THE UNIVERSITY OF ARIZONA
College of Medicine

The University of Arizona
Steele Children's Research Center
Department of Pediatrics
PO Box 245073
Tucson, AZ 85724-5073

2012 Events

JANUARY 29
Runway for Research Fashion Show
Zuzi's Theater

MAY 12
PANDA 13th Annual "Children Helping Children" Fashion Show
The Phoenician, Scottsdale

JUNE 16
Fathers of the Year Awards Gala
Loews Ventana Canyon Resort

AUGUST 18
Marisa Ann Gallego Foundation
Location to be Announced

AUGUST 24
Tee Up For Tots Golf Tournament
Hilton Tucson El Conquistador

SEPTEMBER 8
Diamond Children's/Steele Center Gala
JW Marriott Starr Pass Resort & Spa

FALL 2012
Kids of Steele Miniature Golf Tournament
Golf N' Stuff

STAY *Connected* TO THE STEELE CENTER

Learn more about what's happening at the Steele Center through our website:
www.steelecenter.arizona.edu

Stay current with our e-newsletter.
Sign up at: www.steelecenter.arizona.edu

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Follow us on Twitter

Our logo is an incomplete puzzle, with a child in the center. The pieces to the puzzle represent everyone who is integral to improving children's health…doctors, nurses, medical staff, researchers, families, volunteer groups, donors and others. We all can be a piece of the puzzle, working together to improve children's health. The puzzle isn't finished, because we can't do it without YOU. Thank you for your support! To learn more about the Steele Center, please visit **www.steelecenter.arizona.edu.**

ARIZONA

STEELE CHILDREN'S RESEARCH CENTER *Review* 2011

MESSAGE FROM THE *Director*

Dr. Ghishan with his patient, Emily.

Dear Friends,

2011—what a year. On January 8, a senseless shooting killed six precious individuals and wounded 13, including Congresswoman Gabrielle Giffords. This heartbreaking event shook our Tucson community and nation to the core. It also reminded us how precious life is and the amazing ability of the human spirit to heal from seemingly impossible odds.

Although the pain of this tragedy lingered throughout the year, there were bright spots as well, and so much to be thankful for.

In July, University Medical Center and University Physicians Healthcare completed the integration process and officially became **The University of Arizona Health Network.** University Medical Center is now **The University of Arizona Medical Center – University Campus** and Diamond Children's Medical Center is now **The University of Arizona Medical Center – Diamond Children's.** UPH Kino Hospital is now **The University of Arizona Medical Center – South Campus.**

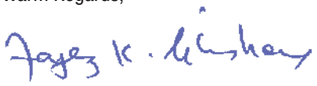
This integration brings Diamond Children's and the Steele Center even closer as we work together within the network to improve children's health through unsurpassed clinical care and groundbreaking research. We recruited new physician-scientists and pediatric subspecialists to expand the clinical services at Diamond Children's and affiliated clinics.

Even in the midst of decreased funding from the National Institutes of Health (NIH)—the federal funding agency for medical research—some of our faculty received incredible grants. **Dr. Sydney Rice** secured a $3.6 million LEND grant and **Dr. Michael Daines** was awarded a $1.25 million NIH grant—to name just a few. Their accomplishments—and others—are highlighted in the following pages.

Like the rest of the country, Arizona faces serious economic issues. Decreases in funding at the state level add to our fiscal challenges. Despite these obstacles, our resolve is strong. We continue to find ways to innovate and streamline costs, while maintaining exceptional patient care and exceling in groundbreaking research. This makes your investment in our work more important than ever. Your contribution—whatever the amount, makes an extraordinary difference.

Please know how grateful I am for you. Your commitment to the Steele Center in our quest to improve children's health energizes and inspires me. Thank you!

Warm Regards,



Fayez K. Ghishan, MD
Horace W. Steele Endowed Chair in Pediatric Research
Director, Steele Children's Research Center
Professor and Head, Department of Pediatrics, the University of Arizona College of Medicine
Physician-in-Chief, The University of Arizona Medical Center – Diamond Children's

Linda Lewandowski, executive director of AEMP and Greg Bayle of the Casas Adobes Elks lodge, working at the Fourth Avenue Street Fair.

ARIZONA ELKS MAJOR PROJECTS *Reaches* $5 MILLION IN DONATIONS

In December 2011, with a donation of $125,000, the **Arizona Elks Major Projects** reached $5 million in total contributions to the **Steele Center.**

"This is an incredible achievement," says **Dr. Ghishan.** "The Elks have made a tremendous impact on children's health throughout Arizona by funding research, education and clinical care programs at the Steele Center. We are so grateful for their support."

In addition to making personal donations, the Elks have held golf tournaments, sold raffle tickets, coordinated motorcycle fundraising runs, held dinner-dances and other fun events like "Kiss a Pig," and sold beer at the Fourth Avenue Street Fair. "We'll do just about anything to raise money for the Steele Center—one of our designated 'Major Projects,'" says **Linda Lewandowski**, executive director for the Arizona Elks Major Projects (AEMP).

"The best part is we have fun with all our fundraising activities."

What's more, Elks from all over the state have crocheted and hand-knit hundreds of blankets and beanies for the premature babies in the NICU at **The University of Arizona Medical Center – Diamond Children's**, and donated thousands of toys and books to the Steele Center and the UA Department of Pediatrics and its affiliated outpatient clinics, such as the **Arizona Elks Clinic for Children and Young Adults.**

Currently, more than 26,000 individuals are members of one of the 47 Elks lodges throughout Arizona.

"The Elks' dedication to children is amazing, and we couldn't do our work without them," says Dr. Ghishan.

Members from Elks lodges from all over Arizona have contributed to the UA Steele Center. Elks lodges are located in: *Apache Junction, Casa Grande, Chandler, Coolidge-Florence, Fountain Hills, Gilbert, Kearny, Mesa, Globe, Safford, Tempe, Bullhead City, Chino Valley, Flagstaff, Holbrook, Jerome, Kingman, Page, Payson, Prescott, Sedona, Show Low, Winslow, Ajo, Benson, Tucson, Catalina, Douglas, Green Valley, Nogales, San Manuel, Sahuarita, Sierra Vista, Willcox, Buckeye, Gila Bend, Lake Havasu City, Parker, Phoenix, Scottsdale, Sun City, Wickenburg and Yuma.*

Linda Lewandowski, executive director of AEMP, and Bill Foucher, president of AEMP Board of Directors, present Dr. Ghishan with donation check.

