

# UAB MEDICINE

A Magazine for Alumni and Friends of the School of Medicine

Volume 39 • Number 1 • Winter 2013

## Change AGENTS

How UAB Delivers on  
Its Discoveries



# Touch Technology



Senior vice president and dean Ray Watts (at right) views tablets and smartphones as tools for connection and communication.

or a tap. If a question has already been answered, we can gain that knowledge in seconds. So it comes as no surprise that physicians, medical students, and residents have turned tablet computers and smartphones into essential tools of medicine.

While this technology enables us to stay in touch with the latest advances in research and treatment, it also can help us to connect with patients, who are the focus of everything we do. We can use apps to help patients gain a greater understanding of particular procedures or medications, or empower them to track key aspects of their own health such as diet and activity, for example. Ultimately, this encourages greater communication among patients, families, and their care teams. Other electronic tools aid us in boosting our efficiency and minimizing errors.

The future of health care lies in harnessing the power of patient data, from a person's medication history to his or her entire genome. As part of our AMC21 strategic plan, we are making crucial investments in informatics, which will have two effects: First, the electronic health record will become an even more indispensable resource than it is today, providing UAB specialists as well as referring physicians with a solid foundation to make informed decisions about their patients' care. Second, we will be able to provide truly personalized medicine, tailoring each treatment to meet the specific needs—and characteristics—of each patient. By enhancing our knowledge and tools for accessing, interpreting, and communicating these data, we can improve outcomes and change lives for the better.

Best regards,

*Ray L. Watts*

Senior Vice President for Medicine  
Dean, School of Medicine  
James C. Lee Jr. Endowed Chair

Get monthly updates from Dean Watts at [www.uab.edu/deanwatts](http://www.uab.edu/deanwatts).

Like many of you, I spend most of my time away from a desk: in meetings related to School of Medicine matters, seeing patients in clinic, and visiting with alumni and community leaders who are interested in our plans and goals. And like many of you, I find myself more and more dependent on my iPad and smartphone to keep up with countless emails, scheduling additions and changes, and the other details of daily life as a dean and a physician.

One of the greatest advances in technology may be the ability to communicate from wherever we are at any time of the day or night, but there is another tremendous advantage: the ability to access vast amounts of information with just a click

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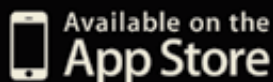
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## Capital Campus

MONTGOMERY PREPARES FOR  
MEDICAL STUDENTS

Montgomery is now home to the School of Medicine's third regional campus—part of an effort to stem a shortage of physicians in underserved areas around the state and to increase the ranks of primary care physicians in Alabama. The new campus, which will use facilities at Baptist Health, adds to the existing UAB Montgomery Internal Medicine Residency Program. Ten third-year medical students will begin classes in May 2014; in 2015 the incoming class size will expand to 20.

The goal for Montgomery is to follow the success of the Tuscaloosa and Huntsville regional campuses, where 57 percent of graduates stay in Alabama to practice, with 30 percent entering primary care in the state. “There is a dearth of primary care physicians in the River Region of central Alabama, and the average age of doctors is over 50,” says **Wick Many, M.D.**, former director of the Montgomery Internal Medicine Residency Program and newly appointed regional dean of the Montgomery campus.

“We are extremely pleased to expand our class size and look forward to attracting even more highly qualified medical students,” says Ray L. Watts, M.D., senior vice president for medicine and dean of the School of Medicine. The new campus “represents an important component and priority of our primary care strategic plan and will have a major impact on health-care delivery in central Alabama.”

*Learn more about the Montgomery regional campus in the next issue of UAB Medicine.*

**In 2010**, Alabama had 3,230 primary care physicians, for a rate of 68.3 per 100,000 people, ranking the state 45th in the country. The shortage is even worse in rural areas.

*Source: Association of American Medical Colleges*

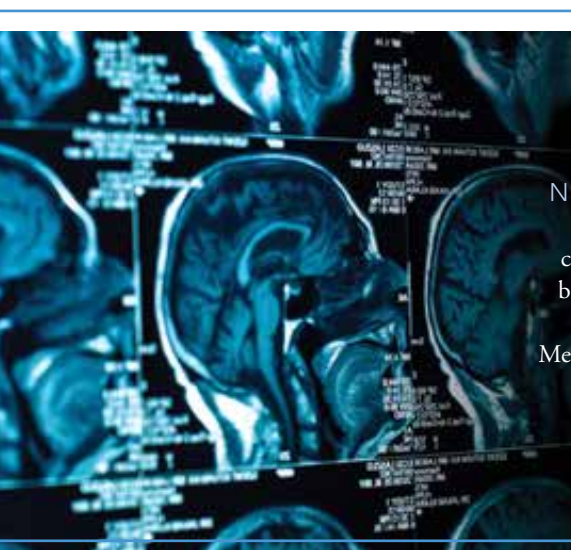


## Milliseconds That Matter

UNLOCKING THE SECRETS OF  
DEEP-BRAIN STIMULATION

**UAB neuroscientists** have evidence that deep brain stimulation (DBS) may stop the uncontrollable shaking of Parkinson's disease and essential tremor by imposing its own rhythm on the brain. DBS uses an implanted electrode to deliver electrical pulses into the brain more than 100 times per second; in the study, researchers suppressed the DBS electrical signal to get the first clear, noninvasive electroencephalography measurements of the underlying brain response during clinically effective, high-frequency brain stimulation in humans.

The results show that nerves in the cerebral cortex fire with rapid, precise timing—about one millisecond after individual stimulus pulses. By synchronizing the firing of nerve cells, DBS may break abnormal rhythms associated with involuntary movements in Parkinson's disease and essential tremor. The newly identified rhythm could serve as a measure of stimulation dose that could help physicians fine-tune DBS to provide patients with more lasting relief and fewer side effects, says **Harrison Walker, M.D.**, assistant professor in the UAB Division of Movement Disorders and the study's lead author. The findings could also help guide DBS treatments for epilepsy, severe depression, obsessive-compulsive disorder, and other neurological or psychiatric conditions.



## Deep Impact A Compound for Concussions

NFL Charities has awarded UAB a \$100,000 grant to study a compound that could minimize the effects of concussions. Known as catalytic oxidoreductant, the compound may interrupt a cascade of biochemical injuries, including oxidative stress and an aggressive immune response to brain inflammation, that cause a large amount of additional cell death after a concussion's initial damage to brain cells. **Candace Floyd, Ph.D.**, research director in the Department of Physical Medicine and Rehabilitation, and **Hubert Tse, Ph.D.**, an assistant professor in the Department of Microbiology who helped to develop the compound, will lead the research team. Additional studies will examine the compound's effects on multiple concussions; evidence suggests three or more lead to significant brain damage. The results could point to a drug that could be administered immediately after a concussion, anywhere from sidelines to battlefields.

## TREATING THE COSTS OF CARE

**The UAB Comprehensive Cancer Center** will help create a national model for decreasing the cost of cancer care with a three-year, \$15-million Health Care Innovation Challenge Grant Award from the Center for Medicare and Medicaid Innovation. Through a new program, the Deep South Cancer Navigation Network, the Cancer Center and UAB Cancer Care Network affiliates in three states will help patients make appropriate treatment choices, reduce the use of ineffective therapies, and maximize the use of resources. The network could provide as much as \$49.8 million in savings in cancer care costs over three years while creating more than 50 new jobs.

## PASSING THE SMELL TEST

*A research team including UAB cell biologist **Bradley Yoder, Ph.D.**, used gene therapy to restore the sense of smell in animal models with congenital anosmia—the inability to detect odors. The models were born without cilia, the hair-shaped cellular structures that play key roles in many diseases as well as in healthy function. The scientists gave the models a virus designed to make specific genetic changes, coaxing the nerve cells that transmit the sense of smell to grow the missing cilia. The findings from the landmark NIH-funded study could apply to other cilia-related diseases, including polycystic kidney disease, retinitis pigmentosa, and rare disorders such as Alström syndrome, Bardet-Biedl syndrome, and nephronophthisis; future research will determine if the results eventually could help humans who have lost their sense of smell.*

## THE STATE OF HIV SCREENING

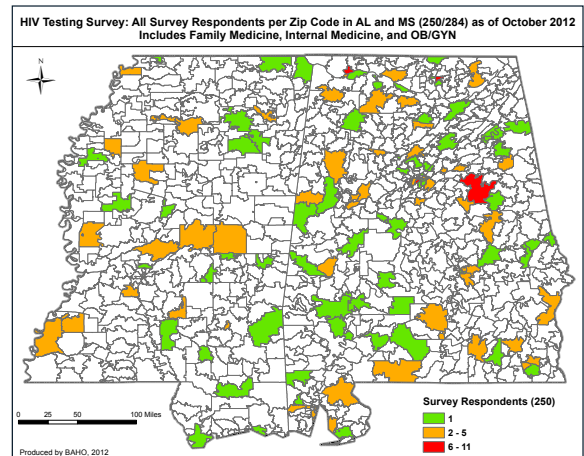
### Community Physicians Contribute to UAB Research

**Mirjam-Colette Kempf, Ph.D.**, associate professor of nursing and health behavior, had help in making an important discovery about HIV screening in Alabama. More than 280 health providers across Alabama and Mississippi contributed to the research, which evaluated the implementation of opt-out HIV testing recommendations from the Centers for Disease Control and Prevention. These guidelines suggest screening for every patient, unless he or she requests otherwise, in an effort to help control the epidemic by finding the estimated 25 percent of the population infected by HIV but not aware of it. The results showed that most providers are not aware of the guidelines and instead initiate testing based on their patients' risk profile.

Many of the community physicians participating in the study belong to UAB's Deep South Continuing Medical Education (CME) Network, which provides practice-focused educational opportunities and resources to support doctors as they care for patients. Those who completed the survey about testing received free CME credit as part of an HIV module.

The study results, currently being analyzed by Kempf and **Andres Azuero, Ph.D.**, assistant professor of nursing, could end up helping the participating providers, which included family medicine, internal medicine, and ob/gyn physicians, because they also identified barriers to implementing the guidelines in their practices. Kempf says that this valuable information will be used to develop intervention strategies that meet the specific needs of physicians and encourage implementation—strategies that could be tested through the CME network. "The network creates a unique opportunity for providers to let us know what is important to them to offer better care to their patients and ultimately promote public health," she says. See the back cover for more about the Deep South CME Network.

Join the Deep South CME Network at [www.cme.uab.edu](http://www.cme.uab.edu).



## Net Effect

### PROMOTING PRIMARY CARE ACROSS ALABAMA

The School of Medicine at UAB is launching a statewide network to expand access to primary care, particularly in rural and other underserved populations. A five-year, \$5.25-million grant from the federal Health Resources and Services Administration will create an Area Health Education Center (AHEC) program designed to recruit, support, and retain health-care professionals in every Alabama county.

"UAB is committed to encouraging resident physicians and nursing, medical, and health professions students to consider careers in rural or other underserved areas," says **William Curry, M.D.**, associate dean for primary care and rural health. "The AHEC will provide the first statewide comprehensive effort, incorporating students and graduates from educational institutions across Alabama." The program also will reach out to minority, rural, and disadvantaged young people to help them explore the possibilities of health-care careers; provide services and programs for health-care professionals after they begin practice; and develop initiatives to overcome barriers to care. Until now, Alabama was one of the few states without an AHEC network.

Five regional, community-based centers—in Huntsville, Gadsden, Greensboro, Tuskegee, and Brewton—will serve nearby counties, and UAB's Department of Family and Community Medicine will house the AHEC program office. While the AHEC is part of the School of Medicine's primary care strategic plan, partner organizations include universities throughout Alabama, state government departments, and statewide professional organizations, among others.

**Learn more** about the AHEC program in the next issue of *UAB Medicine*.



## Help for the Home Front

### Military Family Caregivers Receive TBI Training

"The nature of combat in Iraq and Afghanistan has resulted in the largest proportion of traumatic brain injury (TBI) in our nation's history," says **Laura E. Dreer, Ph.D.**, director of psychological and neuropsychological clinical research services in the UAB Department of Ophthalmology. The Department of Defense estimates the number of cases at 253,330 between 2000 and 2012. But soldiers with these blast-related TBIs aren't the only victims, Dreer says. When they come home, caregivers—often a spouse or other family member—enter a long, difficult tour of duty with no training and little help.

"Following treatment and rehabilitation, these caregivers are often expected to serve as extensions of formal health-care delivery systems by providing physical and emotional support," Dreer explains. She recently received a \$600,000 National Institute for Disability and Rehabilitation Research grant to create a program to provide family caregivers with strategies for coping with the long-term challenges of facilitating a wounded soldier's return to society.

Delivered through an hourlong phone call each week for six weeks, Dreer's training is tailored to the specific cognitive and emotional needs of TBI patients. "In addition to physical complications, the rates of mental health problems such as post-traumatic stress disorder, anger, and suicide have been increasingly documented," she says. "Other negative consequences of exposure to combat include increased utilization of mental health services, problems with employment, relationship conflict, and verbal and physical aggression toward others post-deployment."

Skills to enhance resilience and post-traumatic growth and problem-solving strategies are key components of the intervention, Dreer explains. She hopes that it will help strengthen military families and improve caregivers' well-being, particularly in rural and underserved areas where access to health-care services is largely absent.

## PAD PRESCRIPTION

*Stay in touch with your school at the touch of a button. UAB Medicine is now on the iPad, offering easy access to the full print edition plus videos, audio interviews, and more. Download the magazine in the Apple App Store today to see this issue and receive future ones automatically.*



- A \$5.3-million National Institutes of Health (NIH) grant will help UAB create a Center of Research Translation targeting gout and hyperuricemia. A form of inflammatory arthritis triggered by uric acid buildup in blood, gout is expected to increase as the U.S. population ages. Currently, large gaps exist in the quality of patient care and treatment, particularly among minorities, where the disease is more common. The center will investigate new drugs, study the effectiveness of gout therapy on cardiovascular outcomes and the safety of treatment regimens, and identify the best evidence-based treatment practices. UAB also will establish a gout clinic. Center co-directors are **S. Louis Bridges Jr., M.D., Ph.D.**, the Marguerite Jones Harbert-Gene V. Ball, M.D., Endowed Chair in Rheumatology, and **Kenneth Saag, M.D.**, the Jane Knight Lowe Professor of Medicine.

- The global, UAB-led Neurofibromatosis Clinical Trials Consortium has earned a \$7-million renewal of its U.S. Department of Defense grant to deploy quickly the first meaningful drug trials against three rare, devastating diseases: neurofibromatosis 1 and 2 and schwannomatosis. The related genetic conditions, often diagnosed in childhood, cause noncancerous tumors to arise from nerves and press on surrounding tissue, leading to blindness, hearing loss, learning disabilities, pain, or deformity. The consortium has already launched three clinical trials for potential new drugs, with another about to begin and four more in the works, says **Bruce Korf, M.D.**, the Wayne H. and Sara Crews Finley Chair of Medical Genetics and the group's principal investigator.

