Homecoming 2011 events to include comedy show, annual Gurney Derby

UAB will celebrate Homecoming Oct. 31 to Nov. 6 with a fun-filled week of games, activities, public service, parties, a parade, a comedy show and, of course, football. The theme this year is “In Every Blazer There’s a Fire.” More than 40 events are planned for students, alumni and the community, including UAB’s famed tradition, the Gurney Derby, in which teams of four compete while racing a gurney down a course on 13th Street South. The Gurney Derby is one of many traditions and events sponsored and presented by the UAB National Alumni Society.

Homecoming Week celebration highlights also will include the Blazer’s Fright Night, Blazer Hustle scavenger hunt and spirit competition, annual Stompdown/Spirit Show, dance and skit competition, Green Derby, in which teams of four compete while racing a gurney down a course on 13th Street South. The Gurney Derby is one of many traditions and events sponsored and presented by the UAB National Alumni Society. Homecoming Week celebration highlights also will include the Blazer’s Fright Night, Blazer Hustle scavenger hunt and spirit competition, annual Stompdown/Spirit Show, dance and skit competition, Green Derby, in which teams of four compete while racing a gurney down a course on 13th Street South. The Gurney Derby is one of many traditions and events sponsored and presented by the UAB National Alumni Society.

One of the week’s highlights will be the second annual Homecoming Comedy Show. This year’s show, scheduled for Tuesday, Nov. 1, features Ross Mathews Mathews, who got his start as Ross the Intern on “The Tonight Show with Jay Leno,” will bring the opinions and comedy he’s known for as a weekly panelist on E’s hit late-night talk show “Chelsea Lately” and as Ross the Intern live to the ASC stage. The show won’t be strictly stand-up — he’ll tell stories and share a multimedia presentation referencing pop culture, hot topics and references.

See HOMECOMING p3

‘Pacino, One Night Only’ in 2012 at Alys Stephens Center

American icon Al Pacino will grace the stage of UAB’s Alys Stephens Performing Arts Center as the guest artist for the center’s biggest annual fundraiser, the 2012 Viva Health Starlight Gala, at 8 p.m. April 21, 2012. Tickets will go on sale Nov. 7.

Pacino is one of the most respected actors in film history and one of the greatest movie stars of our time. His name signifies artistry and legendary talent in the world of Hollywood and beyond, and for one night only the charismatic, passionate actor will be live at the Alys Stephens Center to celebrate its 15th anniversary season, aptly titled “Flirting with Boundaries.”

During “Pacino, One Night Only,” the actor will discuss his life and legendary career and share backstage tales from a lifetime in film and theater with longtime friend Richard Brown, head of film studies at New York University. Pacino will also show before- seen film clips and retrospectives and answer questions from the audience afterward.

The elegant fundraiser benefits the arts programming, education and outreach programs and initiatives of the ASC. Tickets are $125 for regular seating; call 975-2787 or visit www.AlysStephens.org. Two special arts-supporter packages are available:

• The Hollywood A-Lister package, which includes premium seating for the performance and a glamorous red carpet-worthy after-party, $175.

• The VIP Oscar-Winning package, which includes an elegant pre-show dinner event, premium seating for the performance, a brief meet-and-greet opportunity with Pacino and a glamorous red carpet-worthy after-party. Call the ASC’s Development Office at 934-6196 for details. Only 250 of these tickets are available.

Mukhtar to build first human interactome map

Assistant Professor Shahid Mukhtar, Ph.D., was part of the first research team to build an Arabidopsis immune interactome map—a map of the tens of thousands of interactions that link proteins from pathogens and host and host immune proteins with other host proteins.

Now he hopes to be part of a team that will develop an interactome map for humans.

Mukhtar is working with Robert Kimberly, M.D., senior associate dean for research in the School of Medicine on the project. The success Mukhtar had in building the plant immune interactome gave him clues into ways pathogens can hijack cellular machinery to cause disease — and the confidence that the same sort of model can be built for humans.

“Human innate immunity forms the first and perhaps the most critical line of defense against invading pathogens,” Mukhtar says. “Any disorder in the immune system can result in disease, including autoimmune diseases, inflammatory diseases and cancer.

“It would be a tremendous achievement if we can find a way to reveal how human immune receptors can activate immune responses.”

Mukhtar and Kimberly will collaborate with scientists with the Dana Farber Cancer Institute in Boston, Mass.

The years of work building the plant immune interactome gives Mukhtar confidence the same can be achieved in humans. The findings from the plant interactome project were published in the July 29, 2011, issue of the journal Science and suggest that while pathogens employ a diverse arsenal of weapons, they attack only a limited number of cellular targets. The study mapped one-third of the interactome of proteins encoded by the genome of the plant Arabidopsis thaliana, or thale cress, a model plant. Arabidopsis has traits that make it useful for understanding the immune mechanisms in other plant species.

See MUKHTAR p4
WBHM’s Fall Fund Drive is under way

At WBHM 90.3 FM, listeners are important, but members are essential. Become a member, renew your support or make an additional gift by going to WBHM’s redesigned website, www.wbhm.org, or make your pledge during the fall fund drive Oct. 17-21. Whether it’s a membership of $60 or a Broadcasters Society gift of $1,000 or more, every donation is invaluable.

Help WBHM public radio, a listener-supported service of UAB, continue to add value to our community and make a difference in people’s lives.

Talking health session booked for Oct. 17

UAB’s HealthSmart Clinic and UAB Employee Wellness are partnering to provide one-hour educational sessions during Breast Cancer Awareness month to be held at the clinic, 301 20th St. North.