Elks playing in a fundraising golf tournament in Flagstaff, Ariz.

THE DANANATOR *Fights* LEUKEMIA

Dana Morgan is a spunky, creative, humorous and active 7-year-old little girl with playful eyes and a smile that will melt your heart. She knows exactly what she wants to be when she grows up: a police officer. She wants to fight crime.

For now though, Dana, affectionately nicknamed "The Dananator," is fighting leukemia.

When Dana was 4, her parents Michelle and Scott, noticed that Dana lacked her usual energy to do the things she loved—like playing soccer and swimming. In addition to exhibiting flu-like symptoms, they noticed Dana had some bruising in unusual places such as her shoulders and back. Dana's abdomen began to swell just prior to her second visit to the pediatrician.

After three medical visits within six days, a bone marrow biopsy confirmed Dana had Acute Lymphoblastic Leukemia (ALL)—cancer of the white blood cells, which are produced in the bone marrow.

On September 10, 2008, Dana was admitted to University Medical Center (now named, The University of Arizona Medical Center – Diamond Children's). Dana's treatment plan called for 2½ years of chemotherapy—which would require numerous hospitalizations and many trips to the pediatric hematology/oncology outpatient clinic at the hospital.

"The treatment regimen is hard," says Dana's mom, Michelle. "But, thanks to research and the high-quality medical care Dana has received, we consider ourselves blessed."

Pediatric oncologist **Brenda Wittman, MD**, and an entire team of nurses, child life specialists, patient care technicians and other medical specialists are dedicated to helping Dana get well.

"Dana has a great sense of humor and rarely complains" says Dr. Wittman. "I remember on one occasion where Dana needed a bone marrow and spinal tap, and we 'performed' the procedure on her beloved and ever-present stuffed dolphin, Swimmy. He and Dana had matching bandages after a Google search informed us where the hip bone is located on a dolphin!"

When Dana received her "exit" lumbar puncture in December, 2010 suspicious cells were discovered in her spinal fluid. Two more lumbar punctures confirmed a relapse—this time in the central nervous system. Thus, in January 2011, Dana began treatment again. "We felt blind-sided by this, because when Dana was first diagnosed, there was no central nervous system involvement," recounts Michelle.

"The great thing about Dana is that her positive personality hasn't changed because of leukemia," says Michelle, "She's a fighter and her sense of humor is unbeatable."

In March 2012, Dana began radiation treatments on her head and spine, and "if all goes according to plan, her treatment will be completed in January of 2013," says her dad, Scott. "In the summer of 2013, the portacath will be removed and Dana can start playing contact sports again—we can't wait!"

"Dana continues to amaze and inspire us. Through it all, Dana has kept us smiling and laughing, blessed us with lots of cuddle time and reminded us that every moment is worth cherishing and celebrating," says Michelle.

PHOTO BY LITTEER FILMS

IN HER OWN *Words*

My name is Dana Morgan. I am 7 seven years old and I have leukemia. I was first diagnosed when I was 4. I was almost done with fighting this disease, and then it came back and I have to fight it again.

I very much do love swimming. Swimming to me is very fun. When I'm under water it feels like I'm flying. Swimming is fun, and much rather funner than being in the hospital.

When I go in the hospital, it's hard. My mom and dad let me decide who is going to spend the night with me. So, that's pretty much the first thing I can think of.

The nurses at Diamond Children's are really awesome. I just like the nurses because they are so nice to me. They give me medicine through my tube. I have one of the new ports and it lets me swim. And I'd much rather be swimming than being in the hospital.

When I grow up I want to be a police officer, because my grandpa was one. Policemen are tough and I am tough. I will be really happy when I don't have to fight this anymore. I am tough like a cop should be, and I can fight this disease.

Last September, Dana and two other patients were featured in a wonderful video created by Litteer Films, which can be viewed at: http://vimeo.com/29611983

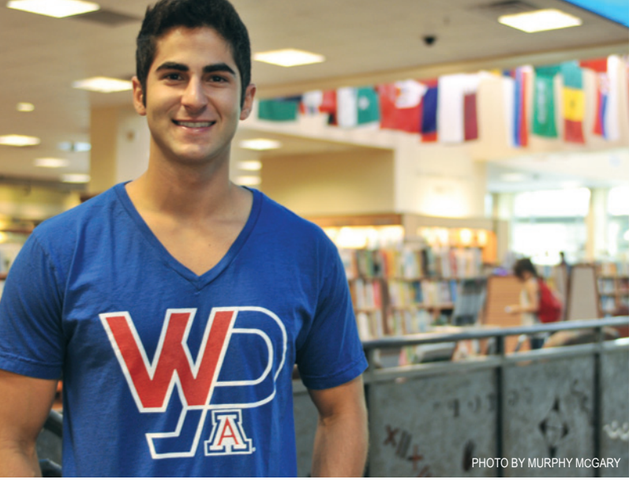


PHOTO BY MURPHY MCGARY

WillPower

SAMI ZARIFI CREATES CLOTHING LINE TO HONOR BROTHER'S MEMORY

UA student Sami Zarifi lost his brother, Will, to a brain tumor in 2008. Will was 21, valedictorian of the Marshall School of Business at USC, and the men's basketball team manager.

"Will was so tough throughout his ordeal," recalls Sami. "He never complained or cried. Will used to say, 'I'd rather it be me that gets brain cancer than some little girl—I have a better chance of fighting it off.' He was truly inspiring."

When Will passed away, Sami knew he wanted to do something to honor his brother's memory. Thus, Sami launched "WillPower"— a UA clothing and fundraising club that has created its own clothing line. "This is 'lifestyle clothing' that you can connect with," Sami explains. "It's about living for the day and pushing yourself." Proceeds from sales supports the pediatric cancer research at the Steele Center.

WillPower launched in October 2011 at the UA Bookstore and since then, more than 1,700 items of merchandise have been sold. The WillPower team expanded the line to add more fashionable clothing. A selection of tank tops, thermals, and baseball raglans debuted at the bookstore on Feb. 8, and sold out within two hours.