- The National Institute on Aging has awarded UAB a five-year, \$2.38-million renewal grant for the Deep South Resource Center for Minority Aging Research. A partnership linking the UAB Center for Aging with Morehouse School of Medicine, Tuskegee University, and the University of Alabama, the center focuses on developing faculty, community collaborations, and research initiatives to target health problems prevalent among older African Americans in rural and urban settings.

## CT FOR COPD

### *Simple Scan Can Predict Disease Progression*

Physicians can determine a patient's risk of worsening chronic obstructive pulmonary disease (COPD) simply by viewing a CT scan of two major arteries, says a recent UAB-led study of nearly 3,500 patients across the country. "Our findings indicate that when the pulmonary artery becomes larger than the aorta, regardless of the underlying cause or other health conditions, the risk of exacerbation increases," says **Mark Dransfield, M.D.**, principal investigator and medical director of the UAB Lung Health Center. "In particular, the risk of exacerbation requiring hospitalization increases dramatically." In patients without lung disease, the aorta is typically larger than the pulmonary artery. The enlargement may result from rising intravascular pressure due to lung tissue loss and difficulty in transferring oxygen to the bloodstream, which is related to underlying heart disease.

The CT scan could help physicians "employ a more aggressive treatment in an attempt to reduce the risk of hospitalization," says **J. Michael Wells, M.D.**, assistant professor in pulmonary medicine and the study's lead author. He adds that the CT scan analysis appears to be a better predictor than other methods, including measurements of lung function, quality of life, acid reflux, and previous episodes of exacerbation.

**Related:** *UAB researchers have discovered that a drug that treats strains of cystic fibrosis (CF) may help treat COPD patients who smoke. They found that cigarette smoking reduces the activity of the cystic fibrosis transmembrane regulator (CFTR) protein that keeps the airway hydrated and free of mucus. But the CF drug ivacaftor activates the protein, opening the door to future research and potential COPD therapies. The NIH, Cystic Fibrosis Foundation, and UAB Center for Clinical and Translational Science funded the study.*

## Allison Joins Institute of Medicine

**David B. Allison, Ph.D.**, has been elected to the Institute of Medicine (IOM), achieving one of health and medicine's highest honors. A Distinguished Professor and associate dean for science in the UAB School of Public Health, Allison also holds appointments in the departments of Medicine and Genetics. He is internationally renowned for his work in obesity and statistical genetics and directs UAB's Nutrition Obesity Research Center and the Office of Energetics. Allison joins nearly 30 current and past UAB researchers in the IOM.

Allison also led a scientific team that recently won UAB's first NIH Transformative Research Award. The \$8-million grant will enable researchers at UAB and four other institutions to explore a novel hypothesis linking aging, obesity, and health disparities. "We're looking at whether a person's confidence in their ability to secure food energy to survive affects the body's efforts to store fat—and simultaneously leads to changes in the rate of aging," Allison explains. "If it does, that suggests senescence is not a passive process but is in fact something our body actively regulates in the same sense that we actively regulate body temperature." The results might also help shed light on the relationship between lower socioeconomic status and obesity in developed countries. The UAB award, one of only 20 in 2012, is supported by the NIH Common Fund's High Risk-High Reward program, which highlights innovative research projects with the potential to change paradigms.



David Allison

## IN BRIEF

- **Richard J. Whitley, M.D.**, the Loeb Eminent Scholar Chair in Pediatrics, is the inaugural recipient of the NIH Clinical Center's Distinguished Clinical Research Scholar and Educator in Residence award. The new international accolade spotlights an established clinical investigator with outstanding scientific credentials who also has devoted a career to teaching and mentoring.
- **Nancy Dunlap, M.D., Ph.D.**, UAB professor of medicine and business, was appointed by Governor Robert Bentley to serve as special advisor to the newly established Alabama Medicaid Advisory Commission. Dunlap, currently completing a Robert Wood Johnson Health Policy Fellowship for the Committee on Energy and Commerce in the U.S. House of Representatives, will work with the state health officer and other commission members to recommend ways to increase Medicaid efficiency while delivering high-quality care.
- **Vladimir Parpura, M.D., Ph.D.**, associate professor in the Department of Neurobiology, is the first UAB scientist to be named to the Academia Europaea, a European equivalent to the National Academy of Sciences and the Institute of Medicine. Parpura's research focuses on the release of glutamate from astrocytes, the brain's most numerous cells; recently, his lab has investigated the use of carbon nanotubes to affect neuronal and glial growth and function.
- **Robert Centor, M.D.**, regional dean of for the UAB Huntsville Regional Medical Campus, has been named to the Board of Regents of the American College of Physicians.
- The most recent list of Alabama Healthcare Hall of Fame inductees includes current faculty members **William H. Coleman, M.D.**, special assistant to the Huntsville regional dean; **Albert F. LoBuglio, M.D.**, distinguished professor and director emeritus of the UAB Comprehensive Cancer Center; and **James Raper, J.D.**, director of the 1917 Clinic.
- **Gregory Friedman, M.D.**, assistant professor in the Division of Pediatric Hematology and Oncology, won a St. Baldrick's Foundation Scholar grant of \$330,000 to research medulloblastoma, the most common malignant brain tumor in children. Friedman studies the ability of clinically ready viruses, such as the genetically altered herpes simplex virus, to kill brain tumor-initiating cells in difficult-to-treat medulloblastomas.
- **Frederick Goldman, M.D.**, professor in the UAB Division of Pediatric Hematology and Oncology, received a \$116,000 grant from the Diamond Blackfan Anemia (DBA) Foundation to support his research to find a cure for the rare syndrome. Children with DBA have bone marrow that cannot make red blood cells.
- **Christos Vakilav, M.D.**, a fellow in the UAB Division of Hematology and Oncology, received a 2012 Young Investigator Award from the Conquer Cancer Foundation of the American Society of Clinical Oncology. The funds will help support his research targeting internal ribosomal entry-site-mediated translation in cancer therapeutics.
- **Waldemar A. Carlo, M.D.**, the Edwin M. Dixon Endowed Chair in Neonatology, received the Virginia Apgar Award from the American Academy of Pediatrics Section on Perinatal Pediatrics. The award honors Carlo's career and its continuing influence on the well-being of newborn infants.
- **Ronald D. Alvarez, M.D.**, the Ellen Gregg Shook Culverhouse Chair in Gynecologic Oncology and president of the Society of Gynecologic Oncology, received the Rosalind Franklin Excellence in Ovarian Cancer Research Award from the Ovarian Cancer National Alliance.

## An Adult Approach to Spina Bifida

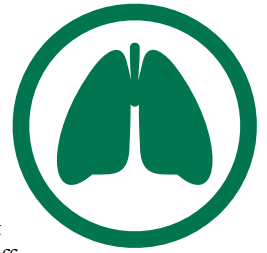
*Patients with spina bifida are living longer than ever before thanks to advances in science and medicine. UAB is ensuring that their care changes as they age with a new adult spina bifida clinic housed in UAB's Spain Rehabilitation Center.*

*The clinic brings together experts in neurosurgery, rehabilitation, and urology—three key specialties needed by most patients with the congenital disorder of the brain or spinal cord, which can cause nerve damage and paralysis in the lower limbs—and it can connect patients with other UAB medical specialists as necessary. The new clinic is one of less than 10 clinics of its kind in the nation.*

## FIRST IN AMERICA

### UAB DEBUTS EMPHYSEMA THERAPY

A UAB patient became the first in the nation to receive an experimental emphysema therapy in which physicians injected a foam sealant into the lungs. The AeriSeal System delivers the foam to diseased areas of the lung via standard bronchoscopy; within about 30 minutes, the foam hardens to a rubbery consistency, blocking off damaged areas. Over several weeks, the alveoli behind the barrier deflate, and the lung shrinks, reducing pressure on the diaphragm and enabling patients to breathe better. **Mark Dransfield, M.D.**, associate professor in the Division of Pulmonary, Allergy, and Critical Care Medicine and the study's primary investigator, says that the system may be a less-invasive way to achieve the same goal as lung volume reduction surgery. UAB is part of an international phase 3 trial of the AeriSeal System.



### Rogers Promotes Faculty Development

School of Medicine faculty have some of the most advanced tools for research and clinical care at their fingertips. Now **David A. Rogers, M.D., M.H.P.E.**, will ensure that they have the tools to advance their careers as well. As the new senior associate dean for faculty development, Rogers will help faculty meet their individual professional goals through programs such as the UAB Healthcare Leadership Academy, which he will co-direct. Other initiatives will focus on faculty health and well-being. These efforts will help UAB attract and retain high-caliber educators, clinicians, and researchers, says Rogers, formerly professor of surgery and pediatrics at Southern Illinois University School of Medicine.



### Bonner Becomes HSF Leader

A renowned radiation oncologist now leads the University of Alabama Health Services Foundation, the nonprofit, group-physician practice that includes The Kirklin Clinic and The Kirklin Clinic at Acton Road. **James A. Bonner, M.D.**, the Merle M. Salter Chair of Radiation Oncology, began his three-year term as president in October. Bonner, who came to UAB in 1998, was principal investigator of the landmark trial of cetuximab and radiation in head and neck cancer; currently, his research focuses on enhancing radiosensitization, including new gene therapy-based approaches.

## A PROTEIN THAT PREDICTS SURVIVAL?

*Toll-like receptor 9 (TLR9), a protein that detects microbial DNA, can serve as a marker to divide triple negative breast cancer patients into those with very good and those with poor prognosis based on high or low expression levels. That's the conclusion from a research team led by **Katri Selander, M.D., Ph.D.**, assistant professor in the UAB Division of Hematology and Oncology. In patients with low TLR9 in their tumor, the disease progressed fast, and relapses happened soon; in addition, the team discovered that low TLR9 expression, combined with low oxygen concentration, makes triple negative breast cancer cells very aggressive, offering new clues to TLR9's role in disease progression. Selander explains that the findings could lead to new drugs targeting compounds that increase TLR9 expression.*





## DOUBLE DUTY

### EXISTING DRUGS TARGET AGGRESSIVE BREAST CANCERS

- A new combination of two existing cancer drugs can kill triple-negative breast cancer cells, says a UAB study. Researchers paired lapatinib, a kinase-inhibiting chemotherapy drug, with veliparib, a poly ADP ribose polymerase (PARP) inhibitor. Together, the drugs produced persistent damage in the DNA of triple-negative breast cancer cells, leading to cell death, explains **Shih-Hsin (Eddy) Yang, M.D., Ph.D.**, assistant professor in the UAB Department of Radiation Oncology. The findings could have a major impact; triple-negative breast cancer is a highly aggressive subtype of breast cancer that does not express receptors for estrogen, progesterone, or human epidermal growth factor and is difficult to treat as a result.
- Yang's lab also discovered that PARP inhibitors, currently in clinical trials to treat familial breast and ovarian cancers, may help treat women with another aggressive disease subtype, HER2-positive breast cancer. The drugs interfere with a cancer cell's ability to repair DNA damage, hastening cell death. The response of HER2-positive tumors surprised UAB researchers, Yang says. "This means there may be other mechanisms, outside of DNA repair, that dictate the sensitivity of a tumor to PARP inhibitors," he explains. "These findings will allow us to potentially uncover other targets that may lead to future therapeutic strategies and ultimately improve outcomes and patient quality of life."

## Sites for Sore Eyes

UAB ophthalmologists are launching a glaucoma detection program via telemedicine with independent optometrists located adjacent to two Walmart Vision Centers in Birmingham and Tuscaloosa. Funded by a \$1.9-million Centers for Disease Control and Prevention grant, the program targets early detection of glaucoma in African Americans over age 40—an at-risk population. "Historically, this is an underserved population that is less likely to seek professional eye-care services in a standard clinical setting," says **Christopher Girkin, M.D.**, the EyeSight Foundation of Alabama Endowed Chair of Ophthalmology and program director. "We're going to see if we can take appropriate vision care to them." Sophisticated optical coherence tomography machines will capture high-resolution images of the back of the eye in the local optometrists' offices and then transmit them electronically to UAB for analysis. In turn, UAB will report any signs of glaucoma to the optometrist, who can confirm a diagnosis and begin appropriate treatment. Girkin explains that early detection is the key to treating glaucoma and slowing its progression.

*"We don't yet know what percentage of patients might benefit from LRRK2 inhibitors, but LRRK2 is without a doubt the most exciting target for neuroprotection to have ever been identified in Parkinson's disease. We will repeat our experiments many times before drawing final conclusions, but our ultimate goal is to see our compound or something like it enter toxicology studies and, ultimately, clinical trials as soon as is prudent."*

—**Andrew West, Ph.D.**, associate professor in the Department of Neurology, whose team has identified a set of experimental drugs—LRRK2 inhibitors—that show evidence of countering the inflammation and nerve cell death at the root of Parkinson's disease. LRRK2 is an enzyme that may help regulate immune response, and West's team thinks that genetically mutated LRRK2, when combined with other factors, may play a role in Parkinson's development. Now the group is working on a compound that could dial down LRRK2 activity.



# Change AGENTS

## How UAB Delivers on Its Discoveries

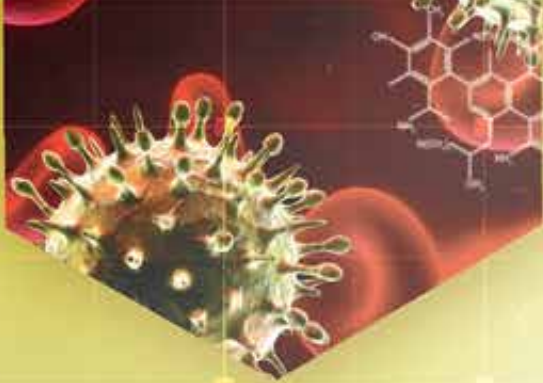
By Charles Buchanan

For years, technology companies in California's Silicon Valley have operated innovation labs—concentrations of smart people who come up with bold, problem-solving ideas and then figure out how to develop them into marketable products and services.

Much the same thing is happening in Alabama's Jones Valley, where the giant innovation lab known as UAB is fueling the growth of Birmingham's biomedical industry. Discoveries by School of Medicine researchers sow the seeds for groundbreaking drugs, procedures, and technologies that can change patients' lives for the better. Technology transfer helps to grow those seeds by cultivating further research and commercial opportunities that bring treatment breakthroughs from the scientific world to the physician's office. The process, which may take the form of a licensing agreement with a manufacturer or even an entirely new start-up company, pays many dividends: Patients benefit from new medical innovations; UAB earns funds to reinvest in research, clinical care, and education; and the local and state economies enjoy a high-tech boost.