“Latest in Breast Cancer Research: Developing New Strategies for Aggressive Cases” will begin at noon Oct. 17. Feel free to bring a lunch. To make a reservation, call the HealthSmart Clinic at 996-2304 or email info@UABHealthSmart.org.

Parking Amnesty Day to be held Oct. 20

On Parking Amnesty Day, donate $5 to the Emergency Student Loan Program or five canned goods to United Way of Central Alabama and have a UAB Department of Parking & Transportation parking citation issued between Sept. 5 and Oct. 20 waived. This event — a USGA initiative — will be held from 10 a.m. to 2 p.m. Thursday, Oct. 20 on the Green.

Dahle to lead next Dialogues Oct. 20

Karen Bowen Dahle, Ph.D., an associate professor of Curriculum and Instruction, will discuss “Personal Stories of a Successful Individual with Autism” during the UAB Discussion Book Dialogue that begins at 11:30 a.m. Thursday, Oct. 20 in Heritage Hall Room 549. This event is free and open to the public. Information on this and future events are online at www.uab.edu/discussion-book. Direct questions to Anuitta Sizemore at jsizem@uab.edu.

Protect yourself against identity fraud

Is someone, somewhere, pretending to be you?

Sallie Wright, assistant vice president for information technology and information security officer, will examine “Identity Theft: Cloning, no Stem Cells Required,” at noon Wednesday, Oct. 26 in John N. Whitaker Building Suite 104. The one-hour presentation will explore security issues associated with theft of personal information.

Wright has more than 30 years experience in information technology and is a certified information systems security professional. She co-founded the Southeast Region Higher Education Security Consortium and is co-lead for EDUCAUSE’s Safeguarding Research Data Group.

This program is offered by The UAB Resource Center Employee Assistance Program and is open to all UAB and UAB Health System employees and their families. Space is limited; call 934-2281 to register. Also, visit www.uab.edu/rap for information about the current Meditation, Yoga and Tai Chi classes.

UAB RCC hosts Art of Giving fundraiser

UAB’s Research Civitan Club hosted its first Art of Giving fundraiser Sept. 22 to benefit the Autism Society and other local charities that help children with developmental disabilities. It featured art work and scientific images from UAB professors, postdoctoral fellows, graduate students, staff and local artists.

The RCC formed in 2010 to support the UAB Civitan International Research Center (CIRC) and to assemble UAB scientists, staff and members of the local community to participate in community-service projects to help individuals with developmental disabilities.

The CIRC will celebrate its 20-year anniversary with Civitan International from 5 to 7 p.m. Thursday, Oct. 20 in the center’s atrium.

The CIRC is a universitywide research center that was established through a $20 million/20-year commitment by Civitan International for a research center devoted to helping individuals with developmental disabilities.

Civitan International Research Center (CIRC) and to assemble UAB scientists, staff and members of the local community to participate in community-service projects to help individuals with developmental disabilities.

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Large team must think small to build the miniature realm

The poet William Blake once imagined seeing “a world in a grain of sand,” but Yogesh Vohra, Ph.D., sees a world of possibilities on a much smaller scale. Vohra, physics professor and director of UAB’s Center for Nanoscale Materials and Biointegration (CNMB), is leading an interdisciplinary research team working to synthesize and characterize nanoscale materials and structures and integrate them into practical biomedical devices and technologies.

These scientists, engineers and physicians are building and manipulating tiny structures that could greatly improve patient care—from new drug-delivery mechanisms to better implants for joints and blood vessels to boosting the success of organ transplants. But they will never see their handiwork with their own eyes, because they’re operating on the scale of atoms and molecules.

Nanoscale, nanotechnology and nanoscience derive their meaning from the Greek word nanos, meaning “dwarf.” A nanometer is a billionth of a meter, and nanoscale structures are constrained in at least one dimension to less than 100 nanometers. By comparison, a grain of sand is 500,000 nanometers, 10 times wider than a human hair, which is approximately 50,000 nanometers. A single red blood cell is approximately 9,000 nanometers.

But there is more to nanotechnology than size. Nano-level design forces researchers to redefine their understanding of matter itself. Nanomaterials possess novel physical, structural, chemical and biological properties and behaviors. For instance, they have a much larger surface area in relation to their mass compared to bigger particles. That means they respond to electricity and magnetic fields, for example, in ways that are only beginning to be revealed as scientists delve into this miniature realm.

Big-team efforts

It takes a large team to think small. “The CNMB bridges the gap between research laboratories, development and medical applications of nanoscale materials,” Vohra says. For example, a physicist or chemist may conceptualize an innovative nanoscale scaffolding structure for use in vascular grafts to repair compromised blood vessels. Input from clinical researchers and engineers guides the choice of materials that best can attract and encourage cell deposition within the vessels. Then UAB clinicians enter the picture, helping to transform this theoretical concept into a medical device that can be evaluated in human trials.

CNMB received grant support from the National Institutes of Health to hire two tenure-track faculty members for its biomedical research: S. Aaron Catledge, Ph.D., in the Department of Physics, and Eugenia Kharlampieva, Ph.D., in the Department of Chemistry. Catledge focuses on the architectural design and construction of nanomaterials—including nanodiamonds. Specifically, he focuses on creating patterns of nanodiamonds on the surface of artificial joints, using patented diamond coatings developed by Vohra’s lab, that could create orthopedic and dental implants that are more durable than current versions.

Kharlampieva uses nanoscale engineering to create synthetic polymers and biomimetic materials, which copy nature’s examples and also improve upon them by controlling their solubility and other properties.