Now, WillPower is planning to expand its clothing line to 80 college campuses throughout the United States by the end of 2012. "We're even creating a commercial to pitch to ESPN and will ask them to air it for free as a donation to WillPower," says Sami.

"In an essay Will wrote, he said, 'some say I have a life-threatening disease, I say we live a disease-threatening life,'" remembers Sami. "What I take away from this is that we have to live life every day to the fullest and stop worrying about failure, because we all fail—that is what makes you stronger."

PHOTO BY MARTHA LOCHERT PHOTOGRAPHY

About THE COVER

We thank **Amber Walker**, 14, and **Larry Ronstadt**, 7, for being this year's annual review models. We know they and their families are going through so much as both children fight leukemia.

Amber and Larry became friends when they met while hospitalized at Diamond Children's in December 2011. Both had been recently diagnosed with ALL (Acute Lymphoblastic Leukemia)—Larry on Dec. 28; Amber on Dec. 29.

Amber is an outgoing, upbeat teenager with a friendly smile and optimistic attitude. She was an all-star cheerleader before being diagnosed with ALL. She is still involved with cheerleading and also enjoys spending time at her family's ranch and riding horses. She loves to bow hunt as well!

Larry is a vibrant, thoughtful and humorous little boy with a playful grin. He likes playing on the Wii—especially the games, "Skylanders Spyro's Adventure" and "Mario Brothers." He loves to play baseball, basketball, soccer and lacrosse. Larry is an avid reader and some of his favorite books are the *Geronimo Stilton* series and *The Magic Tree House*.

Interestingly, Amber and Larry discovered they have something pretty cool in common: their grandfathers know each other. They became friends many years ago as members in the Men's Active 20-30 Club of Arizona. The grandfathers ran into each other while in the waiting room at Diamond Children's soon after both children were hospitalized.

Old or new, friendship is a profound blessing.

PANDAs 'SPREAD A LITTLE Sunshine' TO CREATE THE PANDA HEALTHY BABIES PROJECT

The 12th Annual **PANDA "Children Helping Children" Luncheon and Fashion Show** was a tremendous success! The theme of the event was **"Spread a Little Sunshine."** The event, which took place at The Phoenician in Scottsdale, raised approximately $435,000 to create the **PANDA Healthy Babies Project** at the Steele Center.

"What an uplifting event," says Dr. Ghishan. "The PANDAs continue to inspire us with their passionate dedication to improve children's health."

One of the most common ailments premature babies face is Necrotizing Enterocolitis (NEC), a gastrointestinal inflammatory disease of the intestines that afflicts between 8,000-10,000 premature babies in the United States each year. The exact cause of NEC is unknown. It can be mild to severe, and in the worst cases the inflamed portion of the intestines must be removed. Sadly, nearly 40 percent of babies with NEC don't survive.

The PANDA Healthy Babies Project will enable Steele Center physicians and scientists to:

- Conduct research to better understand why certain premature infants get NEC;
- Discover ways to prevent babies from developing NEC;
- Find ways to predict NEC before it becomes a medical or surgical emergency; and
- Fund training for new scientists with interest in neonatology.

The Steele Center team for the PANDA Healthy Babies Project includes **Alan Bedrick, MD, professor; Bohuslav Dvorak, PhD, professor;** and **Melissa Halpern, PhD, associate professor.** In addition to their current work in neonatology research, they are working to create collaborative research partnerships with NICUs in the Phoenix area.

"The development of an integrated NICU research network with children's hospitals in Phoenix to study NEC will ultimately benefit our youngest patients," says Dr. Bedrick.

Bohuslav Dvorak, PhD

Alan Bedrick, MD

Melissa Halpern, PhD

SHARE THE *Magic*

DIAMOND CHILDREN'S/STEELE CENTER GALA A HUGE SUCCESS

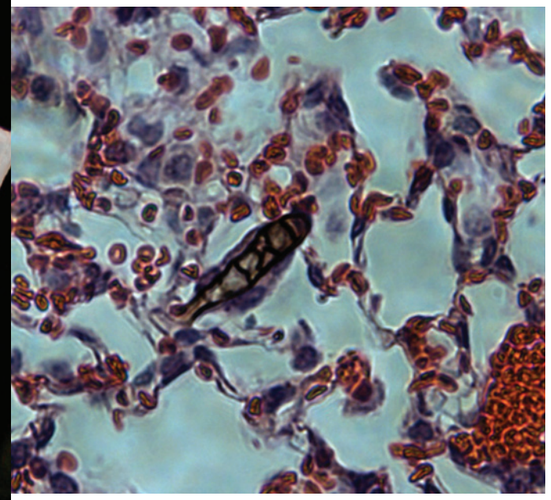
The second annual Diamond Children's Gala —"Share the Magic"— was held on September 24. It benefited *both* Diamond Children's and the Steele Center. This spectacular event raised approximately $280,000, to be shared by both facilities.

"This was an extraordinary event that highlighted some of our courageous patients and the dedication of our doctors, nurses and staff," says **Dr. Ghishan.**

The fundraiser took place in the grand ballroom of the Westin La Paloma Resort, and was emceed by KOLD-TV News 13 anchors **Heather Rowe** and **Scott Kilbury.**

Approximately 600 guests enjoyed delicious food and drinks, a silent auction, music by the **Jazzateers**, a dance performance by **Dance Force 1**, a beautiful video created by **Litteer Films,** an inspiring speech by former patient **Michelle Grenier** (now a nurse at Diamond Children's), a performance by master illusionist **Michael Grandinetti**, and dancing to the music of the **The Walkens.**

"It was inspiring to see, yet again, what we can accomplish when we work together to improve children's health," says Dr. Ghishan.



SPOTLIGHT ON RESEARCH:

CAN *Mold* CAUSE ALLERGIC ASTHMA?

A $1.25 million, five-year NIH grant will enable Steele Center physician-scientist **Michael Daines, MD**, to investigate how a common mold may trigger allergic asthma.

Allergic asthma is a type of asthma triggered by allergy. Nearly 50 percent of the 20 million individuals in the U.S. with asthma have allergic asthma, and more than 2.5 million children suffer from allergic asthma. Many of the symptoms are the same as asthma: coughing, wheezing, shortness of breath or rapid breathing and chest tightness.