The School of Medicine's collaborative approach to research has inspired a similar approach to technology transfer, says **Robert P. Kimberly, M.D.**, senior associate dean for research and the Howard L. Holley Research Chair in Rheumatology. A group of organizations—both within and outside UAB—work together to facilitate the process. Because each discovery is different, the technology transfer process can adapt, involving all collaborators or just a few.

"The UAB community brings together true partners," Kimberly says. "Each brings its own scientific perspective and expertise and helps us to define where the opportunities are, anticipate where the potholes will be, and maximize the opportunity while minimizing the pitfalls." Here is an overview of the key players in technology transfer and what they do to help bring UAB's discoveries to the public:



## Paving the Way for Discovery

UAB CENTER FOR CLINICAL AND TRANSLATIONAL SCIENCE

If technology transfer is a journey between the laboratory bench and the patient's bedside, then the role of the UAB Center for Clinical and Translational Science (CCTS) is to gas up the engine and clear the road. The interdisciplinary center exists to make research more efficient, in other words—to help scientists reduce any friction that might slow a breakthrough's progress.

“We drive the collaborative culture of discovery and innovation in life science and human health for UAB,” explains Kimberly, who directs the CCTS. “It’s a network; it’s team science. We drive the team.” Sometimes it’s about bringing together investigators with different skills but matching interests, he explains. Or it’s providing them with the research support and resources they need to move a discovery along the translational pipeline. By making research more efficient, the CCTS can help to develop new and more efficient ways of delivering medical care, Kimberly says.

The CCTS is active across the spectrum of translational research, from fundamental studies in the earliest phases of development through the different phases of clinical trials. CCTS grants can help jump-start research projects, while access to experts in biostatistics, epidemiology, data management, regulations, and outcomes and effectiveness research offers crucial support for developing studies and interpreting findings. The center also provides an entire clinical research unit for phase 1 and 2 clinical trials with patients.

UAB scientists also can connect with patient populations and researchers across the country through the CCTS, which is one of 60 institutional recipients of the Clinical and Translational Science Awards (CTSA). Kimberly explains that the CTSA is a National Institutes of Health initiative to improve human health through transformation of institutional research infrastructure to enhance the efficiency and quality of clinical and translational research. “Being a CTSA institution not only makes us part of this national investigative scene, but it also makes us generators of information that goes into that mix,” Kimberly says.

Kimberly says the CCTS is involved in “both taking *de novo* discoveries that are UAB-driven and moving them along the pipeline and working with new compounds and therapeutics that might be developed by external companies and researched at UAB under contract.”

For example, the CCTS has worked with the UAB Comprehensive Cancer Center to study a monoclonal antibody that might be used in cancer treatment. UAB identified a suitable target, developed the antibody, and studied its biology, Kimberly says. “And then, in partnership with a large pharmaceutical company, that therapeutic monoclonal was humanized, and safety in preclinical models was established.” The CCTS and the UAB Comprehensive Cancer Center then coordinated the phase 1 studies in humans.

CCTS-supported research is also advancing diagnostics, such as a project examining a biomarker that may predict the efficiency of certain therapeutic monoclonal antibodies. “We’re working in partnership with other groups on campus, and the CCTS provided the critical capacity for biospecimens and analysis,” Kimberly explains.

The CCTS also recently received a \$1.5-million award from the Alabama Innovation Fund, part of the Accelerate Alabama state economic development plan that targets high-tech research. Combined with federal and institutional support, “these funds will enhance the translation of fundamental discovery to human health” and “lead to novel therapeutic targets for drug discovery and development,” Kimberly says. He adds that the combined investments will boost the economy, with the potential of creating up to 60 jobs in the state.

—Tara Hulien



# Double Strength

SOUTHERN RESEARCH INSTITUTE

Simple math states that two is greater than one. That is why Southern Research Institute (SR) so often teams up with UAB in an effort to transfer the work done in laboratories into actual products that can help fight diseases.

“Over the past decade, we have worked very hard in enhancing our collaborations with UAB, because both organizations recognize that by working together, we really can give ourselves a much better chance of moving projects from conception to the marketplace,” says **Jack Secrist, Ph.D.**, president and CEO of SR, a not-for-profit contract research organization founded in Birmingham in 1941. “We can develop new projects jointly that we couldn’t do independently.”

Secrist says that 18 projects are currently under way. “We can provide drug-development support to go along with the early basic research,” he explains, adding that SR already has shepherded the development of seven drugs approved by the Food and Drug Administration, including cancer fighters clofarabine and pralatrexate.

## Group Project

Collaborations within universities—and larger collaborations with centers doing similar research elsewhere—are speeding drug discovery and FDA approval of new drug therapies, Kimberly says. At UAB, the lines that define which entity does what are clear in some cases and collaborative in others, but the process is designed to capitalize on each group’s strengths. “It’s unusual for folks to wear only one hat,” Kimberly adds. For example, the CCTS has the capacity to look at the metabolism of a compound and its distribution in the body, “working in a synergistic fashion with the Alabama Drug Discovery Alliance (ADDA) and Southern Research (SR),” he says. “SR has a lot of pharmaceutical contracts and a discovery unit, which means it has heightened drug-capacity screening, but when it comes to using human specimens, SR works with CCTS in the clinical research unit. ADDA is a mechanism to bring together people with experience in drug development, and those people are from the CCTS, Comprehensive Cancer Center, SR, and so on. We work as a team, bringing our scientific expertise as well as our organizational expertise.”

—Tara Hulén

“By working together, we really can give ourselves a much better chance of moving projects from conception to the marketplace.” —Jack Secrist

“We can push discoveries toward clinical trials in various ways. We can carry out the medicinal chemistry, do screening, look at the pharmacology and the pre-clinical toxicology and so forth.

“We understand how to move things toward the marketplace, what sort of information is needed, and many folks at UAB do as well,” Secrist says. “So together we can get what we need to move things forward and get companies interested in these potential treatments.”

One recent example is the joint venture between SR and UAB with the India-based company Jubilant Organosys. This collaboration focuses on developing affordable therapies for patients worldwide in the areas of oncology, metabolic disease, and infectious diseases, Secrist says.

SR and UAB also established the Alabama Drug Discovery Alliance to develop data that will generate intellectual property that can lead to the discovery of new drugs. “In the process of doing that, you generate data that can also be used to go after an NIH grant,” Secrist says. “So it’s really a double positive in this regard.”

Secrist says SR is beginning to branch out into the biomedical device arena as well, and is working with UAB on projects led by Andrew Penman, SR’s vice president for drug development.

“So we have not only the potential for new drugs of various types but also for the possibility of new devices that we may be able to develop jointly that will help patients,” Secrist says. “It’s not something that happens overnight, because it takes awhile to develop many of these types of projects. But everybody is very enthusiastic about all the things that can come out of our two organizations working together.”

—Cary Estes



Jack Secrist

“By 2020, spin-off businesses and the commercialization of UAB research could have an impact of \$1.5 billion to \$2.8 billion on Alabama’s economy.”

—“The Economic Impact of UAB,”  
Tripp Umbach, November 2010

## Bridging Gaps, Meeting Needs

### ALABAMA DRUG DISCOVERY ALLIANCE

Currently, the Alabama Drug Discovery Alliance (ADDA) has 20 projects in its portfolio, each representing a promising, long-awaited solution for both patients and physicians. “All of the projects address an unmet medical need,” says **Richard J. Whitley, M.D.**, ADDA director and the Loeb Eminent Scholar Chair in Pediatrics. “We don’t pursue a project unless it has a targeted application.”

UAB (through the School of Medicine, Comprehensive Cancer Center, and CCTS) and Southern Research formed the organization five years ago to facilitate drug discovery and development by connecting the resources and expertise in both institutions. Some of the initiatives now under way could lead to new drugs for Parkinson’s disease, cancer, and HIV, Whitley explains, and the ADDA is providing an “umbrella of services” to support the progress of each one.

Collaborating with the ADDA is a not-so-secret weapon that can improve the chances that a UAB research project will win initial grant funding from the NIH, other federal entities, or pharmaceutical companies for studies or trials, Whitley notes. And the ADDA’s successful track record “can lead to more federal grants and private research

funding in the future,” he says. “That should translate into clinical benefits for patients down the road.”

The ADDA also provides researchers with crucial assistance—everything from identification of molecular targets and mapping of their three-dimensional structures to preclinical toxicology and analysis of a potential drug—to help the discovery and development process. Funding for pilot projects adds further momentum for promising compounds.

The ADDA’s impressive roster of drug innovations has drawn the attention of large pharmaceutical companies “to take on our technology and develop it for people,” Whitley says. One of his own independent program project grants could lead to a gene therapy to treat glioblastoma multiforme, a collection of malignant brain tumors. “We made a (herpes simplex) virus that expresses interleukin-12 and declared that as intellectual property,” Whitley says. The UAB Research Foundation filed for and was awarded a patent and “will probably sell the rights to a gene therapy company. That’s in the works. That would be an example of translation of science to people, and it should happen sooner rather than later.”

Of course, UAB profits when it licenses its discoveries to pharmaceutical manufacturers or external commercial labs wanting to further their own research. “By declaring everything to the UAB Research Foundation, UAB doesn’t lose intellectual property associated with the findings,” Whitley says. Having a cross-institutional translational medicine team such as UAB’s makes that kind of licensing success more likely. “This is a slam dunk as far as I’m concerned,” Whitley says.

Universities with large research programs are becoming more active in forming entities that promote technologies to benefit the institutions, and UAB and SR are no exception, Whitley says. In some cases, discoveries spark private spin-off biotech companies that stay in Birmingham or the state. “Clearly this is going to have an impact on the community; we do expect spin-outs.”

But every other goal is secondary to advancing medicine, Whitley emphasizes. “For example, the herpes simplex virus that we made to treat glioblastoma multiforme could change the two-year survival rate of 5 percent,” he says. “The most important thing is that we’re addressing unmet needs.”

—Tara Hulén

## Public Partner

Q&A WITH THE BBA



Steven Ceulemans

A native of Belgium, **Steven Ceulemans** is vice president for innovation and technology for the Birmingham Business Alliance (BBA), the region's leading economic development and business advocacy organization. He holds master's degrees in international business and biochemistry and molecular biology. Among his responsibilities at the BBA is to work with the School of Medicine and the rest of UAB to generate economic growth in the Birmingham region through entrepreneurialism and promotion of the region's "innovation ecosystem."

**How do the BBA and UAB work together?** We want to help make it easier for inventors to become innovators and become engaged as job creators. My job is to help facilitate technology innovation development in Birmingham, and UAB is a key part of that. We focus specific resources on supporting the relationship between UAB and the business community.

**What is an example of your collaboration with UAB?** One of the projects under way is called Invention2Innovation, which started in August. It's a collaborative program between the BBA and a number of UAB groups to identify technology with high potential for commercialization and growth. So we're scouting technologies, and then we're building entrepreneurial teams around those technologies in partnership with the UAB School of Business. The goal for the BBA is to match each team with industry mentors on a technology-specific basis. We want to find an entrepreneurial quarterback, a technology expert, and an experienced executive to help support them.

**Why is this important?** Early on in a company, you have a limited number of people who can directly take care of all of the responsibilities to help move the company forward. It's almost inevitable that you're going to have gaps. To be able to bring in advisors, mentors, and coaches to help these inventors network in the business community and find the resources to get what they need is of tremendous value.

**What is the end goal of these efforts?** There is real value in the process of engaging inventors and in supporting and enabling them as technology innovators. It adds value to the university research to reach society in the form of new products and services, which in turn can foster enterprises to grow and be successful. The work we're doing directly helps UAB grow and be successful, because it makes them more competitive in recruiting and hiring the smartest people. We want to continue to build and grow the innovation ecosystem. In the process, we can grow a cluster of dozens and maybe even hundreds of people with a skill set that lends itself toward technology entrepreneurship. Doing this is a long-term effort. You're not going to generate companies with hundreds of millions in revenue overnight. But as an indicator of the early value of the process, I think it's been very promising.

—Cary Estes



## Countdown to Success

CHECKING IN WITH  
SCHOOL OF MEDICINE  
START-UPS

When the Economic Development Partnership of Alabama announced the 2012 finalists for its Alabama Launchpad competition, two companies born in the School of Medicine had made the cut. And though neither took home the prize of \$100,000 in seed funding, UAB's researchers-turned-entrepreneurs say that the program offered valuable advice and insight into creating a business plan and finding investors for their young start-ups. Now, both companies seek funding that will allow them to test their medical solutions and bring them to market.

**Blondin Biosciences:** As medicine has progressed, so have cancer drugs, offering multiple treatment options for most cancers. "But nobody knows whether they will work for a certain patient," explains **Katri Selander, M.D., Ph.D.**, a UAB assistant professor of hematology and oncology. Blondin Biosciences, which Selander founded alongside her husband, UAB hematologist-oncologist **Kevin Harris, M.D.**, and UAB Department of Chemistry Chair **David Graves, Ph.D.**, may have a solution. The group has developed a blood test that, based on the release of a DNA structure into the blood, can determine whether chemotherapy is effective within just a few days. "Our test saves time, risk to the patient, and money, so it's a win-win-win situation," Selander says.

The test's uses aren't limited to cancer treatment, either. It may also gauge treatment effectiveness for neurological degenerative



## Foundation for Success

diseases and trauma, and pharmaceutical companies could use it in product development.

**Endomimetics:** Associate Professor of Cardiovascular Disease **Brigitta Brott, M.D.**, and **Ho-Wook Jun, Ph.D.**, an associate professor of biomedical engineering, have developed a solution to problems in patients with coronary stents. Their bionanomatrix coating is intended to inhibit blood-clot formation and re-narrowing of arteries while enhancing the healing process. The coating is free of synthetic materials, which reduces the risk of inflammation and clotting.

The pair applied for and received a Wallace Coulter Foundation grant, which matches biomedical faculty with a clinician/researcher in an effort to bring to market a product that will benefit patients. After attending the Coulter Foundation's business training and an "Idea to IPO" class in the UAB School of Business, Brott and Jun determined the fastest way to get the coating to market was to form a company and partner with device manufacturers. Endomimetics was founded in November 2009 and now resides at Innovation Depot. "I see patients clotting up or re-narrowing all the time, and I had this sense of urgency to get

While each UAB discovery follows its own technology transfer path, all roads eventually lead to the UAB Research Foundation (UABRF). A nonprofit corporation created in 1987, the office identifies, assesses, and markets commercially viable technology invented at UAB and oversees the protection of intellectual property rights for the university, which includes filing patents in the United States and overseas. The UABRF also negotiates and oversees research, option, and licensing agreements for UAB.

this to other patients," Brott explains.

Coronary stents are the biggest, but not the only, market for the material. The coating is already in the process of being tested on another device through a partnership with a major manufacturer.