Writing on the cell wall

Just like skyscrapers, nanoscale materials rely on a strong foundation. Catledge uses a process called dip-pen nanolithography (DPN) to build and craft nanostructures. The DPN instrument consists of an atomic force microscope with a probe on the end—the pen—that dispenses biomolecular “inks.” By alternating these inks in successive layers of patterns, researchers can strategically deposit everything from proteins to DNA, assembling increasingly complex structures.

This “bottom-up processing” could help scientists create customized nanoscale landscapes to influence protein function, cellular organization and tissue regeneration, Catledge says. He says nanoscale scaffolds could provide structure and direction for heart muscle cells to repair damaged heart tissue, and or “biomimicking” particles could be engineered to detect the presence of toxic chemicals, cellular antigens or disease precursors and warn of impending trouble.

Improving on nature

Kharlampieva, a polymer chemist, finds inspiration in nature—particularly the structure of polymers, the biological building blocks that form proteins, peptides, starches and nucleic acids.

Kharlampieva has worked with silkworm silk, adding metal nanoparticles to silk films to strengthen them for medical applications. Today, she is designing biomimetic polymer coatings that will interact with cell surfaces, which could aid drug delivery, sharpen biomedical imaging and strengthen the design of dental, joint and tissue implants.

The coatings, Kharlampieva says, form microcapsules that can transport drugs into cells quickly and easily. “In response to changes in pH or temperature, these smart drugs will open and release contents on demand,” she explains. But the coatings also can protect cells for transplantation.

Veronika Kozlovskaya, Ph.D., a postdoctoral associate in Kharlampieva’s group, is working with Anthony Thompson, Ph.D., director of UAB’s Division of Transplantation Research and Development, to encapsulate insulin-producing pancreatic islet cells, a potential treatment for diabetes. Because donor islet must be cultured prior to transplantation, they can disintegrate or fuse together and die. “Our design challenge,” Kharlampieva says, “is to create a coating—like a nylon stocking—to protect the islet’s integrity.”

Read more from UAB Magazine online at www.uab.edu/uabmagazine
Researcher aims to create sustainable food resources

A ll species of plants, wild and cultivated alike, are subject to disease — a fact that can be devastating to an economy, wildlife and humans. Plant diseases lead to reduced crop yields, decreased nutritional value and sometimes contaminated food and feed with toxic compounds. The result is millions of dollars in annual economic losses in the United States and tens of billions in losses worldwide.

But genetically modifying crop plants to be disease-resistant by adding one extra gene could yield plants that are better equipped to fight stressors and diseases, especially bacterial ones.

Karolina Mukhtar, Ph.D., assistant professor of biology, says it could be possible.

“And it could save millions of dollars that are lost every year in the United States because of pests and pathogens,” she says. “Even more in Third World countries. Today’s global population of nearly 7 billion is expected to jump to 10 billion by 2050, and 1 billion people worldwide already are suffering from malnutrition.”

“Engineering plants to create a better product under stress conditions is the way to feed the world and ease the burden on poor, underdeveloped nations,” Mukhtar, who came to the biology department in fall 2010, is UAB’s only plant researcher studying the possibilities of providing adequate, sustainable food resources and disease-resistant crops using genetic engineering. Her lab does not develop new crop varieties, rather, she focuses her genetic research on Arabidopsis thaliana, a small plant in the mustard family. Its genome was sequenced 11 years ago.

“In our laboratory, we are using cutting-edge technologies, like microarrays, proteomics, next-generation sequencing and robotic-assisted screens,” she says. “We also use systems-level and genomic approaches to answer important questions in plant immunity.”

That research has proved the important role that analysis of plant genomes can play in understanding basic principles of biology — both its direct application in agriculture and also relevance to humans, she says.

“There is a need for substantial basic research in labs like mine using Arabidopsis,” Mukhtar says. “We have all the genetic tools we need. We can make transgenics. We have collections of molecular tools and markers. The availability of molecular tools for Arabidopsis is equivalent to any animal model. Once you know what gene causes certain trait in Arabidopsis, you can go to any other plant you want and you’ll be able to find an equivalent gene in that plant. Instead of looking for a needle in a haystack, you already know where to look.”

To understand the molecular basis of disease resistance in plants, Mukhtar’s lab studies two major groups of plant pathogens — biotrophic and necrotrophic. One of her projects is the transcriptional and post-transcriptional regulation of plant immunity and cellular stress.

Endoplasmic reticulum stress (also known as Unfolded Protein Response or UPR) is a ubiquitous mechanism observed in all eukaryotic organisms from yeast to humans that fine-tunes the folding capacity of the endoplasmic reticulum proteins under stress.

“Our laboratory is a pioneer in unraveling at least two out of three major branches of plant UPR in connection with pathogen and biotic stresses such as bacterial infection,” Mukhtar says.

In Mukhtar’s previous work at Duke University, she identified a transcription factor that acts as a master molecular switch for activation of pathogen-induced endoplasmic reticulum-centered defense response.

“Basically, we have master switches in the cells that can turn genes on or off,” she says. “If you can find a master switch like that, you can control hundreds of genes at the same time. I identified one of those master switches earlier. Now, we’re trying to find nodes that control small players beneath the master switch, so when it’s off, those genes stay down.”

By knowing these few key regulatory genes needed to create broad-spectrum resistance, the potential is there to genetically modify a crop plant by putting one extra gene in to it.

“That could give it a great many options,” Mukhtar says. “With different pathogens, it will be able to fight off stressors better in the field. It will help with diseases, mostly bacterial diseases.”