Allergen exposure (dust mites, pet dander, pollen, mold, etc.) is essential to the development of allergic asthma, but not all allergens are associated with asthma. For example, bermuda grass causes allergies but not asthma.

One allergen central to the development of allergic asthma—especially in children—is Alternaria, a common mold. Previous research conducted at the Arizona Respiratory Center over the past 25 years has produced data demonstrating that sensitization to Alternaria is the strongest allergic predictor in the development and persistence of asthma.

A critical feature of Alternaria, differentiating it from less harmful allergens, is protease activity. Proteases are enzymes that break down and digest proteins. All allergic allergens have protease activity in them.

"The problem," says Dr. Daines, "is that the proteases in Alternaria can break down the epithelium in the lungs and damage them, making you more susceptible to asthma."

Dr. Daines and his team are exploring two questions through this research:

1. What are the proteases in Alternaria and how do they cause asthma?
2. How do the host protease defense systems (antiprotease) block those effects?

"The philosophy behind the drugs used to treat asthma hasn't changed in 20 years," says Dr. Daines. "There is no way to prevent asthma—we only diagnose and treat it. So, if we can figure out what is causing asthma, that might give us a new way to treat it or prevent asthma from occurring in the first place."

The central hypothesis of the study posits that Alternaria proteases are essential to Alternaria acting as an asthmagen (an allergen causing asthma) by directly targeting the lining of the lung (epithelium), but these effects are modulated by Alternaria-induced antiproteases in the body.

"We will study Alternaria-induced lung inflammation to assess the interaction of the epithelium and host antiproteases with Alternaria proteases and determine their impact on the development of allergic asthma," says Dr. Daines. "The results may lead to both primary prevention of asthma and the development of novel asthma treatment options."

AZLEND: *Improving* THE HEALTH OF CHILDREN WITH NEURODEVELOPMENTAL DISABILITIES

The Steele Center has received a five-year, $3.6 million, **LEND (Leadership Education in Neurodevelopmental Disabilities)** grant to train individuals to improve the health status of infants, children and adolescents with—or at risk for—neurodevelopmental and related disabilities.

Sydney Rice MD, MS (RIGHT) and **Eileen McGrath, PhD** (LEFT) are the directors of the new program, named AZLEND. Dr. Rice is an associate professor of pediatrics and a Steele Center pediatric developmental and behavioral pediatrician. Dr. McGrath is a special education educator and assistant professor in the Department of Pediatrics.

"This program is an opportunity to bring together the expertise of families and professionals across Arizona," says Dr. Rice. "The AZLEND program will train professionals to be leaders in clinical care and research, and will give participants the opportunity to work together as professionals with diverse backgrounds and training."

LEND programs are graduate and post-graduate-level interdisciplinary leadership training programs federally funded through the Maternal Child Health Bureau (MCHB).

The AZLEND training program will produce leaders and innovators in the field of autism and other neurodevelopmental and related disabilities who are solidly grounded in their own disciplines and able to work collaboratively with colleagues in interdisciplinary settings.

AZLEND provides education and training in the following areas: clinical knowledge, leadership, collaboration and research. Trainees are involved in supervised clinical experiences with a wide variety of disorders and receive individual mentoring. LEND programs provide training to professionals in 14 disciplines: audiology, family/parent, genetics, health administration, nursing, nutrition, occupational therapy, pediatrics/medicine, pediatric dentistry, physical therapy, psychology, social work, special education and speech language pathology.

"AZLEND provides a unique opportunity for trainees to work closely with current leaders in the field of neurodevelopmental and other related disabilities, including autism spectrum disorders," says Dr. McGrath. "Trainees will learn how to work collaboratively as interdisciplinary team members providing family-centered, culturally-effective care to children with special needs and their families."

KIDS OF STEELE HOST FIRST ANNUAL MINIATURE *Golf* TOURNAMENT

Kids of Steele held its **First Annual Miniature Golf Tournament** and raised more than $10,000 for the Steele Center.

Kids of Steele is the family auxiliary of the Steele Center. It is comprised of local families who want to teach their children about service and kindness while raising awareness and funds for the Steele Center.

Nearly 100 children and their parents participated in the event. Some of the children who participated are currently being treated by Steele Center doctors at Diamond Children's and other affiliated outpatient clinics at The University of Arizona Medical Center – University Campus.

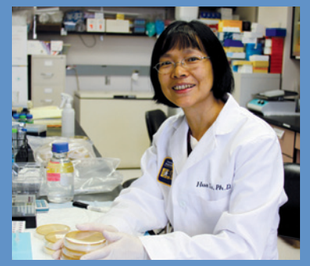
"This was a new fundraiser that included the whole family," says **Cecie Davenport**, tournament co-chair. "It was neat to see families who have children being treated by Steele Center doctors, alongside families wanting to help. Everyone simply had fun!"

In addition to the miniature golf tournament, participants were able to ride bumper boats and race cars, had balloon animals made by a balloon artist and were visited by Wilbur Wildcat.

"Our first annual event was a great success and we hope to make it even bigger and better next year," says **Ragan Edwards**, tournament co-chair.

FOCUS ON RESEARCH:

UNEXPECTED *Discovery* LEADS TO NEW UNDERSTANDING OF A PROTEIN'S ROLE



Steele Center director **Fayez K. Ghishan, MD**, professor and head, and researcher **Hua Xu, PhD**, associate professor of pediatrics, made an unexpected discovery into the role of NHE8—a sodium/hydrogen exchanger protein.

NHE8 plays an important role by transporting sodium and electrolytes through the gastrointestinal tract.

"When we removed NHE8 in mice, we observed that they developed gastric ulcerations, became more susceptible to infections, and the male mice became sterile," says Dr. Ghishan.

Now, a five-year, $1.65 million grant from the NIH National Institute of Diabetes and Digestive and Kidney Disorders enables Drs. Ghishan and Xu to further explore their novel discoveries and expand their research about the role of NHE8.

"Nature is interesting," says Dr. Xu. "Deleting a single gene causes different outcomes in different organs and different genders. Understanding how the loss of NHE8 produces these effects will help us learn more about nature's intricate control of gene expression."