Brott credits UAB's atmosphere with helping her company to get off the ground. "Unlike some places I've been in the past, this is truly a collaborative place," she says.

—Carla Jean Whitley

## UABRF Milestones

- Managed more than 2,160 invention disclosures
- Received more than 640 United States patents
- Negotiated more than \$29 million in research agreements
- Arranged more than 430 option and licensing agreements, generating more than \$60 million in income

UAB has spun off more than 50 start-up companies based on its discoveries and inventions. Many of them got off the ground at Innovation Depot, a business incubator in downtown Birmingham operated as a partnership among UAB, the regional business community, private foundations, and local governments.



Ho-Wook Jun and Brigitta Brott of Endomimetics



Left to right: David Graves, Kevin Harris, and Katri Selander of Blondin Biosciences

# iDoctor

## Adopting Apps for Training and Care

By Charles Buchanan

### After Angry Birds, will we soon see Happy Pathologists and Appreciative Patients?

A team led by **Jonas Almeida, Ph.D.**, director of the Division of Informatics in the Department of Pathology, plans on it. Last summer, they unveiled ImageJS, a simple, free Web app that allows physicians to analyze pathology slides for malignancy based on color. It's one solution to the problem of realizing the medical potential of "Big

Data"—the immense and growing sea of digitized information about nearly everything. In much the same way that popular apps such as Pandora and the Weather Channel mine and organize Web data into music recommendations and forecasts, ImageJS can highlight the relevant pathology findings that could help physicians treat patients more

effectively. And using the technology is as easy as playing a game of Angry Birds.

"The Web has evolved into a supercomputer," explains Almeida. And that change is reshaping the way that health professionals, students, and residents throughout the School of Medicine interact with information.

### Apps Everywhere

A flood of medical apps is on the horizon, Almeida says, referencing an Economist Intelligence Unit report that predicts a nearly \$23-billion market for mobile health technology by 2017. In addition to ImageJS, Almeida's group has already released a genomics app and is working on others for family health history and biomarker profiling.

The best part of developing an app is watching how the public uses it once it's released, Almeida says. "The real world is much more alive and exciting because it's closer to the data," he says. "It's interesting to see how the community reacts to new tools that enable them to use and create information."

### Portable Knowledge

The community of residents at the school's Huntsville Regional Medical Campus has eagerly embraced medical apps as indispensable tools. In fact, every family and internal medicine resident carries an iPad, and the campus even provides support to residents to purchase the tablet if they don't have one. The reason? To stay in sync with Huntsville Hospital, which accesses medical records through the PatientKeeper app. Huntsville Regional Dean **Robert Centor, M.D.**, says the app saves residents at least an hour a day. Outside the hospital, residents also access and store medical literature on the devices. "This is going to become the standard," Centor notes. "More and more residency programs are going to use iPads. It's a good investment."

Second-year Huntsville resident Anthony Nix, M.D., explains that the portability of the technology allows him to spend more time with patients. "I can access the hospital system without having to sit behind a computer, which means I can perform patient care at the bedside by searching for patient labs and imaging results in real time," he says. He also

Residents and physicians at the Huntsville campus turn to iPads to access records and research findings.



takes notes on his iPad throughout the day, from grand rounds through patient rounds. “I can consolidate and organize all of those useful nuggets of information in one place, instead of on scraps of paper,” he says.

### Learning Without Stopping

Back in Birmingham, many medical students credit apps with taking a weight off their shoulders—literally. They “eliminate the need to carry multiple textbooks or binders full of printouts,” says second-year student Justin Chuang, who accesses apps via two Android tablets and a smartphone. “The pockets of my white coat aren’t stuffed with pounds of reference books.”

Apps complement a medical education, particularly during clinical experiences, say the students. Stephen Powell, a third-year student, was observing a robotic surgery case when he couldn’t recall some of the pertinent anatomy. On the spot, he refreshed his memory with Netter’s Anatomy Atlas via the iBooks app on his phone. Second-year student Vincent Laufer says that apps such as Monthly Prescribing Reference and Epocrates enable him to look up information about medications and dosages on patient rounds. “I can learn as I go—often without stopping,” he says.

Other students claim that the portability of phones and tablets improves their study habits. “When I find a few extra minutes, I’m much more likely to study when every-

### Screen Time

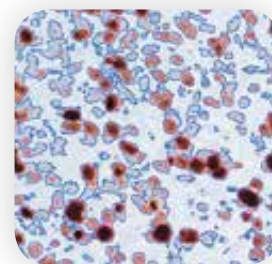
*UAB Medicine’s new free iPad app connects you with the School of Medicine wherever you go. Download it in the Apple App Store to see the full printed magazine plus videos, audio interviews, and other extras. You’ll also receive future issues automatically. It’s a great way to keep up as you keep moving.*

## Image Makers

Almeida credits a collaborator, UAB pathologist **James Robinson Hackney, M.D.**, with inspiring the creation of ImageJS. “He suggested an app for the images that clinicians work with every day,” Almeida explains. To develop the app, the team followed a trail blazed by many Internet start-up companies: They created a minimally functional module and introduced it to the public—and are using the public’s feedback to shape the app’s future development.

ImageJS follows another UAB app that helps biostatisticians with genomic sequence analysis, and it is being succeeded by an “app ecosystem” to tap into the wealth of data in the National Cancer Institute’s Cancer Genome Atlas. Ultimately, these apps will generate pathology results by tapping into the Atlas, an online genomic database containing clinical and bioinformatics data on samples from more than 5,000 patients and 28 types of cancer. Two students, David Robbins and Alexander Gruneberg, are developing the follow-up apps, which, like ImageJS, provide reportable, reproducible results and do not expose user-provided patient data to the outside world.

Physicians can tailor apps such as ImageJS to meet their specific needs. “We are not developing Web apps as much as we are developing Web app ecosystems,” Almeida explains. “Multiple people can make changes and add their own components, and these changes can be made available to one physician, a group, or the public.” [Take a video tour of ImageJS on UAB Medicine’s iPad app.](#)



In this snapshot, ImageJS helps to identify the growth rate of brain cancer cells. Dark blots are nuclei of cells dividing as part of the tumor’s high-speed abnormal growth.

thing I need is on my iPad,” says first-year student Jennifer Seigel. “I use Ghostwriter to write notes or draw chemical structures, and Notability to organize my classes, slideshows, and syllabi. I record lectures on a program that syncs with my notes so that I can press on a word to go to that specific place in the lecture. I use GoodReader to store lecture transcripts and switch between the text and slides. Another app lets me make my own flashcards. I also love having my notes where I can access the Internet for questions.”

Several students use the USMLE World Qbank app to prepare for Step exams. “I could easily and conveniently do questions whenever and wherever I needed,” says fourth-year student Farah Khan. She adds that she felt more efficient and focused while doing question blocks.

### Reaching Patients

Medical apps are not a perfect solution; patient privacy concerns currently limit widespread clinical use for tablets and smartphones, and some physicians worry that they

may dilute the personal connection with the patient. UAB medical students and staff, however, have found that they can enhance patient care by using the technology to teach.

“It’s fairly easy to have presentations on hand for a variety of situations that would help improve patient understanding and perhaps help them make more informed decisions,” says second-year student Sandhya Kumar. Powell, the third-year student, offers one example from his clinical rounds: “With an app, I explained body mass index to a patient, calculated it, and showed where they lie on the spectrum.” **Discover how UAB Pastoral Care uses iPads to reach patients on UAB Medicine’s iPad app.**

Like Almeida, the students foresee a growing and integral role for apps in clinical practice—and are ready to become the app developers of the future. “I hope to create tools that allow better interaction with patients,” says second-year M.D./Ph.D. student Alex Dussaq, “so that they may understand why and what they need to do to help their health.”



# The Big Picture

## Landefeld Expands Department's Horizons

By Charles Buchanan



In many ways, **C. Seth Landefeld, M.D.**, the UAB Department of Medicine's new leader and the Spencer Chair in Medical Science Leadership, is still a student. He enjoys the challenge of an unanswered question, and eagerly digs into science, history, epidemiology, sociology, policy, statistics, and other fields of learning to find the answer.

One overarching question—how can we improve the clinical practice of medicine?—has driven Landefeld's education and career. The Cleveland native studied at Harvard, Oxford, and Yale School of Medicine before becoming chief resident in medicine at the University of California, San Francisco (UCSF). He also completed a fellowship in clinical epidemiology and general internal medicine at Harvard prior to joining the faculty at Case Western Reserve University. Landefeld joined UAB last fall from UCSF, where he founded and directed the Division of Geriatrics. There he helped to lead the development of the first ACE (Acute Care for Elders) Unit, a redesign of the hospital experience for older patients that has been implemented nationwide, including at UAB Highlands.

### What was the origin of the ACE Unit concept?

A foundation asked how we could improve the hospital experience for older people, and I began collaborating with colleagues in geriatrics, nursing, and social work. We learned that older patients really care about getting home as quickly as possible with as little done to them as possible—and that a lot of things with unintended consequences can happen to them in the hospital: They can get disoriented, they become sleep deprived because staff check on them at night, they receive medicines that confuse them, they may not get fed because of tests, they may not be allowed to walk, and if they can walk, they're in a flapping gown on cold linoleum floors that look like ice if they have cataracts. Patients 25 years old will bounce back, but if they're 85, it takes a lot longer.

We looked at how to design a hospital to work differently, such as carpeting floors so that it's easier to walk, avoiding unnecessary nighttime checks of vital signs, and using milk and music instead of sedatives, among other things. We did studies to measure the effects of these changes on function, and more patients were able to go home instead of to a nursing home.

### What inspired you to pursue medicine?

My mother's parents were physicians, so I grew up with a respect for medicine, and when I was four years old, I was really sick and met a lot of doctors. I had good memories of those experiences and how much medicine can do.

Medicine enabled me to apply my interests in science, history, and so forth to work intensively with people. So much of medicine is not just the biology of disease; it's thinking about people in the context of personal histories and what's happening socially.

### What led you to geriatrics as a clinical and research focus?

When I completed my fellowship in 1985, I knew that AIDS and aging were the

two big things that would happen during my medical career. My work brought me more into geriatrics because many of the people we care for in internal medicine are older, and almost all of the diseases we deal with are age-related. I had also learned during residency that there was a whole domain of neuropsychiatric degenerative disorders in our patients that we were missing completely.

My first line of research focused on anticoagulants. Until the early 1980s, we had almost no experimental evidence about when these powerful drugs worked. The drugs were used much more with older people, and they seemed more at risk for complications. It was something that we could improve through research, so we determined how to use the drugs more safely in that population.

## How will your background help shape your plans for the Department of Medicine?

In building a geriatrics program, I've learned about leadership—how to support people we work with and align the resources and structure with their goals and the organization's goals. My background in epidemiological and health services research also gives me a broad perspective. Part of managing a complex clinical population or department involves having a broad view of what's going on and then applying quantitative skills to understand it and develop solutions.

The aging focus has made me especially sensitive to how interdependent we are across disciplines—and that's not unique to geriatrics. No patient has just one care provider, and no physician can do everything alone. Physicians in multiple specialties, nurses, PT and OT, and social services all need to work effectively as a team. That perspective also applies to how the department should work with our school, hospital, and colleagues in other areas.

## Do you have specific departmental goals?

We already have a great institution, with a wonderful faculty and housestaff program. The department doesn't get the national recognition that it should, and I want UAB to be known as the most fun place in the country to do academic medicine. I would like to see our residency program attract people from all over to develop their careers and exercise their passion in medicine here. Our program leaders have done a great job, and they have wonderful ideas about how to make our training experience even better.

In research, this is the time to invest. We would love to see our research programs double in size over the next five to 10 years. UAB should be the go-to place in the South and a go-to place nationally in research.

Clinically, UAB is such a mecca. I've been at great academic institutions where the university hospital has not been the major game in town. UAB is the center for a whole region. The department can strengthen what we're doing clinically, but also address the big issue over the next five years, which is how to best deliver value to our patients and

to society. How can we be more efficient and get the best possible results for our patients within the financial restraints we're all facing? The department can be a real leader in developing solutions.

## How can the program's alumni get involved?

One of the most important things alumni can do is to talk about UAB and be proud of their training. We want the world to know that UAB is a great place to do medicine. We also want folks to send good students, residents, and fellows for us to train. We're always looking for the best and brightest.

I am so grateful to alumni for their ideas and their philanthropy, which has become more crucial as federal clinical funding decreases. Their assistance enables us to fulfill our mission and to do the things that will make UAB a world-class institution.

## Birmingham sees a lot of chronic illness, including diabetes and heart disease.

## How can the department impact the community?

It's a really important issue. We can provide the best health care, but part of our mission is to determine how we can promote the public's health. We have a great HIV program, for example, so how can we reduce

“I would like to see our residency program attract people from all over to develop their careers and exercise their passion in medicine here.”

the infection rate? Or how can we help prevent cancer or address the obesity epidemic?

UAB also has an opportunity to promote diversity in medicine. We want to get folks from all backgrounds, all ethnicities, and all racial groups to work with the educational pipeline early so that we have a diverse group of physicians caring for the community. We as a department need to address that and work with the university and community to be much more inclusive.

## What are you looking forward to discovering in Alabama?

My family and I have loved what we've seen of Birmingham. It's just beautiful. We love being outdoors, but we're really looking forward to hearing more of the great music that comes out of Alabama.





# Wild Kingdom

Taking Steps to Tame the Microbiome

By Erin Thacker

The human body is a veritable jungle of microbes, according to the National Institutes of Health Human Microbiome Project (HMP), which released its findings last June. Over five years, researchers from 80 institutions collected and sequenced up to 18 samples from each of 242 healthy Americans. Some results were surprising, such as the fact that microbes may outnumber human cells 10 to one, with 100 times as many genes as all other cells in our body—and that as many as 10,000 strains may live on and inside humans, with each person's collection of microbes being as unique as a fingerprint. But the news also unleashed a wave of excitement from researchers anticipating new treatments for all kinds of diseases, including some not previously considered microbial in origin.

UAB researchers have been exploring this microscopic ecosystem for some time. In fact, **Peter Mannon, M.D.**, a professor in the Division of Gastroenterology and Hepatology, and colleagues helped to analyze data for the massive HMP; Mannon also is an author in the lead paper in the series. Now he and other scientists are collaborating on a microbiome initiative that will position UAB as a leader in determining how our microbes contribute to both human health and human disease.

## Intricate Interactions

Microbes in the gut are necessary for digestion of complex carbohydrates and extraction of nutrients and vitamins from food, says **Casey Weaver, M.D.**, the Wyatt and

Susan Haskell Endowed Professor for Medical Excellence in the Department of Pathology. Research from his lab and others indicates that the presence of these microbes, especially during infancy, also helps to shape the developing immune system and influences susceptibility to many diseases. Mistreatment of these houseguests, however, through lifestyle and environmental factors such as diet and antibiotic use, is linked to complications such as irritable bowel diseases and may also raise the risk for diseases as diverse as cancer, diabetes, multiple sclerosis, and obesity. “It may well turn out that much of future treatment hinges on analysis of a patient’s microbiome,” Weaver says.