Resistence to necrotrophic pathogens

Mukhtar also studies necrotrophic fungal pathogens, which affect many agronomically important plant species including grapes and berries and cruciferous crops such as canola. These pathogens cause millions of dollars in losses in the United States each year.

These fungal pathogens actively kill host tissue prior to colonization, usually through the secretion of a cocktail of mycotoxins.

“We are generating mutants that are either insensitive or hypersensitive to one of these major toxins and correlate this phenotype with disease resistance,” Mukhtar says.

“Hundreds of mutants are in the pipeline and at least in one case we can demonstrate that mutant that is insensitive to toxin is also fully resistant to this deadly necrotrophic pathogen.”

“We are very confident that we will have a great resource of novel, resistant mutants,” she says. “Obtaining this information can be extrapolated to the crop plants in order to breed more resistant varieties.”

MUKHTAR

CONTINUED from page 1

“Just to get where we are today we did robotic screening of millions or combinations — at least more than 12 million,” says Mukhtar, who came to UAB from the University of North Carolina at Chapel Hill in fall 2010. “In all that work, during the course of five years, I never got frustrated or lost hope because you could see an interesting map developing that may provide a path to a life-changing discovery.”

Kimberly says the success of plant interactome map shows the value of model organisms to science and gives hope to those fighting autoimmune diseases.

“The success of this study shows how valuable model organisms can be in understanding fundamental principles in biology,” says Kimberly. “We are now looking to build a human interactome at UAB in our continuing efforts to fight diseases such as arthritis, diabetes, Crohn’s and cancer.”

Mukhtar’s goal is to work with Kimberly to build the human interactome map using at least 16,000 human proteins to see how the receptors interact with other proteins in humans and how the different variances proteins from the pathogen attack on some proteins in humans.

“In order to fight back with a pathogen, we need to find out where they attack inside the host cell,” Mukhtar says. “If we wanted to do genetic or chemical manipulation to interfere with those types of interactions, we need to first fine out where the pathogen attacks the human.”

Biofuel project

Mukhtar also will continue work on another research project of significance — the creation of biofuel using algae.

Biofuel production is an inefficient process. Currently, biofuels derived from corn and other feed crops reduce the amount of arable land that can be used for other important purposes. Mukhtar says using biofuels derived from algae is potentially more efficient and has a much lesser impact on the environment.

“Microalgae can grow rapidly and produce more fuel on a per-acre basis than other sources of biofuels,” Mukhtar says. “Algae thrive in non-arable areas of both marine and freshwater. In this way, algae can be used in areas where other organisms would not survive. In fact, algae can use higher concentrations of carbon dioxide in order to grow. Mass algae cultures are a biofuel source, producing it in mass concentrations of carbon dioxide in order to grow. Mass algae cultures are a biofuel source, producing it in mass

Despite the advantages algae offers as a biofuel source, producing it in mass quantities has proven inefficient.

Mukhtar wants to improve the process in his lab. He is doing so by creating mutant algae strains that overproduce lipids, which is the source of biofuel.

“To achieve this, we use flow cytometry cell-sorting and genomic isolation of lipids,” he says. “Additionally, we study the lipid pathway at the gene level using cutting-edge technology such as real-time PCR, next-generation sequencing and comparative transcriptomics. This will lead to an improvement in the use of algae as biofuel in the near future.”

Biology Assistant Professor Karolina Mukhtar, right, and student study the possibilities of providing adequate, sustainable food resources and disease-resistant crops using genetic engineering. Mukhtar’s lab does not develop new crop varieties; rather, she focuses on the genetic research on Arabidopsis thaliana, a small plant in the mustard family. Its genome was sequenced 11 years ago.
Shalev emphasizes outreach as new head of Diabetes Center

Myths and misconceptions about diabetes often lead people to make poor decisions based on bad information, says Ananth Shalev, M.D., director of the UAB Comprehensive Diabetes Center. Shalev says the errors are costly: Diabetes kills more people each year than breast cancer and AIDS combined. More than 25 million American children and adults live with diabetes, according to the American Diabetes Association, and the Centers for Disease Control and Prevention projects that one in three Americans will have this disease by 2050.

She identifies misconceptions about the causes of and treatment for diabetes.

**Myth: Sugar or eating sweets is the cause of diabetes.** It’s not the sugar; it’s the effect of too many calories of any kind, Shalev says. Obesity is a major risk factor for Type 2 diabetes. Lack of exercise is another major contributor, especially if a sedentary lifestyle is combined with large portions of high-calorie, fatty food.

**Myth: Only obese people get diabetes.** While obesity is the strongest risk factor for Type 2 diabetes, patients with Type 1 diabetes or other less common forms often are very lean,” Shalev says. “I have seen several triathletes who are Type 1 diabetics.”

**Myth: Type 1 diabetes, often called juvenile diabetes, only affects the very young.** Type 1 diabetes can affect people at any age, Shalev says, though it is more common in younger age groups. “Excessive thirst, urination and weight loss should always be warning signs to anyone of any age and warrant a doctor’s visit,” she adds.

**Myth: There is no treatment for Type 2 diabetes.** Some people look at their family tree and their waistline and resign themselves to becoming diabetic. “There are people who have a constellation of genes that put them at a higher risk,” Shalev says. “But that doesn’t mean they will develop diabetes.” In most cases, Type 2 diabetes can be delayed and sometimes even prevented with adequate lifestyle modifications, including exercise and healthy diet, Shalev says. Monitoring and early intervention are also important.

**Myth: Starting insulin injections in Type 2 diabetes is the beginning of the end.** Not true, Shalev says. Patients often panic and resist when told injections are necessary, but it’s the next logical step if oral medications don’t work. Shalev says emerging research suggests that starting insulin treatment early also can reduce strain on insulin-producing cells. And, the need for insulin injections is not always permanent; some patients with Type 2 diabetes eventually can stop taking insulin if they also make lifestyle changes.