The study focuses on three areas: thoroughly understanding how NHE8 impacts mice at various developmental stages; characterizing the role of NHE8 in the gastrointestinal tract and how it responds to epithelial injury and uncovering the role of NHE8 in mice sterility.

"Our research could lead us to discover that NHE8 plays a pivotal role in male infertility and other gastrointestinal problems, which may ultimately lead to the development of novel treatments," says Dr. Ghishan.

DR. FAYEZ K. GHISHAN APPOINTED *Physician*-IN-CHIEF OF THE UNIVERSITY OF ARIZONA MEDICAL CENTER – DIAMOND CHILDREN'S

Congratulations to Dr. Ghishan, who was appointed "Physician-in-Chief" of The University of Arizona Medical Center – Diamond Children's in June 2011.

"As Physician-in-Chief, Dr. Ghishan will contribute to building a regionally, nationally and internationally recognized academic medical environment focused on providing the best medical care possible for children," says **Karen D. Mlawsky, CEO** of The University of Arizona Medical Center – University Campus.

Dr. Ghishan is responsible for safety, quality and financial effectiveness of pediatric clinical care. He will work with the Pediatric Leadership Team to promote a healthy culture of problem-solving and innovation for Diamond Children's patients and their families.

Dr. Ghishan and the Pediatric Leadership Team will be responsible for the operational aspects and growth strategies of all pediatric services, including inpatient, outpatient and emergency services for pediatric patients at Diamond Children's. Initiatives include strategic, administrative, philanthropic and operational activities.

"Dr. Ghishan has passionately advocated for a children's hospital since arriving at the UA more than 16 years ago. His vision and dedication to children's health makes him the perfect individual for this prestigious position," says Mlawsky.

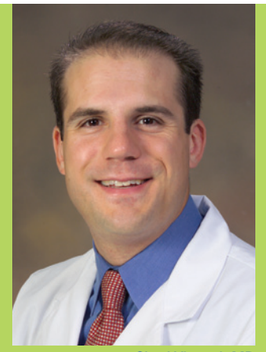
CLINICAL RESEARCH:

THERAPEUTIC *Hypothermia* AFTER PEDIATRIC CARDIAC ARREST (THAPCA)

Andreas Theodorou, MD

Katri Typpo, MD, MPH

Janet Teodori, MD



Chad Viscusi, MD

Steele Children's Research Center pediatric intensivist **Andreas Theodorou, MD**, professor, and pediatric intensivist **Katri Typpo, MD, MPH**, assistant professor, are leading a new clinical research project—**"Therapeutic Hypothermia after Pediatric Cardiac Arrest"** (THAPCA). Co-investigators include pediatric neurologist, **Janet Teodori, MD**, assistant professor, Department of Neurology, and pediatric emergency physician **Chad Viscusi, MD**, assistant professor, Department of Emergency Medicine.

The multicenter study is taking place at **The University of Arizona Medical Center – Diamond Children's** and involves 32 other centers across the nation. Funding for the entire study is $21 million for four years. It is funded by The National Heart, Lung, and Blood Institute (NHLBI), part of the National Institutes of Health (NIH).

The THAPCA Trials are studying the effects of therapeutic hypothermia (body cooling) after pediatric cardiac arrest. This is a tragic event in children associated with high rates of death or long-term disability. The THAPCA trials include patients from both in-hospital and out-of-hospital populations to determine if hypothermia improves survival with good neurobehavioral outcomes after pediatric cardiac arrest.

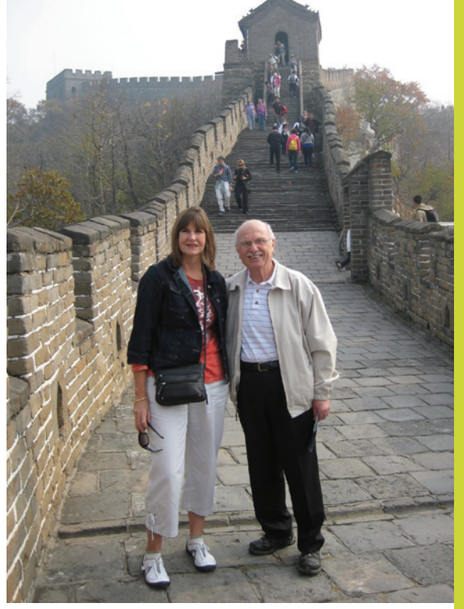
ABOUT THERAPEUTIC HYPOTHERMIA

Therapeutic hypothermia (lowering the body temperature) has successfully been used in adults after cardiac arrest to improve survival and outcome. Hypothermia also has been studied in newborn infants who have suffered from perinatal asphyxia (oxygen deprivation to a newborn infant that usually causes brain damage), ***but it has not been studied in infants or children who have had cardiac arrest.*** During and after cardiac arrest, the body undergoes severe stress. As part of this stress, the body releases toxic compounds that can overwhelm the organs and the brain. These compounds can cause long-term brain injury. It is thought that therapeutic hypothermia may sufficiently slow the body's production of these compounds, thus preventing brain injury.

In this study, children will be randomized into two groups. One group will receive hypothermia (lowering of body temperature). The second group will receive normothermia (maintaining the normal body temperature). Both groups will be kept from fever.

"This is a very important multi-center study, since the answer to the question of therapeutic hypothermia in children is far from being answered," says **Dr. Theodorou**. "People may have assumed that hypothermia is the right treatment after cardiac arrest, but, this in fact, has not been adequately demonstrated. The real enemy of a better outcome may be fever and we will aggressively try to prevent fever in both groups of patients."

Dr. Ghishan and a young panda at the Chengdu Research Base of Giant Panda Breeding.



Dr. Ghishan and his wife Joan at the Great Wall of China.

DR. GHISHAN VISITS *China*

TO DISCUSS IBD—IN CHILDREN *and* PANDAS

A group photo of the visitors and researchers. Names below*

FedEx couriers pack up the stuffed pandas.

Last October, **Dr. Ghishan** was invited to China to speak at the **2011 Chengdu International Forum of Gastroenterology**. He was accompanied by his wife, **Joan,** and Steele Center researcher **Hua Xu, PhD**. At the conference, Dr. Ghishan gave a seminar about his research in IBD (Inflammatory Bowel Disease). "Unfortunately, IBD is now on the rise in China," he says.