Defining the interactions between humans and microbes is unlikely to be a simple task—a point reflected in HMP results that highlighted the complexity of the relationship. Not only are there trillions of bacteria, “but they all have different metabolic effects—making different enzymes and mediating different reactions,” says Mannon.

UAB’s microbiome initiative brings together scientists in multiple departments to shed light on these interactions, which could, in turn, unlock their vast clinical potential. The collaboration provides researchers with access to resources that can help them determine how the microbiome influences—or is influenced by—disease or drug therapies, says **Casey Morrow, Ph.D.**, a professor in the Department of Cell, Developmental, and Integrative Biology who is spearheading the initiative.

For example, Morrow and **Michael Crowley, Ph.D.**, associate director of the Genomics Core facility in UAB’s Heflin Center for Genomic Sciences, are currently obtaining bacterial DNA sequences from volunteers and willing patients. Bioinformatics specialists **Elliot Lefkowitz, Ph.D.**, and **Ranjit Kumar, Ph.D.**, then use complex sequence analysis to identify the microbes and their relative abundance. Ultimately, this information will provide insight into the relationship between



## Career Path

Unique Residency Generates  
Physician-Scientists

By Gail Allyn Short

Many of the innovations that have shaped modern medicine owe their existence to physicians who split their time between the clinic and the research lab. So it might be surprising to learn that physician-scientists were on the edge of extinction not long ago, shrinking to just 2 percent of the total number of American physicians in 1998, according to a 2002 *New England Journal of Medicine* article. The report blamed long training periods, concerns over medical school debt, and the uncertainty of career success for discouraging young physicians from pursuing research.

To reverse the trend—and to protect this wellspring of breakthroughs—the American Board of Internal Medicine (ABIM) in 2005 created the ABIM Research Pathway, an integrated training program that assists medical residents seeking dual careers in patient care and basic science or clinical research. UAB's Internal Medicine Residency Program implemented the pathway the following year.

"There are so many pressures in academic medicine for more administrative or clinical service time," says **Amit Gaggar, M.D., Ph.D.**, director of UAB's ABIM Research Pathway and an assistant professor of medicine. "It's a daunting task to want to go the route of the physician-scientist." The pathway provides specialized training for residents, along with support and encouragement to keep them moving toward their career goals.

UAB's ABIM pathway receives more than 100 applicants for just three slots each year, says Gaggar, who oversees the program with a council of three UAB physician-scientists. Trainees making it into the pathway embark on an abbreviated, two-year residency in internal medicine followed by up to two years of clinical training in their chosen subspecialty. Afterward, they spend three years

It may well turn out that much of future treatment hinges on analysis of a patient's microbiome.

—Casey Weaver

the presence of specific microbes and disease, and how various factors affect the overall composition of the microbiome, which can change over time. Hear *Morrow* describe the microbiome's potential effects on inflammation and cancer on *UAB Medicine's* iPad app.

Even if the composition remains consistent, however, environmental factors may alter the function of individual microbial species. To examine these influences, researchers can enlist the expertise of the UAB Gnotobiotic Core, directed by Weaver and genetics professor **Trenton Schoeb, D.V.M., Ph.D.** It provides the technology to transplant germ-free animal models with specific human microbes, allowing researchers to study the relationship between environmental factors and microbial function.

### Microbe Upgrade

Eventually, UAB clinical investigators will use the results of these studies to develop tailored treatment options and enhance the quality of life for patients—and perhaps even healthy individuals. "With the character of the healthy microbiome now defined in one Western human population, the field can begin the search for bug profiles that correlate tightly with disease and the body's ability to fight it," says Mannon. The HMP "reference database lays the foundation for advances in infectious, autoimmune, and inflammatory diseases and potentially the identification of unique probiotics or even prescription fecal transplants to replace disease-causing microbiomes."



(Left to right) Amit Gaggar and Louis Dell'Italia help prepare Jason Guichard for success as a physician-scientist.

conducting their own research, guided by a mentoring physician-scientist who specializes in the trainee's area of interest. Residents also spend half a day each week treating patients in UAB's clinics and must publish at least two journal articles as a first author.

All trainees attend lectures and write a grant to help support their training. They also participate in a translational-medicine journal club with students in the UAB Medical Scientist Training Program—another group seeking dual careers in academic research and clinical medicine.

A strong mentoring focus is one of the pathway's biggest benefits, Gaggar explains. In addition to their individual research mentors, trainees work with a mentoring committee—Gaggar, a fellowship director, and up to two physician-scientists—that offers feedback on research, clinical performance, grant writing, and career progress. "We tailor these committees to the trainee's needs instead of having one generic committee" for everyone, Gaggar says.

Fourth-year resident Jason Guichard, M.D., Ph.D., appreciates the advice that his research mentor, **Louis Dell'Italia, M.D.**, the Elmer and Glenda Harris Endowed Chair in Cardiovascular Disease, provides. "It's good to have someone who knows the struggles of translational research," says Guichard, who investigates the mechanisms that regulate heart remodeling to see if they could help predict heart failure. "When I graduate, I'll be able to step into a faculty position with a research plan and research goals already in place."

## The Toughest Tests

### The Challenge of Fighting Disease in Medical School

By Carla Jean Whitley

Students have a million different motivations for pursuing a medical degree—a desire to help people, an aptitude for science, or inspiration to follow in the footsteps of a family member or childhood physician, perhaps. But for three current School of Medicine students, the reasons suddenly shifted in midstream when disease became a harsh reality instead of a case study.

#### Encounters with Empathy

Sarah Gammons began dropping weight, experiencing night sweats, and feeling fatigued during her first year of medical school—and she was certain it wasn't from stress. "I had a great doctor at the UAB student health clinic who kept looking when every test came back normal," she says. He sent her to an endocrinologist who diagnosed Gammon with medullary thyroid cancer.

"I started doing research on thyroid nodules in a textbook and a database we use in school," Gammons recalls. "Medullary thyroid cancer only occurs in 4 percent of people with thyroid cancer; 50

percent of those are genetic, but mine's sporadic. It was a one in a million chance that I would get this disease at my age." She had a radical neck dissection and total thyroidectomy, but "you're never cured of this type of cancer because there's no treatment," she explains. "It's a chronic disease; every six months, the doctors monitor two hormone levels which are perfect markers for the disease to see if it comes back."

Despite the surgery and recovery, Gammons was able to stay on track toward her medical degree. The school allowed her to make up work during the summer, and classmates took time away from their break to tutor her. "At the end of the day, I had school to fall back on," Gammons says. "Throwing myself into my work helped to take my mind off all the bad stuff."

Gammons says the experience "completely changed" her outlook on being a physician. "I feel like I have more empathy now," she says. "You don't really know what that is until you've been in a tough situation. When patients are in the hospital and are miserable and in a bad mood, I can understand why." She adds that she may explore endocrinology or oncology as a career because she now knows a different side of those specialties.

Gammons also wants to devote her time and attention to raise awareness of other young adults with cancer. "There is funding for older people with cancer, and kids get funding," she says, "but who funds young adults with cancer?" Frustration led her to raise \$5,000 for a national nonprofit organization called Stupid Cancer that offers emotional and social support for young adults. "You need that support," Gammons says. Physicians can treat your disease, she notes, but "they don't treat your emotions."

#### To the End of the World and Back

First-year student Kyle Bess spent most of the fall of 2011 feeling run down, but he attributed it to the late nights he spent studying. Then, last February, he went to the student health center with breathing trouble and was quickly admitted to UAB Highlands, where he was diagnosed with a collapsed lung and lymphoma. He took a break from school for chemotherapy and the bone marrow transplant that followed.

"It's tough, because you're used to pushing yourself," Bess says. "This is what you want to do so badly, and you feel like it's getting taken away from you. It seems like the end of the world to drop back to the next class. It's a long road, having to add another year."

The school was supportive throughout his treatment. Bess explains, "From the get-go, they basically said, 'You have one year; you have five years. However much time you need to get over this, your spot is held.'" Bess returned to school, cancer free, in October,



Kyle Bess





Sarah Gammons

“I feel like I have more empathy now. You don’t really know what that is until you’ve been in a tough situation.”

—Sarah Gammons

and the school has allowed him to begin work on his Scholarly Activity, an eight-week research project required for third-year students. “They’re going to let me do it now so I can kind of catch up with my class,” he says. “I’m going to do some extra work in the holidays and summers.”

Bess says his bout with cancer has “changed why I’m enthusiastic about becoming a doctor. It has had a huge effect on whom I want to be and how I want to be.” In the hospital, he observed how physicians’ personalities can affect patients. “The upbeat and positive and lighthearted ones make all the difference in the world,” Bess says. “The ones who focused on my treatment but also know how to take my mind off it really put me at ease.” He adds that “we interview people as first-year medical students, and it’s hard to know how much you can open up to a stranger. What’s appropriate? What would make the patient uncomfortable? I learned that they’re already uncomfortable. They want to hear from you.”

Has the experience encouraged Bess to pursue oncology as a specialty? “Absolutely not! I want to be done with this and put it behind me,” he says. But he is interested in fields that involve long periods of patient interaction. “That could be very satisfying,” he says.

### Tough Experiences, Tough Lessons

A career in medicine drew Finn Perkins’s interest from a young age, when he saw many doctors. “I always wanted to help people,” he says.

He has been diagnosed with dysautonomia, a wide spectrum of disorders of the autonomic nervous system. “There are many diseases that are included within,” he explains. “I have been specifically diagnosed with postural orthostatic tachycardia syndrome, but it does not explain all of my symptoms.”

The second-year medical student took a year off from school and has been hospitalized several times, which Perkins sees as a blessing because of insight into the patient experience. “I’ve been in a unique position to receive tests and therapies that I’ve been learning the science behind,” he says. “It has given me the opportunity to see both patient and provider perspectives.”

Medications “have gotten me to the point where I can go to school,” he says. In the future, he would like to specialize in internal medicine, and he may pair it with psychiatry. For both patients and physicians, mental health means accepting that emotional problems affect health, he says. And after learning about disease the hard way, he feels that he is in a unique position to help change lives for the better.



Finn Perkins





Right: Dean Ray Watts cuts the ribbon to open the EAB clinic. Above and top: Students and faculty advisors began seeing patients immediately after the grand opening.

## Equal Time

*New Student-Run Clinic Brings Care to Underserved*

By Meghan Davis and Bob Shepard

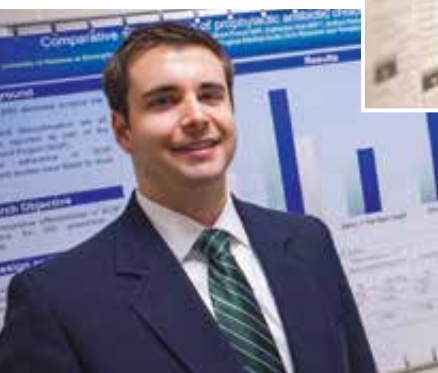
### The student-run Equal Access

Birmingham (EAB) volunteer organization achieved a goal seven years in the making when it opened its own clinic in November. The downtown clinic, located just a few blocks from the UAB campus at the Church of the Reconciler, will provide appointment-based longitudinal care to underserved patients in the Jefferson County Housing Authority Shelter Care Plus program.

“The new EAB clinic will add a medical component, providing ongoing primary-care services to the program participants as they work to become self-sufficient and ultimately graduate and move on from the program,” says Richard Cockrum, EAB’s president and a second-year School of Medicine student.

EAB has been working toward a fully student-managed and student-staffed clinic since its founding in 2005, says second-year student Elizabeth Varnell, EAB’s vice president. Earnings from this

Students present the results of their research projects to faculty during last October’s Dale J. Benos Medical Student Research Day.



## Study Hall

By Kati Burns

**School of Medicine** students became teachers during the second annual Dale J. Benos Medical Student Research Day (MSRD) in October, where they presented results of their scientific studies to faculty and fellow students. Thirteen student researchers gave oral presentations, followed by pointed questioning from the audience; many other students created poster presentations that lined the walls of two floors of Volker Hall.

The event, named for the late physiology and biophysics chair who was known for his teaching, mentoring, and science, celebrates student research accomplishments. It also “helps interest students in academic medicine and gets them involved in laboratory, clinical, and community-based research,” says **Peter R. Smith, Ph.D.**, associate professor

year's Best Medicine Show, combined with Dean Ray Watts's offer to match the night's fund-raising, gave the group the support it needed to establish the clinic.

EAB has staffed a free walk-in clinic associated with M-Power Ministries in Avondale, providing acute care for medically underserved patients, since 2007. The student group will continue to staff that clinic while it operates its own. As with the M-Power clinic, faculty physicians provide medical oversight for the students' work.

"We hope to not only serve the population in a more sustainable, primary-care manner but also expose pre-clinical students to a variety of health-care needs," says Varnell. "Currently, our clinic will be staffed by medical students, but in the future we hope to collaborate with other health professional schools at UAB to provide a medical home for our patients."

"EAB exposes medical students to clinical and socioeconomic factors that contribute to health disparities," says Cockrum. "Our goal is to train future doctors to provide quality care for all individuals and continue to work in underserved communities throughout their careers."

Visit [uab.edu/eab](http://uab.edu/eab) for further details on Equal Access Birmingham.

in the Department of Cell, Developmental, and Integrative Biology and lead organizer. "They understand how important research is and what it entails. And this could possibly give them an interest in a particular specialty."

Faculty judges selected winners based on poster quality, accomplishment in research, and ability to present and answer questions. Top winners received monetary awards.

"MSRD is a confidence booster because it gives us a chance to present in a professional setting," says second-year student Ashley Spann, who showcased the results of her summer project researching primary cilia and Hedgehog signaling in cancer. "I hope my research will get other people excited and thinking."

## Game of Life

By Bob Shepard

**Students of medicine** and other health disciplines are used to simulation exercises. But SimWars was something entirely new. In September, two teams of students from the School of Medicine, the UAB School of Nursing, UAB's respiratory therapy program, and Samford University's pharmacy school faced off, on stage, in a competition featuring a vexing medical problem, a high-tech mannequin, and a cast of characters offering help or another challenge.

Organizers say the event promotes team building across medical disciplines, presenting students with a real-life situation where each person must do his or her own job while working together to identify a solution. In this case, the oxygen level of the patient—a dummy programmed to respond to each team's actions (or lack of action)—was low, and the standard treatment didn't work. As symptoms worsened, the patient's "wife," portrayed by a UAB nurse, began to panic, and other faculty, in the roles of medical specialists, provided both lab results and questionable advice.

