physician," he says. To honor her impact, Kinney established the Christine L. White Scholarship to benefit a student interested in psychiatry. "She was gifted in helping trainees distinguish between the psychiatric manifestations of medical illnesses and the symptoms of serious psychotic disorders," Kinney says. "She was my role model and there is no greater reward for me than to see her achievements honored." Kinney also serves as president of the Jefferson County Medical Society, and



According to alumni F. Cleveland Kinney and Pink Folmar Jr., scholarship giving helps medical students choose the career path that is most meaningful to them.

was the founding supporter of the Jefferson County Medical Society Medical School Scholarship Fund.

#### Long-Term Commitment

**Pink L. Folmar Jr.**, M.D., FACP, chose to dedicate his career to primary care, in part because of the variety and opportunities for long-term relationships that it offers. "When I was in medical school and beginning to think about a specialty, I didn't want to limit myself to just one organ system, so I chose primary care," he says. "As a primary care physician, I am not only treating a disease but the whole person. I get to know patients and their families over long periods of time and have the chance to build relationships with them."

Folmar grew up in Montgomery, Ala., and completed his undergraduate degree at Vanderbilt University in Nashville, Tenn. He met his wife, Miriam, on his first day of graduate school at The University of Alabama. He was accepted to medical school during his first year of graduate school and started at the School of Medicine the following fall. Folmar graduated from the School of Medicine in 1972, and in 1976 he completed his residency in internal medicine while serving as chief resident.

After completing his residency, Folmar became an internist with Simon-Williamson Clinic in Birmingham, where he remained for 29 years. In 2005, he and his wife moved

to the rural town of Brundidge, Ala., (population 2,500), where his wife owns a pine tree farm. Folmar managed the town's only medical practice, caring for a rural patient population in an agricultural area, a significant departure from what he was accustomed to in Birmingham.

"When a primary care physician practices in a community that has limited access to medical care, the physician will always find a significant population with undiscovered diseases," Folmar says. "It's challenging yet rewarding because I knew my contribution impacted the community." Folmar and his wife moved back to Birmingham in 2010 and he currently practices at MedHelp as a general internist. Folmar will assume the role of president of the University of Alabama Medical Alumni Association in March 2015.

Folmar is a consistent and generous supporter of medical student scholarships. "I know that the burden on young physicians to repay medical school debt can be overwhelming," he says. "That's why it's so important for me to contribute to training the next generation of physicians—I want to give the same opportunities that I had to other young physicians, especially those who aim to practice primary care."

To support scholarships and primary care at UAB, contact **Jessica Brooks Lane** • 205-975-4452 • [jb lane@uab.edu](mailto:jb lane@uab.edu)

# A Vision Restored

*Landmark Work of Optical Art Being Restored to Former Glory*

By Tim L. Pennycuff

In November 1976, Birmingham became home to an epic work of “optical art” when “Complex Vision” was installed on the façade of the Eye Foundation Hospital facing University Boulevard.

The 30-by-30 foot installation was, at the time, the largest outdoor sculpture created by Yaacov Agam, an Israeli artist best known for his contributions to optical and kinetic art. It is composed of 69 colorful aluminum panels that are 13 inches wide and 10 feet high, each weighing approximately 50 pounds.

Agam, the son of a rabbi, studied at the Bezalel Academy of Art and Design in Jerusalem before moving to Zurich, Switzerland, in 1949. He moved to Paris in 1951 and has made the French capital his home ever since. Major retrospectives of Agam’s work were held in Paris in 1972 and at the Guggenheim Museum in New York in 1980.

**Alston Callahan**, M.D., founder of the Eye Foundation Hospital—renamed the UAB Callahan Eye Hospital in his honor—was a major patron of the arts in Birmingham and he commissioned Agam to provide the monumental work. Local benefactors Marvin and Ruth Engel helped the hospital acquire the piece as a memorial to their parents, former patients of the hospital.

“Many patients come to our facility with cloudy vision and cannot see shapes and colors because of their eye disease,” says **C. Brian Spraberry**, president and CEO of UAB Callahan Eye Hospital. “Dr. Callahan wanted patients to have the experience of seeing very colorful fine art after surgery. This sculpture was commissioned as his gift to them.”

By 2014, almost four decades of the Alabama sun had taken a toll on “Complex Vision,” leaving it badly faded. The piece was removed last April to undergo extensive restoration, approximately 80 percent of the costs of which are being funded by private donations. Dennis Carhart of Art Creations and Restorations, based in West Palm Beach, Fla., has been restoring Agam pieces for 20 years. Carhart and his team stripped and refinished the panels to restore Agam’s original design, a process that will be officially completed when the artist himself rededicates “Complex Vision.”

The work is scheduled to be reinstalled in spring 2015, when it once again will be a treasured landmark for hospital patients and all those who travel University Boulevard through the heart of the UAB campus.

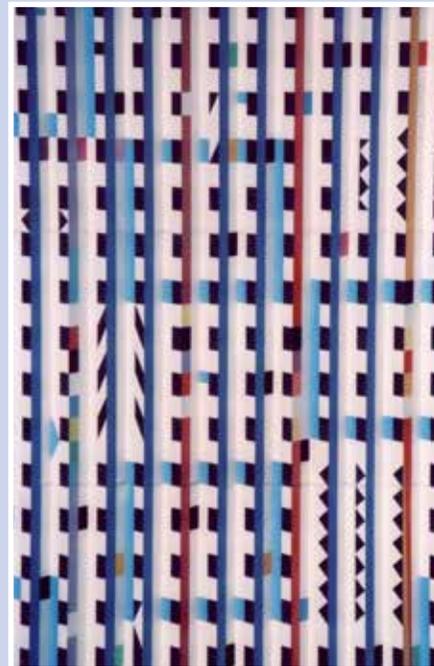
To support the UAB Callahan Eye Hospital, contact **Jackie Wood** • 205-325-8526 • [jfwood@uab.edu](mailto:jfwood@uab.edu)



Above: “Complex Vision” being removed for restoration in April 2014. Photo courtesy of UAB Callahan Eye Hospital.



Above: Yaacov Agam signs his work at the 1976 dedication event. Left: Alston Callahan, founder of the Eye Foundation Hospital, commissioned the monumental art work for the building. Photos courtesy of UAB Callahan Eye Hospital.



Above: Two views of “Complex Vision” show how the image changes as the viewer passes by. Photos courtesy of Ross Callaway.

# Alumni

are our most deeply valued resource

Not only does our reputation rest on our graduates' knowledge, skills, and achievements, their support is fundamental to our ability to fulfill our mission of providing groundbreaking research, compassionate care, and world-class medical education.

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- Created based on direct input from UAB physicians and nurses
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(0.25 AMA PRA Category 1 Credit(s)<sup>TM</sup>) Dr. Brett Kissela, a leading expert in acute ischemic stroke from the University of Cincinnati, and Dr. Joshua Goldstein, a top emergency physician and associate professor at Harvard Medical School, look at the mounting evidence from global studies showing clear benefits from the timely use of thrombolytic therapy.

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