He also spoke to fourth-year medical students at **Sichuan University** and gave lectures at **Jiao Tong University** in Shanghai and **Chongqing University** in Chongqing.

In addition, Dr. Ghishan visited GI clinics at **West China Hospital** and participated in clinic case discussions there and at **The Children's Hospital of Chongqing Medical University** (CHCMU), where he visited patients as well. "CHCMU is an amazing children's hospital—with 510 beds," says Dr. Ghishan. "They place great importance on research, and rank first in pediatrics in China."

While there, Dr. Ghishan, Joan and Dr. Xu visited the **Chengdu Research Base of Giant Panda Breeding**. Dr. Ghishan provided some insight into GI issues that pandas commonly suffer from. "It was wonderful to see the pandas. We may even collaborate on research with Chengdu Research Base sometime in the future," he says.

At the end of the trip, Dr. Ghishan purchased 120 stuffed panda bears for the Steele Center volunteer group, PANDA (People Acting Now Discover Answers). "It was quite the challenge," recounted Dr. Ghishan, "But we were finally able to ship the stuffed pandas back to the states, where I knew they would put a smile on the faces of our fabulous PANDAs."

*From left: Joan Ghishan, Dr. Xu, Dr. Ghishan, Dr. Jian Shi (Vice President, Sichuan University), Dr. Xuehong Wan (Vice Dean, West China Medical School, Sichuan University), Dr. Chengwei Tang (head of GI department, West China Medical School, Sichuan University), Dr. Chunhui Wang (professor, GI department, West China Medical School, Sichuan University)

Thank You FROM ALEXIS

Especially in today's economy, it is hard to find money for research. And cancer research is an expensive endeavor. I am incredibly grateful for the funding being provided by **Tee Up For Tots**. It will provide us with the tools we need to continue searching for ways to better understand cancer, and hopefully to provide clinicians like Dr. Katsanis with better ways to treat their patients.

Because the patients are really the whole reason we do this.

They battle extremely hard with their own bodies to be able to do the things that all children should be able to do. Their fight inspires me to work harder and to think more originally. Our work is nothing next to their bravery.

I am grateful to Tee Up For Tots for giving me the opportunity to combine two of my favorite things: conducting science and helping children. Without the support of the **Courtney Page Zillman fellowship**, this groundbreaking science would be developed more slowly, which so many children cannot afford. So thank you for your support in allowing me to do my part in the fight against pediatric cancer.

TEE UP FOR TOTS

COURTNEY PAGE ZILLMAN FELLOW 2011 *Alexis Lorenz*

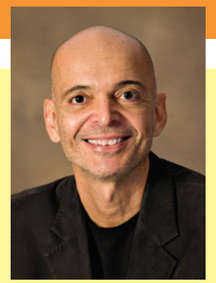
Congratulations to **Alexis Lorenz**, who was named the 2011 **Tee Up For Tots Courtney Page Zillman Fellow**.

Alexis is pursuing a PhD in Immunobiology at the UA, and will conduct her pediatric cancer research at the Steele Center, led by pediatric oncologist **Emmanuel Katsanis, MD**, professor and Section Chief of Hematology/Oncology, and researcher **Nicolas Larmonier, PhD**, associate professor.

Alexis' research is centered on the use of immunotherapy in pediatric bone marrow transplant recipients, who have a high probability of relapsing. Using the novel vaccine that was developed in the lab—CRCL (Chaperone Rich Cell Lysate), in conjunction with activated immune cells (emTh-1) she is hoping to establish an anti-cancer effect that will help the body attack any remaining cancer cells.

"I believe that this project is especially relevant to Tee Up For Tots because most bone marrow recipients are children," says Alexis. "And we want to provide therapies that will not only help clear the cancer, but also have as few side effects as possible."

'HYUNDAI HOPE ON WHEELS' DRIVES PEDIATRIC CANCER RESEARCH *Forward*



The Steele Center is grateful to the **"Hyundai Hope on Wheels®"** program for awarding grants to two of its pediatric cancer physician-researchers. Funding for Hyundai Hope on Wheels is supported by local Hyundai dealers like Jim Click Automotive, which contributes to the program.

Emmanuel Katsanis, MD, professor, received a $100,000 **"Hope Grant,"** and **Puja Gupta, MD**, assistant professor, received a $50,000 **"Hyundai Scholar Grant."**

The Hope Grant will support Dr. Katsanis' research in the treatment of relapsed acute leukemia following stem cell transplantation. "The Hyundai Hope on Wheels grant is competitive and prestigious, and we are honored that the caliber of our work has earned us this award," says Dr. Katsanis. "We're very grateful to Hyundai Hope on Wheels for this support, which enables us to move our research forward."

Dr. Gupta's Hyundai Scholar Grant will support her research regarding the role nutrition plays in children with cancer. "I am excited about the prospect of studying the effects of nutrition in children," says Dr. Gupta. "I thank Hyundai for making it possible to work on this project and am grateful for their support of pediatric oncology research."

Hyundai Hope On Wheels™
Helping kids fight cancer

CELEBRATING OUR *Volunteer* GROUPS

The physicians, scientists, and patients at the Steele Children's Research Center would like to express their deepest gratitude to our many volunteer groups. Your efforts, dedication, and passion inspire us to fulfill our mission to teach, heal and discover.

Father's Day Council Tucson
With the help of five outstanding fathers from the community, Father's Day Council Tucson celebrated another successful year, raising $125,000. Because of their work, children with type 1 diabetes across Southern Arizona continue to receive exceptional care and have hope for a cure.

PANDA (People Acting Now Discover Answers)
With more than 100 members, PANDA is a force to be reckoned with. This year's annual golf tournament and "Children Helping Children" fashion show raised more than $435,000 for the PANDA Healthy Babies Project, which supported research and care for premature babies.

Arizona Elks Major Projects
The Arizona Elks' support of the Steele Center hit a major milestone in 2011. With this year's $250,000 contribution, the Elks reached a giving total of $5 million!

Kids of Steele
Kids of Steele continued to make huge strides in 2011. To date, the group has raised $30,000, collected more than 500 books for patients, decorated and delivered superhero capes to patients and more. More importantly, Kids of Steele has continued to foster a spirit of giving back to the community.