Watch the students in action on [UAB Medicine's iPad app](#).

It turns out that the patient was reacting to medication from an earlier GI procedure. Both teams ultimately decided on another drug, methylene blue, to solve the crisis. The audience of UAB medical, nursing, and health professions faculty and students served as the judges, and they split on which team won. In the end, note the organizers, SimWars benefited every competitor as an exercise in both teamwork and leadership.

Below: The two interprofessional student teams spring into action to help the patient, portrayed by a high-tech interactive mannequin.



# Paths of Promise

## The Class of 2016 Arrives

By Charles Buchanan and Cindy Riley

This year, there were 176 different routes to the School of Medicine at UAB. They began in big cities, small towns, and rural areas throughout Alabama and around the country. They wound through different colleges and careers, making brief stops in labs or doctors' offices, classrooms, and community service programs. Others made overseas detours. But all of these roads eventually led to Birmingham, where new journeys have begun.



### From Teacher to Classmate

Lakisha Moore-Smith, Ph.D., has encountered some familiar faces as a first-year medical student.

"I taught a cancer biology course in 2011, and many of the students are now my classmates," explains the Huntsville, Alabama, native and former instructor at Samford University and UAB. "As a young professor, I had to set boundaries that help establish the professor-student role in the classroom. Now I have to work to break down

those barriers and let my new classmates know that I am just like them.

"It was pretty weird at first," Moore-Smith says, "but now I don't think about it much." She adds that several of her former students have come to her after a lecture to say they remember the material from her course.

Moore-Smith, who earned her bachelor's degree in biochemistry from Xavier University in Louisiana, says her undergraduate studies led her to pursue research opportunities in breast cancer. Her background as both researcher and instructor serves her well today.

"It's given me the basic science foundation needed to be successful in my coursework, while teaching has given me the ability to communicate complex biological topics," she explains. "In my postdoctoral fellowship in cancer genetics, I worked under an M.D./Ph.D. mentor who demonstrated the benefit of combining patient care with basic science research. I realized I could have a career focused on clinical care, basic research, and community education."

Moore-Smith hopes to continue working in academic medicine after medical school. "I want to be involved in education/outreach efforts through community advocacy groups and medical student training," she says.

## The Geometry of Success

A member of Teach for America, Birmingham native and University of Alabama graduate John Killian worked with 10th-grade geometry students at a Louisiana high school before attending medical school.

"I felt fortunate to be teaching at Chalmette High, just outside New Orleans. Being responsible for the success of my students really influenced my concept of a doctor's role as teacher and servant. The doctors I admired most always took great personal pride in their patients' health and happiness, and felt very responsible for their health outcomes."

Killian had a medical career in mind before he went to Chalmette. "I loved science growing up and had dreamed of being a physicist, but seeing the impact

## Opening Ceremony

FOR THE NEW CLASS, years of hard work and anticipation culminated in the White Coat Ceremony, a milestone that marked the beginning of their medical education. The coats, provided by the Medical Alumni Association, symbolize professional competence and human compassion. Students also received a pin emphasizing humanism in medicine from the Arnold P. Gold Foundation. During the August 19 event, the first-







physicians directly had on their patients' lives inspired me to pursue medicine," he says. "Shadowing a physician confirmed my desire. Seeing how well he combined his teaching with his medical skills showed me exactly the kind of doctor I hope to become." Killian adds that classroom teaching taught him some skills he'll be able to use with patients, including how to lead by example with positivity, and how to respond to adversity.

For now, though, "I'm really enjoying the fact I'm a student again," Killian says. "I'm excited for the opportunity to learn more about myself and the type of medicine I'll want to pursue. There's a very good chance I'll be involved in academic medicine, based on the opportunity to be involved in the creation of medical knowledge."

years took an oath of dedication they had written during their first course—Patient, Doctor, Society—which focuses on the physician's role in society as well as professionalism, compassion, responsibility, ethics, compassion, and the doctor-patient relationship.

**8** M.D./Ph.D. students

**106** MEN  
**70** WOMEN

Average Age:

**23**

Average MCAT score:

**30.5**

TOP MAJORS:

**biology**, *biomedical science*, *neuroscience*, *chemistry*, *chemical engineering*, **biochemistry**, *biomedical engineering*

**13** states represented  
*(including Alaska and Hawaii)*

**20** students with multiple majors

**50**

undergraduate schools represented

**17** students in rural medicine programs

### Scientific Possibilities

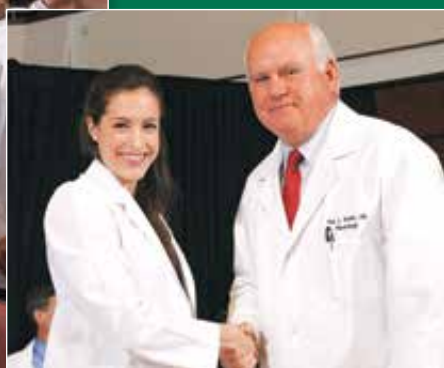


**LaKeshia Hyndman** credits one of her seventh-grade teachers with leading her down the right career path.

"Ms. Bowen had a science degree, and it helped me realize how interesting science is. She took the time to nurture my interests and suggested a career in medicine might be right for me. After going to several medical conferences geared for high school students, and also shadowing, I knew it was the perfect fit."

Hyndman, who graduated high school in Montgomery, Alabama, but moved around with her Air Force mother to England and Guam, spent four years in UAB's University Honors Program—and was one of Lakisha Moore-Smith's cancer biology students. Hyndman was later selected for the Ronald E. McNair Postbaccalaureate Research Program, which enabled her to work in a UAB lab for 10 weeks. The following summer, she was among only 15 students nationwide named as a UNCF Merck Fellow, allowing her to conduct research at the Merck pharmaceutical company in Pennsylvania. The opportunities broadened her knowledge of the health-care field, which she looks forward to joining.

"I've always wanted to pursue a career in pediatrics and primary care, but I'm open to the endless possibilities available to me with my medical degree. I'm most looking forward to making a difference."



# State of Health



## SELMA

### Reboot Camp

After stumbling upon a run-down YMCA camp during a hiking trip in February 2011, UAB Selma Family Medicine Residency Program (UABSFM) Director **Boyd Bailey, M.D.**, came up with an idea for a unique outreach project. “Camp Grist is a resource that certainly has accomplished much in the past, and it has the potential to achieve and serve youth and community needs far into the future,” Bailey says. “This is a wonderful opportunity to guide our young physicians through a leadership project that could revitalize a camp that has touched the lives of men and women throughout Alabama.”

Through a voluntary, cost-free partnership, UABSFM primary-care residents and staff are helping to repair the Dallas County camp’s abandoned buildings and bring its overgrown grounds back to life (pictured above). “This activity is taking place in the residents’ own spare time, and it’s a testament to their community spirit,” Bailey says.

Paul M. Grist, a local YMCA leader, established the camp in the 1940s adjacent to the state park that now bears his name. “Grist was a master in developing the region’s youth in leadership and team-building skills,” explains Bailey, who notes that the UABSFM mission is similar to Grist’s vision. The camp fell out of use in the 2000s and was damaged by a tornado in recent years.

The UABSFM volunteer project will set the camp on a new course emphasizing outdoor health activities, team building, and leadership, Bailey says. He envisions future YMCA summer youth programs and even professional retreats for medical students, residents, and physicians—which could help promote Selma as a place to begin a medical career. He also looks forward to a long-term partnership that could relieve a financial burden on the local YMCA while promoting the benefits of the great outdoors to new generations of camp visitors, including residents, their families, and members of the community.

## TUSCALOOSA

### Treating a Stigma

A \$530,368 Centers for Disease Control and Prevention grant will examine the role that African-American congregations can play in reducing HIV/AIDS-related stigma in rural Alabama. **Pamela Foster, M.D., M.P.H.**, deputy director of the Institute for Rural Health Research, leads the four-year study to conduct and evaluate an intervention among 10 African-American congregations. “We know from previous research that HIV-positive persons value spirituality in their overall healing process,” Foster says. “However, they have often not become active members of rural congregations because of the stigma.” Foster says that finding an effective response is a major challenge, particularly among rural African-American communities in the Deep South, where stigma may be higher. The Institute for Rural Health Research is part of the University of Alabama’s College of Community Health Sciences (CCHS), the School of Medicine’s Tuscaloosa branch campus.

### Family Medicine Residency Expands

The CCHS matched 15 family medicine residents this year, an increase from 12 in previous years. “Expanding our program has the potential to have a profound impact on the state’s family medicine workforce,” says **Chelley Alexander, M.D.**, residency director and chair of the CCHS Department of Family Medicine. Alabama ranks ninth among the most underserved states based on Health Professional Shortage Area (HPSA) scores, but Alexander notes that the residency already has an admirable track record, “with 67 percent of our 411 graduates practicing in HPSA areas.” She adds, “55 percent of our graduates stay and practice in Alabama, and 90 percent of graduates who are from Alabama stay to practice in Alabama.”





Pamela Foster (center) with her project partners, nursing professor Susan Gaskins, D.S.N. (at left), and graduate assistant Myra Vickery

## HUNTSVILLE

### Highlighting Leaders



Ralph Samlowski

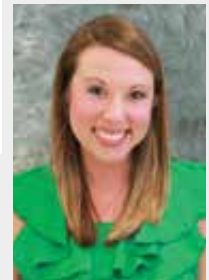
- **Ralph S. Samlowski, M.D.**, associate professor of family medicine, now holds two new positions: regional chair of family medicine for the Huntsville campus and director of the family medicine residency program. Since he joined the Huntsville faculty in 2002, Samlowski has served as associate division director; interim residency director; clerkship director; advisor to the family medicine medical student interest group, and chair of the Huntsville undergraduate medical education committee.

- The Huntsville Family Medicine Interest Group has been active in developing leaders who participate in national dialogue through the American Medical Association (AMA) and American Academy of Family Physicians (AAFP). Family medicine intern Jeremy Thompson, M.D., was appointed to the AMA Resident Fellow Section as a delegate representing the AAFP; he was joined by fourth-year student Brittany Holley, selected as an AAFP student representative to the AMA Medical Student Section, at the November AMA meeting in Honolulu. Benjamin "Tate" Hinkle, another fourth-year student, was elected as Student Section alternate delegate to the 2012 AAFP Congress of Delegates, the organization's policy-making body. He represented students at the group's October meeting in Philadelphia.

- The Huntsville Women's Economic Development Council recognized **Marcia Chesebro, M.D.**, associate professor of family medicine, in the category of health and human services at its 11th annual Women Honoring Women event. Chesebro joins more than 50 honorees chosen for their work as leaders, role models, and community servants who have overcome challenges on their way to success.



Clockwise from above: Hinkle, Thompson, and Holley



Marcia Chesebro

## MONTGOMERY

### Residency Program Gains New Director

**Jewell H. Halanych, M.D.**, assistant professor of medicine, has been appointed program director of the UAB Montgomery Internal Medicine Residency Program. A member of the Montgomery faculty since 2003, she also holds an appointment in the UAB Division of Preventive Medicine.

Halanych has chaired Montgomery's Resident Evaluation Committee and served on the Curriculum and Residency Executive committees. She also has been preceptor for

the Resident Journal Club and a mentor for resident research and scholarly activity.

Halanych's own investigations involve racial/ethnic disparities in chronic health conditions such as diabetes, hypertension, and cardiovascular medicine. "My research, which focuses on improving patient-provider communication, equips me with a perspective that will enhance the training experience for students and residents," she says. Currently, Halanych and Randy Johnson, Ph.D., Baptist Health System chief patient safety officer, lead a project titled "Randomized Controlled Trial of SMART Training to Improve Patient Safety." The initiative will demonstrate

whether enhancing communication and teamwork skills among students and residents can improve overall quality of care by reducing medical errors.

"Our goal is to train competent, compassionate physicians to provide quality health care," Halanych says. "We want our residents to graduate with comprehensive skills to care for patients in primary care and hospital-based medicine, and to be competitive for subspecialty fellowships. Recently, more than 40 percent of our graduates have remained in Alabama to practice medicine. We are meeting our goal to grow our medical community to provide quality care to central Alabama."



Jewell Halanych



## Group Dynamics

Disease-Focused Organizations Provide Crucial Support

By Lisa C. Bailey

Some members of the Parkinson Association of Alabama (PAA) will go to great lengths to help UAB fight the disease—even donating their own blood as tissue samples for research. Most, however, show their commitment in a much more painless way by forging partnerships with UAB to fund and support programs, research, and resources for patients.

Over the years, the PAA, which serves a valuable role by connecting Parkinson's patients with community resources such as patient education and physical rehabilitation, has provided tremendous support to the Department of Neurology. In 2006, the group made a significant commitment when **David Standaert, M.D.**, chair of the Department of Neurology, joined UAB. The PAA continues to fund a pre-doctoral student in Standaert's laboratory through the Parkinson Association of Alabama Scholar in Parkinson's Research. Additionally, the group helps to spread the word about participation in clinical trials of potential new therapies, a major strength of UAB's movement disorders program.

Founded in 1978 by a group that included Parkinson's patients, family members, and medical professionals, the PAA is a non-profit organization committed to providing support, encouraging action, increasing awareness, and supporting research to lead to new and improved treatments for the disease that will ultimately lead to a cure. "The PAA is an important partner in our efforts to improve care for Parkinson's disease, and to find the cure," Standaert says. "The organization not only raises funds for research, but is also an essential part of our efforts to reach out and communicate with those affected by Parkinson's."

### Instrumental to Progress

The PAA is just one of many disease-focused organizations that play a crucial role in helping UAB to achieve breakthroughs in research and patient care.

The Breast Cancer Research Foundation of Alabama (BCRFA) was established in 1996 by Dolly O'Neal, a two-time breast cancer survivor, and Bruce Sokol, whose wife, D.D., was undergoing breast cancer treatment. Since then, the foundation has been a leader in raising critical research funds to support early projects that enabled the UAB Comprehensive Cancer Center to receive additional, high-profile grants and recruit and retain world-renowned breast-cancer researchers.

"Our friends at the BCRFA have enabled our breast-cancer research program to become one of the most vigorous and well-regarded programs in the nation," says **Edward Partridge, M.D.**, director of the UAB Comprehensive Cancer Center. "The foundation has been instrumental in making that progress possible. Their dedication is saving lives every day, and we are grateful for their steadfast partnership in the fight against cancer."

The BCRFA provided pilot funding for key breast-cancer research, which led



PAA president Ken Cater with David Standaert



BCRFA founders Dolly O'Neal and Bruce Sokol

to the receipt and renewal of the Cancer Center's Breast Cancer SPORE (Specialized Program of Research Excellence), a five-year, \$11.5-million grant from the National Cancer Institute. Their support also provided important pre-clinical lab testing that led to a \$6.4-million Promise Grant from Susan G. Komen for a Cure and the Triple Negative Breast Cancer Foundation in 2009.