**Myth: Kids with diabetes can’t have anything sweet.** People with diabetes once were discouraged from having any sweets, but advances such as fast-acting insulin therapies and monitoring protocols allow for the occasional treat. A child can have a piece of birthday cake, for example, as long as they receive the proper insulin dose beforehand and are monitored closely. “It’s an intensive insulin regimen, so patients have to check more frequently, but they gain more freedom,” Shalev says.

For more information go to diabetes.dom.edu

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**Disspelling diabetes myths**

Myths and misconceptions about diabetes often lead people to make poor decisions based on bad information, says Ananth Shalev, M.D., director of the UAB Comprehensive Diabetes Center. But it is the prospect of success outside the lab and clinic that excites her.

“More than 30 percent of people in Alabama are obese, and another 30 percent are overweight,” says Shalev, the new center director and professor of medicine in the Division of Endocrinology, Diabetes and Metabolism.

UAB programs delivered directly to people throughout the state could make immediate and meaningful differences in many lives, she says.

**Expansive view**

Outreach is one aspect of Shalev’s expansive view of diabetes research and care. She says it is important for people to understand genetic and other factors influence the development of diabetes. “Type 1 diabetes is caused by an autoimmune process that destroys the cells in the pancreas that produce insulin, the hormone responsible for maintaining normal blood sugar. Type 2 diabetes is the result of insulin resistance, which most often is caused by obesity,” she says.

“It’s a complex disease that requires an interdisciplinary approach.”

Shalev comes to UAB from the University of Wisconsin-Madison, where she directed endocrinology, diabetes and metabolism research and conducted groundbreaking studies on cellular processes that lead to pancreatic beta-cell death associated with diabetes.

Now she heads a center with more than 150 faculty members dedicated to combining diabetes research, training and clinical care — the result of collaborative efforts involving UAB, Children’s Hospital and the Birmingham community. Shalev also is the holder of the Nancy R. and Eugene C. Gwaltney Family endowed Chair in Juvenile Diabetes Research.

The Comprehensive Diabetes Center is only a few years old, Shalev says, so there is much work to do. In addition to innovative collaborative research, recruiting more scientific talent and expanding educational programs for the public and professionals, Shalev also wants to expand existing therapeutic options for patients.

The center is participating in a new free health center in downtown Birmingham that could help reduce diabetes levels and detect other health issues. UAB HealthSmart, located on the corner of 20th Street and Third Avenue North, offers free services such as health screenings and personalized disease-prevention programs. It’s an initiative of the UAB Minority Health & Health Disparities Research Center and the UAB Division of Preventive Medicine.

Shalev also wants to leverage opportunities available through the UAB Center for Clinical and Translational Science and capitalize on the wealth of research data produced by the UAB Division of Preventive Medicine.

“Diabetes complications will be another focus,” Shalev notes. “They take a huge toll in terms of human suffering, and treating them builds on UAB’s strengths.”

She points to the UAB Multidisciplinary Comprehensive Diabetes Clinic, the only clinic in the state offering patients one-stop care from experts including ophthalmologists, neurologists, and kidney specialists.

**Targeting TXNIP**

“In terms of research, beta-cell biology will be one major aspect because it’s so critical for both types 1 and 2 diabetes,” says Shalev, who earned her medical degree from the University of Basle, Switzerland, and completed research fellowships at Harvard and the National Institute of Diabetes and Digestive and Kidney Diseases. The connection between beta-cell death and diabetes “has been well established, but no one knows the exact factors that are involved,” she says.

However, in conducting the first human pancreatic islet microarray study, Shalev identified thioredoxin-interacting protein (TXNIP) as an important force in diabetic beta-cell death. She later discovered that suppressing TXNIP-protected pancreatic beta cells prevented the development of both types of diabetes. “We’re convinced this is a great target,” she says.

Lowering TXNIP prevented diabetes in severely obese lab mice, which is exciting because “it means that the reduction of TXNIP could unlink obesity from diabetes,” Shalev says.

Shalev and her UAB colleagues are also keenly interested in studying the role TXNIP might play in other systemic effects of diabetes. For example, her team found significantly elevated TXNIP levels in the hearts of mice and humans with diabetes, which means that the protein may play a role in diabetic cardiomyopathy. She hopes that the research will one day lead to new drugs that could protect and promote a patient’s own beta cells while preventing or treating diabetes complications.

For more information go to diabetes.dom.edu

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**CamPuS NeWS**

Oct. 17, 2011 UAB Reporter 5
A new partnership between the Genetics and Genomic Sciences (GGS) Graduate Program and research juggernaut HudsonAlpha Institute for Biotechnology in Huntsville will substantially increase UAB’s expertise and exposure in the area of genomics and give students the opportunity to engage in large-scale genomic analyses.

Dan Bullard, Ph.D., director of the genetics and genomic sciences graduate program and professor in the department of genetics, says this partnership will significantly strengthen the graduate program and provide students an opportunity to perform research rotations and their dissertation work in one of HudsonAlpha’s high-tech investigator laboratories.

“HudsonAlpha is a world-class facility that is attracting high-quality investigators to Huntsville,” Bullard says. “The research they can accomplish is truly amazing. They are sequencing and analyzing genomes from humans, animals and other organisms and routinely use the most advanced state-of-the-art genomic technologies that make many in the science community envious. And their scientists aren’t just doing these things because they can. They’re applying these approaches to better understand the genetic basis for complex biological problems including different diseases such as cancer.”