Tee Up For Tots
Thanks to their annual golf tournament and the addition of a new event, **A Fun Night Out**, Tee Up For Tots is a source of support for pediatric cancer patients and help make significant strides in pediatric cancer research. In 2011, the group named the seventh **Courtney Page Zillman Fellow, Alexis Lorenz.**

Marisa Ann Gallego Foundation
The memory of Marisa Ann Gallego continues to inspire her family and friends to find better treatments and a cure for pediatric cancer. The 2011 **iMAGine A Cure** golf tournament raised $10,000 for research, proving once again that passion and heart can go a long way.

Students Supporting Brain Tumor Research decided to shake things up in 2011, hosting a fashion show on the University of Arizona campus. The event was a hit, raising $2,000 for pediatric cancer research at the Steele Center.

The Steele Center was thrilled to welcome back **Eller ELITE** in 2011, a group made up of the most outstanding pre-business freshmen at the University of Arizona. For the second year a row, their marketing competition raised more than $1,000.

With the help of the **Men's Active 20-30 Club of Southern Arizona**, the Steele Center was named a beneficiary of **Coaches' Night Out** in 2011. The annual dinner features some of the University of Arizona's most respected coaches and players and raised more than $8,500.

This year we saw the creation of **WillPower**, a movement led by UA senior Sami Zarifi, who lost his brother Will to cancer. Through the sales of a WillPower clothing line at the University of Arizona Bookstores, the group will help support pediatric cancer research at the Steele Center.

Sigma Chi Fraternity
The University of Arizona's Sigma Chi fraternity got down and dirty to raise funds for the Steele Center and Diamond Children's this year. Their **Derby Days** event featured egg walks, obstacle courses and eating challenges and raised $5,500 for the Steele Center.

FACTS & FIGURES

Thank you for your support!

Physician-scientists from the UA Steele Center serve children throughout Arizona and neighboring states, focusing primarily on difficult-to-treat diseases like pediatric cancers, type 1 diabetes, autism spectrum disorders, congenital heart disease and gastrointestinal disorders such as Crohn's disease and eosinophilic esophagitis.

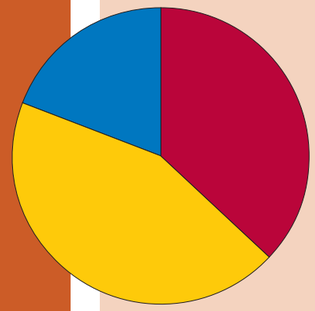
Steele Center pediatricians and pediatric specialists conduct more than 60,000 patient visits a year, providing the cutting-edge care that only comes from being an academic research institution. Physician-scientists at the Steele Center focus on investigating the causes of pediatric diseases and work to discover new treatments and therapies for children suffering with illness.

Federal and state grants help fund scientific investigation, but philanthropy is an important catalyst for nurturing new ideas because it serves as a springboard for securing government aid in the future.

In FY10-11, $1,315,909 was received in donations to support the work of the Steele Center.

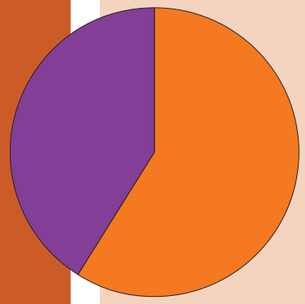
We thank each of our donors for their investment in the Steele Center and children's health.

FY10-11 Where Philanthropy Money Comes From



TYPES OF DONORS

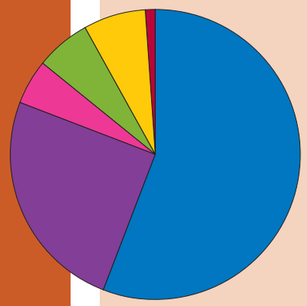
- Individual: 37%
- Foundations: 44%
- Corporations: 19%



TYPES OF DONATIONS

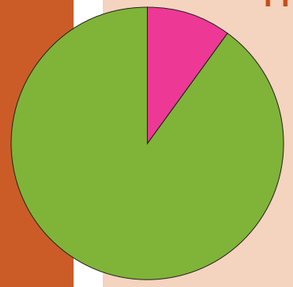
- Donations raised through events: 59%
- Direct Donations: 41%

FY10-11 Where Philanthropy Funds Were Directed



- Research: 56%
- Endowment: 25%
- Recruitment: 5%
- Clinical Support: 6%
- Annual Fund/greatest need: 7%
- Diamond Children's Fund: less than 1%

FY10-11 How Philanthropy Funds Were Used



- Administrative and fundraising: 10%
- Steele Center activities: 90%

Thank You!

We appreciate every gift made to the Steele Children's Research Center. It is the kindness and generosity of our donors that allows us to provide today's care and tomorrow's cures to children throughout Arizona. We want to give special thanks to the following cash and in-kind donors who gave $1,000 or more from January through December 2011.

$250,000+
Arizona Elks Major Projects
PANDA—Phoenix Women's Board

$100,000 – $249,999
Father's Day Council Tucson
Hope On Wheels Hyundai Dealers
Supporters of the Diamond Children's Medical Center/Steele Children's Research Center Gala

$50,000 – $99,999
Armstrong McDonald Foundation
Jacquelynn and Bennett Dorrance and Dorrance Family Foundation
Gifts in Honor of Bradley Feder—Father of the Year 2011

$25,000 – $49,999
Anonymous
Cystic Life, LLC
Gifts in Honor of David Cohen—Father of the Year 2011
Gifts in Honor of Joe Gootter—Father of the Year 2011
Jim Click Nissan, Inc.
Mead Johnson & Co
Tee Up For Tots, Inc.

$15,000 – $24,999
Celebrity Fight Night
Nordstrom
Helen and Chris Yeung

$10,000 – $14,999
Desert Diamond Casino
Gifts in Honor of Michael Parseghian—Father of the Year 2011
Gifts in Honor of Rick Zamorano—Father of the Year 2011
Immunovative Therapies, Ltd.
Jasam Foundation
Ashley Kaplan
Kids of Steele
Marisa Ann Gallego Foundation
The Arizona District of Optimist International 2010-2011 Tom Hogan Governor
The Steele Foundation, Inc.