The opportunities that come from such a connection are limitless, say UAB researchers. The Southeast Cancer Foundation recently initiated a partnership with UAB through a gift to establish a new endowed professorship in the Department of Radiation Oncology through its Regional Oncology Active Research initiative.

If you are involved with an organization and want to learn more about opportunities to support UAB research and clinical care, contact Virginia Gilbert Loftin, executive director of development and community relations.

More information: [Virginia Gilbert Loftin](mailto:Virginia.Gilbert.Loftin@uab.edu) • 205-975-5602 • [vgloftin@uab.edu](mailto:vgloftin@uab.edu)

# Training Boost

## Strengthening UAB's Palliative Care Leadership

By Lisa C. Bailey

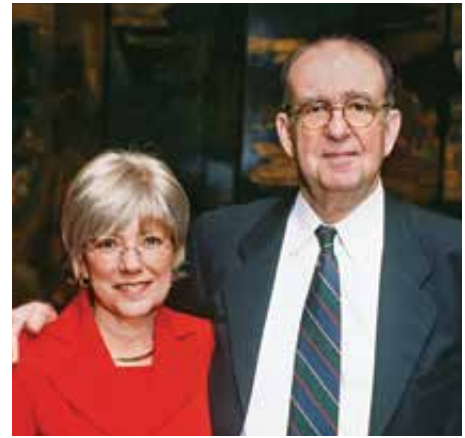
**Patients and families** facing serious illness aren't alone in seeking UAB's expertise in palliative care, a unique specialty focused on relieving the pain, stress, and other debilitating symptoms of a range of diseases in order to provide patients with the best possible quality of life. Health professionals wanting to develop or strengthen such programs are enrolling in UAB's Palliative Care Leadership Center (PCLC) training program—one of only eight such centers in the United States designated by the Center to Advance Palliative Care. In fact, UAB's PCLC has trained staff from more than 55 facilities across the country, making UAB one of the largest and busiest clinical education sites for the specialty.

The Deane K. Corliss Palliative Care Education and Lectureship Fund will further enhance the PCLC's leadership by supporting education programs and activities, lectures, and other initiatives. **David Corliss, Ph.D.**, associate professor emeritus in the UAB Department of Vision Sciences,

made the generous gift to the UAB Center for Palliative and Supportive Care, which hosts the PCLC, to honor the memory of his wife, a longtime member of the center's Community Advisory Board. Birmingham community leaders Carol and Rob Hunter also have made a contribution to help support palliative care education at UAB.

"The support from these families is vital to our overall mission," says **Rodney Tucker, M.D.**, interim director of the UAB Center for Palliative and Supportive Care. "In our field, it is crucial that the breadth of what encompasses palliative and supportive care be continually reinforced through the education process. These gifts will help our faculty and staff to provide educational opportunities and outreach not only to multiple disciplines in health care but also to our community at large."

UAB's training program offers a focused



Deane and David Corliss

clinical experience for people working in palliative care who want to learn about alternative models or venues of care, delivery systems, or therapies. Licensed physicians, nurse practitioners, and physician assistants with a foundational knowledge about hospice and palliative medicine are eligible for this clinical experience.

Tucker adds, "Both the Corlisses and the Hunters have been very supportive members of our team, and we are deeply appreciative of their generosity and being ambassadors for palliative and supportive care."

More information: **David Allen** • 205-975-5661 • diallen@uab.edu

## Full Circle

By Lisa C. Bailey

**Sherron Kell, M.D., M.P.H.**, chose a special place to honor her family at UAB: the site where they welcomed her into the world. Kell, the vice president for clinical research and development at IMPAX Laboratories in Hayward, California, was born in



Sherron Kell (second from right) and her family celebrate her dedication of an ACE Unit room.

Birmingham at South Highlands Infirmary, which was later demolished and replaced by UAB Highlands. In November, Kell named a patient room there for her father and mother. The Henderson Family Room, dedicated to Ruby and Lee Henderson, is located in the ACE (Acute Care for Elders) Unit on the fourth floor.

"Naming an ACE Unit room in remembrance of my parents is my opportunity to honor their lives," says Kell. "It is also a means to support the ACE Unit strategy, which is an innovative new concept of medical care for the hospitalized older population." In addition, the gift highlights Kell's local connections beyond birth. She was the third graduate of the UAB geriatric medicine fellowship program and served on the Division of Gerontology, Geriatrics, and

Palliative Care faculty for five years. She also was the associate principal clinical coordinator at AQAF, Alabama's Medicare Quality Improvement Organization.

"When **Richard Allman** [M.D., director of the UAB Center for Aging] contacted me, I was delighted to learn of the many important medical outreach programs now available through the Center for Aging for Alabama's older adults," Kell explains. "I am grateful to UAB for the quality medical education it provided me and for the excellent medical care it provides for the people of Alabama." Funds raised through naming opportunities support the ACE Unit's efforts to provide care for older patients, discover and test new approaches to improve outcomes, and train interdisciplinary teams on leading-edge geriatric practices.

More information: **David Allen** • 205-975-5661 • diallen@uab.edu



## Group Effort

### Community Gifts Spark Neurology Efforts

By Lisa C. Bailey

**Charles Ackerman** has spent his career helping clients to grow and protect property investments through his two firms, Ackerman and Company and Ackerman Security Systems. Now he's helping UAB's Department of Neurology to grow its capacity to fight Parkinson's disease, the second most common neurodegenerative aging disorder.

Ackerman has established the Charles S. Ackerman Endowed Professorship along with the Charles S. Ackerman Scholars in Neurology—a fund to support the current research efforts of a drug discovery scholar. “My contribution helps the department that is the best qualified in the country to abate, prevent, and cure Parkinson's disease,” Ackerman says. “Through this financial contribution, I am proud to join in a meaningful way the effort to relieve the burden of this disease.”

Other community leaders have joined Ackerman in providing invaluable support to the department's efforts in Parkinson's disease and other disorders:

- Ruth and John Jurenko have invested in the UAB-HudsonAlpha Collaborative Project in the Genetics and Genomics of Parkinson's Disease, a promising research collaboration between UAB and HudsonAlpha—two of Alabama's largest biomedical research institutions—and their respective researchers.

- The Albert Thomasson Family Research Acceleration Fund in Parkinson's Disease boosts efforts to develop new treatments and a cure for Parkinson's disease through the Alabama Drug Discovery Alliance, a partnership between UAB and Southern Research.

- Jarman Fearing Lowder passed away in 2011, following a long battle with early-onset Alzheimer's disease. Her family, including her husband, Tom Lowder, chairman and CEO of Colonial Properties Trust, and others in the Birmingham community have made generous commitments toward the establishment of the Jarman F. Lowder Endowed Professorship in Neuroscience, with the goal of raising it to the level of endowed chair.

- Charles Collat, chairman emeritus of Mayer Electric Supply Company, made a contribution to help recruit the director of the Division of Memory Disorders and Behavioral Neurology. A portion of the funds will create the Patsy W. and Charles A. Collat Endowed Professorship in Neuroscience, supporting UAB's ongoing research into age-related memory disorders.

- Mike Warren, president and CEO of Children's Health System, and his wife, Anne, are supporting memory-disorders research in the Department of Neurology. Their most recent gift will create the Warren Family Endowed Professorship in Neurology as possibly an intermediate step to an endowed chair.

More information: [Kate Tully](#) • (205) 934-0792 • [ktully@uab.edu](mailto:ktully@uab.edu)



## Growing Season

### Garden Blooms at Transplant Clinic

By Lisa C. Bailey

The new UAB Kidney and Pancreas Transplant Clinic, which opened last spring on 6th Avenue South, is ready to grow with the addition of an exterior green space. The garden will highlight the drive-through entrance to the clinic, offering patients and their families a beautiful, refreshing welcome.

The mini oasis will be known as the Gaston Family Garden in honor of Dr. and Mrs. Samuel L. Gaston. Lillian Gaston, mother of **Robert Gaston, M.D.**, the clinic's medical director and holder of the Endowed Professorship in Transplant Nephrology, made the gift for the garden through a series of charitable gift annuities established with the UAB Educational Foundation. When realized, the remainder of the annuities will help the departments of Medicine and Surgery to support the UAB Kidney Transplant Program.

"My late husband, Dr. Sam Gaston, and I watched our son train in transplant medicine and join the faculty at UAB 25 years ago, and we were very impressed with what was happening in Birmingham," says Lillian Gaston. "The new, state-of-the-art clinic, dedicated to patient care and education, is a significant achievement for UAB as it continues to restore life to many who otherwise would have little hope. My wish is that this garden will be a symbol of life and hope to all who need a bit of inspiration along the way."

"This facility unites the pre- and post-operative patients with adequate space for our staff to do their work and teach our patients about their care," says Robert Gaston. "It also puts a bright face on transplantation at UAB and in the state of Alabama. We're known nationally and internationally as a place that provides the best transplant care, and now we have the look, feel, and space that our patients expect a hospital of our caliber to have."

More information: [Virginia Gilbert Loftin](mailto:Virginia Gilbert Loftin) • 205-975-5602 • [vgloftin@uab.edu](mailto:vgloftin@uab.edu)

## Development Digest

### Support for Success

#### NEW ENDOWED POSITIONS

- **Dean G. Assimos, M.D.**, has been named the inaugural holder of the Anton J. Bueschen, M.D., Endowed Chair in Urologic Surgery and Research. Assimos serves as chair of the UAB Department of Urology.
- **Harry P. Erba, M.D., Ph.D.**, has been awarded the new Albert F. LoBuglio Endowed Chair for Translational Research in the Department of Medicine. Erba directs the Hematologic Malignancy Program and co-directs the Hematology and Bone Marrow Transplant Program.
- **Candace L. Floyd, Ph.D.**, now holds the Women's Committee of the Spain Rehabilitation Center Endowed Chair in Rehabilitation Neuroscience Research. She is an associate professor in the Department of Physical Medicine and Rehabilitation.
- **C. Seth Landefeld, M.D.**, chair of the Department of Medicine, has been appointed to the Spencer Chair in Medical Science Leadership.
- **Lisa Laycock Willett, M.D.**, has been named to the Dr. Tinsley R. Harrison Endowed Chair in Medical Resident Education. She directs the Tinsley Harrison Internal Medicine Residency Training Program in the Department of Medicine.

*Charitable gift* annuities benefit donors as well as UAB. Benefactors who agree to make a donation of cash, stocks, or other assets to UAB receive a fixed amount each year for life in return. After the donor's lifetime, the remainder goes to UAB. Additional benefits include a partial tax deduction on the initial gift, partial income-tax-free payments throughout the donor's estimated life expectancy, and fixed payments that are not affected by the economy's ups and downs.



## Learning from Experience

*New Group Links Students with Alumni*

By Cindy Riley

As a second-year medical student and president of the School of Medicine's class of 2015, Omar Ahmed has a demanding schedule. But he eagerly accepted the opportunity to lead the newly created Student Alumni Association (SAA) as student alumni liaison.

"I agreed to head this group because I believe we have much to learn from our alumni," explains the 23-year-old Florence, Alabama, native. "From the opposite side, this group gives the alumni a great opportunity to get to know their medical school once again."

The SAA is the student chapter of the Medical Alumni Association (MAA). The new organization provides students with the chance to network with alumni as well as to interact with their student peers. Building strong relationships between students and medical alumni is a key goal, Ahmed says.

"Until recently, there has been limited interaction between alumni and the current students," he says. "Alumni have expressed a desire to not only help students through scholarships and the assistance fund, but also to get to know them." He says that he has been working with Meredith Burns, executive director of the MAA, to develop the SAA.

"We have plans to become involved with student activities and increase benefits for our current and future members," Ahmed explains. "What I find incredible is the amount of experience that

our alumni have and how much they desire to assist students with their education and careers. These individuals are doing their best to give back to their alma mater and, in the past, we students haven't known that."

Ahmed himself is considering a career in surgery—one that will allow him to teach, practice medicine, and travel to underprivileged areas of the world to provide care. "My family is originally from India, and it was there I saw how medicine could alter the course of people's lives," he says. "It inspired me to put myself in a situation where I could make a difference." Through the SAA, he hopes to meet alumni with similar interests, or those who have experience who can share their insights and advice.

Any current School of Medicine student is welcome to join the SAA, Ahmed notes. Dues are \$15 per year, and members will receive invitations to regional alumni receptions, discounts at various local businesses, subscriptions to MAA e-newsletters, and the opportunity to use the Medical Alumni Building as a quiet place to study. Prospective members can join at [alabamamedicalalumni.org](http://alabamamedicalalumni.org).

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For details, visit [alabamamedicalalumni.org](http://alabamamedicalalumni.org)  
or call the Medical Alumni Association at (205) 934-4463.

# Breaking the Silence on Child Abuse

MAHA ALMUNEEF | *Alumni Profile*

By Glenn Brock

Maha Almuneef, M.D., speaks in a pretty, thrumming cadence, particularly when she reminisces about the years she spent at UAB, completing her residency training in pediatrics at Children's Hospital.

"I loved the Southern hospitality," Almuneef says by phone from her home in Riyadh, Saudi Arabia. "In the residency, there were people from all over the world, from every imaginable background, that shaped who I am today. It was like my second home."

A Saudi native, Almuneef was in Birmingham from 1991 to 1994. She had been accepted into a residency program at Harvard University but opted for UAB instead. "My husband had just been accepted into a Ph.D. program at Auburn University," she recalls. "Plus I had a young son at the time, so it was best for my family to be closer together. Besides, I had been told that the residency program [at UAB] was one of the best in the country."

Later, when Almuneef went to Yale to complete her postdoctoral fellowship in infectious disease, her Ivy League classmates teased her about Alabama. "But if it happened again, I would still go to UAB, because my experience at Children's Hospital was so extraordinary."

In fact, one incident during her residency altered the course of Almuneef's personal and professional life. "I was on call in the ER, and a Saudi man came in with his eight-month-old son," she says. "Bruises and head injuries made it obvious this was an abused child. I got involved as more than a physician: I was translating. I was talking to law enforcement. In the wife I saw a young woman far away from home, with her child and herself being abused. We worked to get the perpetrator punished.

"I never forgot that experience," Almuneef says. "I thought of that woman so

often. When I came back to Saudi Arabia, I realized there were hundreds of thousands of children who needed an advocate. So I began working at the community level with street children and raising awareness on child rights. There are so many abused children in need. Now I'd say infectious disease work, which is my subspecialty, is a little bit of what I do—about 30 percent—and I spend 70 percent of my time on general pediatrics and child protection."

## Starting from Zero

"In the United States, there is a system" for responding to child abuse, Almuneef says. "When I returned to Saudi Arabia and began to tackle problems in a place with no system, I had to start from zero. I had to figure it out myself."