UAB Graduate School Dean Bryan Nor, Ph.D., says the partnership will give faculty and students access to some of the highest-quality researchers and tools available in the field of genomics.

“The opportunity for UAB graduate students to choose a dissertation advisor from among the world-class investigators at HudsonAlpha, many of whom are engaged in cutting-edge research different than that being performed by any UAB faculty, is truly unique,” Nor says. “We anticipate that being able to provide this option to prospective students will prove to be a potent recruitment tool.”

HudsonAlpha, a non-profit organization, is the cornerstone of a 150-acre biotech campus strategically located in Cummings Research Park, the nation’s second-largest research park. Researchers at HudsonAlpha are making discoveries and transforming new knowledge into solutions to make significant advancements in health, well-being and livelihood. HudsonAlpha has more than 20 ongoing collaborations with HudsonAlpha, including in the areas of breast cancer, metabolism and molecular evolution to address questions in practical biology and possibly broaden our view of evolutionary theory at large.

“Having access to the incredible skill sets of my mentor, Dr. Cooper, and other HudsonAlpha investigators is a huge boost to my career,” Weaver says. “From a training perspective, the research performed here is top-notch, and it certainly helps to be working with and around investigators who are so well-recognized and well-published. Since HudsonAlpha houses a number of small biotech startups, there is also the potential for easily connecting with and transitioning into the private sector, an option that I am keeping open.”

Bullard says with the further development of rapid and inexpensive genomic technologies, including DNA sequencing, there will be an increase in the number of job opportunities at universities, medical centers, government labs and in the private sector. The opportunity for UAB students to receive training here and at HudsonAlpha will give them the best scientific training in genetics and genomic analyses.

Weaver says he hasn’t been sitting on the sidelines since arriving to train at HudsonAlpha. He’s been involved in research, and the sense of camaraderie and collaboration has been eye-opening.

“You are given the feeling of working toward a common cause,” Weaver says.

Incredible access

UAB graduate student Ben Weaver began working in Greg Cooper’s HudsonAlpha lab this summer.

Weaver, a Birmingham native and an alum of UAB’s undergraduate program, hopes to use bioinformatics and theories of molecular evolution to address questions in practical biology and possibly broaden our view of evolutionary theory at large.

“HudsonAlpha is preparing him to work either in academia or the private sector,” Weaver hopes to accomplish this in an academic setting, but says he believes HudsonAlpha is preparing him to work either in academia or the private sector.

A recent partnership between the GGS Graduate Program and HudsonAlpha will give UAB students like Ben Weaver, standing, the opportunity to engage the highest-quality researchers and tools available in the field of genomics. Weaver has been working in Greg Cooper’s lab at HudsonAlpha since the summer.

“We have been absolutely friendly, supportive and brilliant. I am truly fortunate to be working there,” Weaver says. “HudsonAlpha is preparing him to work either in academia or the private sector.”

The Genetics and Genomic Sciences Graduate Program is part of UAB’s Graduate Biomedical Sciences (GBS) student program, which is directed by Rich. The Genetics and Genomic Sciences is one of eight different themes that make up the GBS.

Students can elect to do their graduate training in one of seven investigator labs. In addition, these investigators all have adjunct appointments in the UAB Department of Genetics. They also will participate in other graduate student-related activities, including teaching, serving on thesis committees and applicant interviews.

Weaver says the teaching aspect of the collaboration is very important to HudsonAlpha investigators.

“A number of us have adjunct faculty positions at other universities,” Gunter says. “We really like to teach, and we like the energy of having graduate students around.”

Plans to expand the collaboration are under way. UAB and HudsonAlpha will work on developing classes together with the idea to use available technology to teach students training at UAB and HudsonAlpha simultaneously.

“We hope to develop a genomics or bioinformatics class here and stream video so UAB students in Birmingham can take the class also,” Gunter says. “We will also offer some upper-level seminar classes. We have weekly seminars already, and students at UAB could watch those from their campus. This relationship is really important to us, and we want to make sure we do all we can to make it really strong.”

“This is a win-win partnership for UAB, HudsonAlpha and our current and future students,” Bullard says. “We’re excited for what the future holds.”

Dancing with the Silver Stars II event set for Nov. 7

Dancing with the Silver Stars II will be held at 6 p.m. Monday, Nov. 7 at The Club. Funds raised will support the UAB Center for Aging in its effort to maintain the health, independence and well-being of older adults — and the people who care for them.

Anyone who has faced the challenge of caring for an older adult understands the need to know how to keep that loved one mentally sharp, physically mobile, safe and independent for as long as possible.

Dancing with the Silver Stars II is a high-energy salute to senior citizens.

The event pairs local corporate and civic leaders with area professional dancers for a spirited celebration of aging. Local celebrity dancers are:

- Frank Falkenburg, managing director, NBC Securities, Inc.
- Harold Jones, Ph.D., dean, UAB School of Health Professions
- Emily Osura, M.D., professor emerita, UAB Department of Dermatology
- Barbara O’Neal, community volunteer
- The Hon. Oliver Robinson, Alabama House of Representatives, president, Robinson & Robinson Communications, LLC
- Jane Kaul Wilson, community volunteer

In addition to star-studded dance routines, attendees will enjoy special entertainment by the Birmingham Sugar Babies, “a dancing group of ladies ages 53 to 72 years young.” The event also includes a cocktail reception and dinner.