Almuneef now serves as the executive director of Saudi Arabia's National Family Safety Program (NFSP). Since its launch in 2005, the NFSP has had a mission to build awareness and to create a safe community that protects and defends individuals' rights and helps the victims of domestic violence. "We felt that Saudi Arabia—with its economic, human, and material resources—was prepared to begin dealing with these problems," Almuneef says.

In addition to creating awareness campaigns, training courses for professionals working with and for children, and special parenting programs, the NFSP has drafted legislation ultimately passed by the king's decree. "I often hear the criticism that it is a shame to talk about this," Almuneef says, "but I believe it is a shame *not* to talk about this. It is a shame if we close our eyes to it."

Last year, Almuneef was elected president of the Arab Professional Network for Prevention of Violence Against Children, which creates multidisciplinary child-protection teams in hospitals throughout Saudi Arabia. Modeled after similar teams in U.S. hospitals, the



Maha Almuneef addresses domestic violence issues through education, public policy, and patient care.

Saudi groups consist of physicians, psychologists, psychiatrists, and, when necessary, law enforcement officials. "We train them and give them the skills to manage cases, particularly on how to report each case to the national registry," Almuneef says.

That national registry is new for Saudi Arabia. Gathering data on every case of child abuse in the kingdom helps Almuneef and other advocates to map the work ahead of them. "Whereas before we did not know how much abuse there was in Saudi Arabia, the national registry begins to give us a sense of prevalence—the number of incidents and the risk factors," she says. "Knowing what is happening tells us the major problems we must deal with, from poverty to family dysfunction to other factors. The more we know, the more we can focus on the problems that need our most urgent attention."

## A Voice for Children

Almuneef describes her work as incredibly challenging but deeply rewarding, particularly during and after the Arab Spring, when there has been so much suffering among the children of Middle Eastern countries. "For me, I am willing to be the voice of these miserable abused children," she says.



# The War on Bugs

Michael Callahan | *Alumni Profile*

By Matt Windsor

Michael V. Callahan, M.D., DTM&H (U.K.), M.S.P.H., doesn't wear a military uniform, but he plays a crucial role in keeping Americans safe by beefing up the nation's defenses against disease.

For the past seven years, Callahan, a 1995 School of Medicine graduate, has been a program manager for the Defense Advanced Research Projects Agency (DARPA), the American military's secretive R&D center. Callahan was recruited while working overseas "to work on fast-paced solutions to health threats," he says. His biggest mission: Create a government-funded drug research

and production capability focused strictly on national priorities, such as defense and pandemic preparedness, rather than profits. The Department of Defense had no idea how to make drugs, but they knew they had to learn, Callahan recalls.

## Rush Request

"The military is most concerned about diseases of the tropics and diseases of bioterrorism, but these are rare globally," Callahan says. "Though you might have 170,000 deaths per year from yellow fever, that's not going to be a money maker for a drug company, so they aren't interested."

Callahan's solution involved a special forces approach. His team identified promising work in U.S. labs, offering researchers

the funding and equipment they needed to turn their discoveries into patient-ready treatments. In 28 months, DARPA-funded projects created six new vaccines, leveraging taxpayer dollars into economic payback at a ratio of up to 11:1. "It's been wildly successful," Callahan says.

Callahan also developed a "twinning" strategy, searching for treatment approaches for related diseases that would interest the military or government (such as bird flu, with its potential to cause a pandemic) as well as drug companies and venture capitalists (the regular flu). These players could then help fund development costs needed to bring the products to market.

## Out with the Eggs

Another major goal was replacing the traditional egg-based methods of producing vaccines, which can take "eight years to forever" to develop and six months or more to produce. Callahan's team launched the Accelerated Manufacturing of Pharmaceuticals project, which found a solution in tobacco plants. Grown in "bug-free hydroponic facilities," the plants can be easily and rapidly altered to express the needed vaccine products in a matter of weeks. "One 2,000-square-foot chamber consisting of 12 trays can produce up to three million doses of flu vaccine" in a month's time, Callahan says.

Meanwhile, the Prophecy program seeks to predict emerging virus threats and develop vaccines or other treatments to contain them. Working in small teams with foreign governments, DARPA has established an early warning system that can rapidly collect and share information across borders.

"In a perfect world, doctors would see a new virus, sequence it, and e-mail us the genetic information," Callahan says. Within a matter of days, Callahan's team can identify the virus and its

## Faster, Higher, Farther

A lifelong mountain climber, Callahan is using a "twinning" approach to help acclimatize mountaineers to high-altitude conditions rapidly. A therapy using an inhalable gas—similar to an albuterol asthma inhaler, Callahan says—is currently in clinical trials on Tanzania's Mount Kilimanjaro.

The military implications are obvious. "Our soldiers in Afghanistan have to chase bad guys uphill at anywhere from 14,000 to 18,000 feet," Callahan says. "At the moment, it takes 24 to 46 days to truly acclimatize to those conditions, especially since most of our troops are coming from U.S. bases at or near sea level!" But, he adds, the same treatment "could also treat pulmonary arterial hypertension or chronic hypoxia from lung disease," which affect millions of civilians worldwide.

Michael Callahan directing an air evacuation of a U.S. servicemember with infectious disease from Africa



# Leadership Tour

By Charles Buchanan

mechanism of action, letting health workers know if there is an existing vaccine that will help. If not, Callahan says, “we can create a new one and produce between 30 and 160 million doses within a month.”

## Path to Birmingham

The Boston native started traveling overseas on relief missions in the early 1980s; in 1988, he founded a charter organization that provided emergency medical evacuation and refugee medical care in developing countries.

He determined to pursue a career in infectious diseases, receiving a master’s degree focusing on international health from the UAB School of Public Health. Soon afterward, he entered the School of Medicine, where he says he had “great training.” Today, Callahan continues to work with UAB colleagues including David Freedman, M.D., in the Division of Infectious Diseases, and several members of the Division of Pulmonary, Allergy, and Critical Care Medicine.

## Forward Thinking

Now Callahan says he is ready for new adventures. In fall 2012, he returned to Massachusetts General Hospital, where he has worked for three months each year in the Division of Infectious Diseases, to run a new disease surveillance and antiviral clinical trials program in Africa and southeast Asia. He hasn’t relinquished his defense role, however. “I still have federal responsibilities to the White House for pandemic preparedness and exotic disease outbreaks, which will continue for the near future,” he says.

Meanwhile, Callahan is excited to see how techniques and strategies he initiated at DARPA can be adapted far beyond infectious diseases. The White House and the National Institutes of Health are both interested in the models, Callahan says. “The technology is cool,” he says, “but the experimental business strategy they allowed me to try will have implications across government.”

Dean Ray L. Watts, M.D., had company when he visited alumni in Birmingham, Tuscaloosa, and Huntsville last fall. Newly named chairs for several School of Medicine departments—**Dean Assimos, M.D.**, of the Department of Urology; **Christopher Girkin, M.D.**, of the Department of Ophthalmology; **C. Seth Landefeld, M.D.**, of the Department of Medicine; and **David Standaert, M.D.**, of the Department of Neurology—joined him to meet with graduates and update them on the latest research, educational, and clinical-care initiatives under way in their areas.

Amit Arora, M.D.; Aruna Arora, M.D.; and Betty Vaughan, M.D., hosted the Huntsville reception, while Max Austin, M.D.; Hughes Evans, M.D. Ph.D.; Norman McGowin, M.D.; and Brian Sims, M.D., coordinated the Birmingham event. Chelley Alexander, M.D.; Julia Boothe, M.D.; Rufus Partlow, M.D.; and John Wheat, M.D., served as hosts in Tuscaloosa.

## Birmingham



## Tuscaloosa

## Huntsville





# Out of the Shadows

*25 Years of Action Against AIDS*

By Tim L. Pennycuff • *Images courtesy of UAB Archives*

On January 27, 1988, UAB began making bold moves against the AIDS epidemic with the opening of the 1917 Clinic. The facility was the brainchild of **Michael S. Saag, M.D.**, the Jim Straley Endowed Chair in HIV Research, and due to prevailing social attitudes against AIDS patients at the time, the clinic's name referred to its street address at 1917 5th Avenue South rather than the disease it treated. Initially, the clinic opened for one half day each week to provide a centralized location for evaluation, counseling, and therapy for 30 patients. Three years later, the caseload stood at more than 900. Today the 1917 Clinic, located a few blocks from its original site, serves more than 2,000 patients annually.

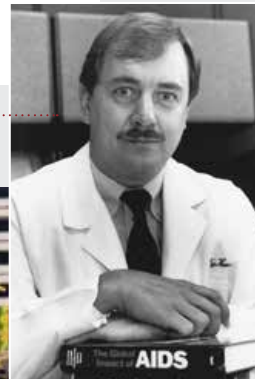


Michael S. Saag, M.D., speaks with a patient, circa 1995.

The 1917 Building,  
first home of  
the 1917 Clinic,  
circa 1988.



Right: Eric Hunter, Ph.D., 1991.



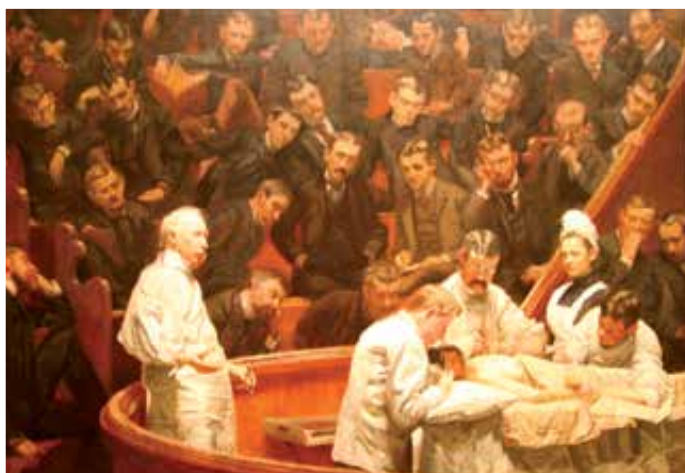
Above: Members of the UAB team participate in Birmingham's AIDS Walk through the Medical Center, circa 1992.

The same year that the 1917 Clinic opened, the UAB Center for AIDS Research (CFAR) was established as one of seven federally designated AIDS research centers. The Board of Trustees approved the center, which received an initial grant of \$2.9 million from the National Institute for Allergy and Infectious Diseases, on December 9, 1988. Eric Hunter, Ph.D., was CFAR's founding director. He served in that capacity until 2004, when Michael Saag succeeded him. Today the center earns more than \$90 million in research funding and includes more than 200 investigators drawn from nine UAB schools, 33 academic departments, and 10 divisions within the Department of Medicine. Over 25 years, CFAR has made several landmark discoveries about the inner workings of the disease and pioneered the testing of now-standard treatments.

Left: Some of the HIV/AIDS research team, 1986. Left to right (front): Beatrice H. Hahn, M.D., and Maria E. Taylor; (back) Michael S. Saag, M.D.; Lilly I. Kong, D.V.M.; George M. Shaw, M.D., Ph.D.; and Paul McNeely.







# Coat Check

By Charles Buchanan

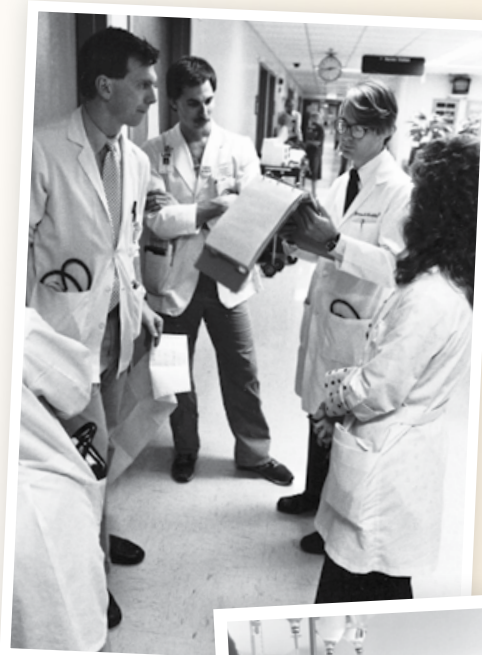
LIKE ALMOST EVERY OTHER ASPECT OF HEALTH CARE, the white coat has changed throughout time. Here, **Hughes Evans, M.D., Ph.D.**, senior associate dean for medical education and teacher of the history of medicine, offers some insights into its evolution:

“White coats evolved in part as a symbol of cleanliness in response to asepsis and the rise of bacteriology—both mid- to late 19th-century movements. Thomas Eakins’s two great medical paintings—*The Gross Clinic* (1875) and *The Agnew Clinic* (1889)—highlight the transition to white clothing in the surgical theatre.

“The length of the white coat used to reflect the seniority of its wearer, with students wearing short jackets, residents wearing longer jackets, and attendings wearing coats that went below the knee. The anti-authoritarian era of the late 20th century shifted this, and residents’ jackets lengthened.

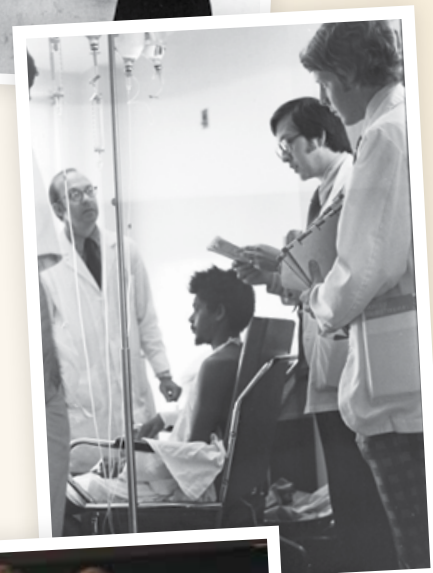
“When I was a resident, certain ‘bibles’ of the profession were clearly designed to fit in the coat pocket. Sanford’s book about antibiotic therapy was pocket-sized. The *Harriet Lane Handbook* (important in pediatrics) and the *Washington Manual* (for internal medicine) fit in the bottom pockets but slowly got thicker, making the fit tighter. Now that apps connect students to the important aspects of manuals like these, the coats have pockets designed to fit iPhones, and some have interior pockets sized for the iPad.

“The White Coat Ceremony began in 1993 as an initiative of the Arnold P. Gold Foundation, which promotes humanism in medicine, and today nearly all American medical schools hold such an event. The ceremony is designed to sanctify the transition from student to nascent physician.”



Above left: White coats were in use by the time Eakins painted *The Agnew Clinic* in 1889.

Above right and right: Throughout the 20th century, coat pockets bulged with medical manuals, stethoscopes, notes, and whatever else students and residents could stuff into them. Photos courtesy of UAB Archives.



Right and above: Members of the Class of 2016 receive their coats at last summer’s White Coat Ceremony.

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