Dancing with the Silver Stars II is open to the public. For ticket information, contact Jo Self, joself@uab.edu, 975-5659 or visit www.medicine.uab.edu/dwts.
Summit delivers new techniques in medical education

Gus Heudebert, M.D., has long had a desire to help clinician educators improve their teaching skills and strategies. But Heudebert, co-program director for internal medicine residency and vice chair of education and faculty development in the Department of Medicine, needed someone with the energy and equal desire to facilitate the program. Carlos Estrada, M.D., who had heard Heudebert talk about the idea for two years, decided to help make it a reality. The general internal medicine faculty also embraced the idea, and the first Faculty Development Education Summit was held Sept. 23.

“Carlos was a catalytic converter. He just seized the moment and said, ‘All right then, let’s do it,’” Heudebert says. “We put together a team of Division of General Internal Medicine educators, and it snowballed. This was a true group effort. Each of us contributed our unique interests, passion and expertise.”

“In past years, internal medicine faculty have presented similar faculty-development workshops at national and regional meetings,” Estrada says. “In essence, what every clinician educator needs to know to be the best teacher.”

Faculty from UAB and campuses in Huntsville, Tuscaloosa and Montgomery attended the summit, which specifically focused on graduate medical education. The slides for all presentations and workshops are available online at www.dom.uab.edu/2011/09/presentations-1st-annual-education-summit.

“It was energizing and rewarding to see the many dedicated faculty who took time to attend,” Estrada says. “We received many spontaneous congratulatory comments. We knew we wanted to do another one next year, and the overall comments cemented that. It actually gave a stronger sense of purpose for the faculty attending and those presenting. Everyone was energized.”

The summit aligns perfectly with the new Accreditation Council for Graduate Medical Education — the regulatory body for all post-medical school education at UAB. Institutions and programs with a clean accreditation review are approved to continue training staff for five years.

Heudebert says expectations for training and evaluating faculty are not the same as they were a few years ago. And, he says, the methods continue to change quickly.

“This kind of teaching skills and strategies for clinical educators is not easy to find in the New England Journal of Medicine or the usual journals most clinicians or researchers tend to get their hands on,” Heudebert says. “Much of the information about faculty development in medical education has to do with reading outside the usual venues or attending conferences or workshops for faculty development. In many ways, dissemination of knowledge and new techniques in medical education is not easy to get your hands around.”

Enrollment for the inaugural summit was restricted to invited faculty and clinician educators. Special invitations also were extended to five fellows and residents and five administrative support staffs. Estrada hopes to include more faculty and clinician educators next year.

UAB is fortunate to have strong teachers in general internal medicine, Estrada says. The division has been a leader in medical education for more than a decade, and its faculty have been involved in national curriculum design and presented workshops on developing curricula and other skills.

“In past years, internal medicine faculty have presented similar faculty-development workshops at national and regional meetings,” Estrada says. “In essence, what every clinician educator needs to know to be the best teacher.”

UAB Department of Medicine faculty are eager to develop new insights and learn new techniques to help them train — and be — better physicians,” Heudebert says. “We have the right audience of eager individuals who want to do better at their jobs, and a group of individuals who can deliver solid ideas.”

Next year, the Department of Medicine plans to expand the audience to other primary-care areas, including pediatrics, obstetrics and gynecology, and the team has submitted grants to fund additional initiatives.

“We also have a great interest in promoting research and innovation in medical education, and next year we hope to showcase this work for a full week,” Willett says. “It would enable us to expand faculty development, give people an opportunity to present their educational work, and enable us to invite national experts in medical education to visit UAB.”

Nine faculty from the Division of Internal Medicine led education workshops during the event, including Analia Castiglioni, M.D., associate professor; J.R. Hartig, M.D., associate professor and program director, medicine/polymers residency program; Ryan Kraemer, M.D., assistant professor; Stan Massie, M.D., associate professor; Jason Morris, M.D., assistant professor and clerkship director for internal medicine; Erin Snyder, M.D., assistant professor, Director Women’s Health track; and Lisa Willett, M.D., associate professor and co-program director, internal medicine residency.

UAB inaugural member of new NIH research network

UAB has been named one of 25 inaugural members of NeuroNEXT, a neuroscience research consortium created to rapidly advance new treatments for neurological disorders. NeuroNEXT is sponsored by the National Institute of Neurological Disorders and Stroke, one of the National Institutes of Health.

“NeuroNEXT is a conduit for translational research — taking new discoveries from the laboratory bench and translating them into therapies for patients,” said L. Burt Nabors, M.D., professor of neurology and principal investigator for UAB. “The network should speed development of promising new medications and more quickly gauge their effectiveness.”

Network members will meet regularly to chart the course of neuroscience research across the nation.

Member institutions will be able to join trials proposed by others in NeuroNEXT, which will help create the critical mass of patients needed to quickly and efficiently determine if a new therapy is working.

“It won’t be just UAB testing a new medication for Parkinson’s disease, for example,” said Nabors. “NeuroNEXT members around the country will be able to easily join a study, allowing investigation in a large number of diverse patients that should produce quicker, more complete results.”

Nabors and co-principal investigator Bhavna Bashir, M.D., associate professor of neurology, say that UAB’s long-standing track record for neuroscience research is key to the university’s inclusion in the network.

“UAB is known for excellence in neurology, neuropsychology and neurobiology,” said Bashir. “Our commitment to translational research is strong. And we are geographically positioned to recruit previously under-studied ethnic populations.”

Nabors and Bashir believe UAB’s strong programs in movement disorders, epilepsy, demyelinating diseases and Alzheimer’s disease will be good targets for initial studies.

NeuroNEXT also includes a clinical coordinating center and a data coordinating center. Each clinical site will work under a seven-year grant, at just under $300,000 per year for administrative costs. Centers must achieve certain milestones along the way to remain in the network, including participating in trials and meeting recruitment goals.
2011 HOMECOMING EVENTS

Sunday, October 30

Paint the Town
Sidewalk and Car Chalking
2:00 p.m.
Hill University Center Concourse
For UAB students

Monday, October 31

School of Health Professions Student Kick-off Breakfast
8:00 – 10:00 a.m.
School of Health Professions Building Lobby
For School of Health Professions students, faculty and staff

Blood Drive
10:00 a.m. – 4:00 p.m.
Mervyn H. Sterne Library, Room 163
For School of Health Professions students, faculty and staff

Tie-Dye T-Shirts
11:00 a.m. – 1:00 p.m.
Hill University Center
For UAB students

The Flaming Door Competition and Ring of Fire
2:00 p.m.
School of Nursing
For School of Nursing students, alumni, faculty, staff, and guests

Blaze’s Fright Night
6:00 – 10:00 p.m.
Hill University Center Lobby/Great Hall
For UAB students

Blazer Hustle
7:00 – 9:00 p.m.
Hill University Center Concourse
For UAB students

Tuesday, November 1

Annual Homecoming Building Decoration Competition
11:00 a.m. – 1:00 p.m.
UAB Campus

Photos with Blaze
11:00 a.m. – 2:00 p.m.
Hill University Center Lobby
For UAB students

School of Business Celebration Luncheon
11:00 a.m. – 1:00 p.m.
Business & Engineering Complex Lawn
For School of Business students, alumni, faculty and staff

School of Nursing Building Decoration Cookout
11:30 a.m. – 1:00 p.m.
In front of the School of Nursing
For School of Nursing students, alumni, faculty and staff

American Marketing Association - UAB Student Chapter’s Dine Your Favorite Professor
Immediately following the building decoration competition School of Business
For School of Business students, alumni, faculty and staff

Homecoming Comedy Show
7:00 p.m.
Aly Stephens Center
Featuring Ross Matthews, a.k.a. Ross the Intern
For UAB students, alumni, faculty, staff and guests

Wednesday, November 2

Gurney Derby “Cocoa & Cookies”
11:30 a.m. (right before the Gurney Derby)
Mervyn H. Sterne Library patio
For UAB students, alumni, faculty, staff and guests

Gurney Derby
 Noon
33rd Street South, between 8th and 10th Avenue South
For UAB students, faculty and staff

BBQ/Green and Gold Games
Immediately following the Gurney Derby
UAB Mini Park
For UAB students, faculty and staff

School of Health Professions Fall Festival
Includes a band, food, and activities
1:00 – 5:00 p.m.
Husson Lot, behind Unity Park, next to the School of Health Professions Building
For School of Health Professions students, alumni, faculty and staff
Please contact SPEvents@uab.edu for more information.

Psychology Department Annual Alumni Awards and Lecture
Melky Johnson, Ph.D., Distinguished Alumni Scholar Award and Sherr Van Pelt, Distinguished Alumni Service Award
3:00 p.m.
Spencer Honors House
For College of Arts and Sciences students, alumni, faculty, staff, and guests

Stampdown/Spirit Show
7:00 p.m.
Campus Rec Center
For UAB students

Thursday, November 3

Trade ‘N Day
10:00 a.m. – 2:00 p.m.
UAB Campus Green
For UAB students

School of Nursing Blazing Chili Cook-off, Tailgate Party
11:00 a.m. – 1:00 p.m.
School of Nursing, Room 1020
For School of Nursing students, alumni, faculty and staff

University Honors Program Annual Homecoming Lecture
7:00 p.m.
Spencer Honors House Sanctuary
For all UAB students, alumni, faculty, staff and guests

Blaze the Night
Bonfire and Fight Song
7:00 p.m.
UAB Mini Park
For UAB students

Friday, November 4

Annual Homecoming Parade
Noon
UAB Campus

School of Engineering Parade Pizza Party
Immediately following the Homecoming Parade
Hothe Engineering Building Lobby
For UAB School of Engineering students, alumni, faculty and staff

School of Nursing Parade Pizza Party
Immediately following the Homecoming Parade
School of Nursing, Room 1020
For School of Nursing students, alumni, faculty and staff

2nd Annual Nuclear Medicine Technology Alumni Event
Benefiting the Michael A. Thompson Scholarship Fund
6:00 – 9:00 p.m.
Vulcan Park and Museum
For all Nuclear Medicine Technology alumni, faculty, staff and friends. Please contact SPEvents@uab.edu for ticket information.

Annual Homecoming Softball Tournament
Schools of Nursing, Business, Education and the College of Arts and Sciences
6:00 p.m.
UAB Intramural Fields
For UAB students, alumni, faculty and staff

UAB Women’s Basketball v. UAH (Exhibition)
7:00 p.m.
Bartow Arena

Blaze’s Best Dance Crew
7:00 – 10:00 p.m.
Campus Recreation Center
For UAB students

Saturday, November 5

UAB Volleyball v. UTEP
1:00 p.m.
Bartow Arena

Blazer Village Opens
2:00 p.m.
Ligon Field (north end of grounds, across from Gate 17)
National Alumni Society Tailgate, School of Nursing Alumni Tailgate, College of Arts and Sciences Tailgate, School of Education Tailgate

Homecoming Competition Awards
4:45 p.m. at the National Alumni Society tent
For all Blazer friends and families

Blazer Walk
4:00 p.m.
UAB Football v. Houston Homecoming Game
6:00 p.m.
Legion Field

Mr. and Ms. UAB Announced
Hallman presentation