$5,000 – $9,999
Nancy and Craig Berge
Bruce T Halle Family Foundation
Michelle Chaix
Robyn and Mike DeBell
Anita and Bradley Feder
Suzanne and Steven Hilton
Karen and Bob Hobbs
Ruth Ann and Tom Hornaday
Wendy and Sage Lentz
Longbow Business Park and Golf Club
Faye Morse
Nova Financial & Investment Corp.
Sigma Chi-Beta Phi Chapter
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Christine Toretti
Kati and Chris Travelle
Sharon and Donald Ulrich

$2,500 – $4,999
Kim Bauman
BeachFleischman, PC
Corinne Berger
Blue Cross Blue Shield
Terri and Chris Camerlango
Catalina Mechanical Contracting, Inc.
Catholic Foundation
Kathy and Brad Combs
Heidi and Richard Coupland
Desert Institute for Spine Care, P.C.
Elayne and Jerome Feder
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DeeAnne and Gregg Gibbons
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Paulette and Joe Gootter
Penny and Larry Gunning
Joyce and Joseph Hardy
Maxine and Ralph Henig
Jim Boyle Dairy
Linda Kaplan
Lorna and Mark Kipphut
Jane and Phil Lacovara
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Amy and Omar Mireles
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Kathy and Jerry Ritt
Rusing & Lopez, P.L.L.C.
Alexandra and Jay Schneider
Beth and Scott Seldin
Susie and Les Small
Deanna and Thomas Smith
Space Age Auto Paint Store, Inc.
Tammy and Jon Underwood
Vantage West Credit Union
Wells Fargo & Company
William M. Madden & Associates
Gay Poindexter Willits
Jaime and Bradley Wright

$1,000 – $2,499
Amy and James Adkins
Alliance Orthopedics LLC
Ambalux Corp
Anonymous (2)
Ashton Family Foundation
Bank of Tucson
BBVA Compass
Margaret Beaver
Arlene and Giora Ben-Horin
Karen and Michael Bernstein
Jeanne and Mark Besh
Molly and Mark Bland
Barbara and James Boyle
Julie Brinks
Mary Beth and Bernard Buescher
Shelby Butterfield
Canyon Ranch Management LLC
Compass Bancshares, Inc.
Rachelle Chasse
Katie and Todd Chester
Katherine Clark
Ginny Clements and Tom Rogers
Sharon Cohen
Donna and Leo Connolly
Jacqueline Cowin
Cox Communications, Inc
Patricia Cracchiolo
Tracy and Joseph Cracchiolo
Tina and David Curran
Todd DeBell
Delta Delta Delta Tucson Alumnae Chapter
Shelly Detmer
Diamond Ventures, Inc.
Johanna and Michael Domer
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Ellen Philips Schwarzman Katz Foundation, Inc.
Lori and Christopher Erblich
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Glenn Ewing
Meghan and Court Fable
Geri Farr
Shirley and Vincent Fulginiti
G2 Technologies
Gabroy, Rollman & Bosse, P.C.
Dana and Keith Gapusan
Gifts in Memory of Kenneth Peasley
Gifts in Memory of Cecelia Dorsey Terry
Golden Eagle Distributors
Melinda and John A. Gulick III
Melissa Halpern and Charles MacCabe
Carey and Blake Hastings
Jennifer and Anthony Hedley
Henry Pope Foundation
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Patti and Fred Lau
Patricia A. Laus
Bethany Longo
Jenifer D. Lunt
M & I Bank and Wealth Management
Maurice R. & Meta G. Gross Foundation
Sherri and Charles Mitchell
Judith and David Morrison
Carey and John Musil
Pamela and Richard Nakasawa
Sylvia and Andrew Norell
Jane E. Olson
The Optimist Clubs of Tucson
Camille Owsley
Cindy and Michael Parseghian
Phoenix Thunderbirds
Tobi and Frank Placenti
Patricia and Byron Poindexter
Providence Service Corporation
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Susan and Larry Ring
Richard Rosen
Rosenberg Media, LLC
Kelly Ross
Kimberly and James Rowland
Peggy and Jon Rowley
Beth and James Ruboyianes
Salpointe Catholic High School
Natalie Santaniello
Leila and Ziad Shehab
Simply Bits, LLC
Sonntag Family Foundation
Students Supporting Brain Tumor Research
Karrin Taylor
TMC Healthcare
Tucson Subaru
Terrye L. Underwood
The University of Arizona Medical Center
United Commercial Travelers
W. Andrew Unkefer
Khristen and Michael Vanderwey
Michelle and Marc Walker
Angela D. Weir
Carol M. Williams
Susan and Michael Wissink
Elizabeth and C. Edwin Witt
Woo Family Trust
Barbara and Shawn Woolsey
Victoria and Richard York
Zeus Nestora, LLC

In-kind Donors
Arizona Elks Members
Cheri's Desert Harvest
Anita and Bradley Feder and Family
Kids of Steele Families
Loews Ventana Canyon Resort
Ellen Hill-PANDA P.A.W.S
Wee Work
The Steele Foundation, Inc.

Kids of Steele Charter Member Families

Thanks to every family who joined Kids of Steele in its inaugural year. Your support, efforts and enthusiasm are greatly appreciated!

The Greg Amado Family
The Rowan Bensch Family
The Louis Breton Family
The Scott Bronson Family
The Chris Clements Family
The Mary Clements Family
The Shandy Copening Family
The Corey Cox Family
The Bob Curtis Family
The Mike Cusick Family
The David Davenport Family
The Deron Davenport Family
The Andrew Deeb Family
The Rob Draper Family
The Craig Edwards Family
The Brad Feder Family
The Dan Feig Family
The Jay Foust Family
The James Francis Family
The Jules Freeman Family
The Greg Geile Family
The Shawndee Gibbons Family
The Craig Henig Family
The Matt Horn Family
The Bruce Kerner Family
The Brian Larson Family
The Eric Leber Family
The Gavin Lodge Family
The Daniel Lust Family
The Scott MacKenzie Family
The Chris Maloney Family
The Sean Miller Family
The Omar Mireles Family
The Patrick Murphy Family
The Miguel Peralta Family
The Tom Powers Family
The Brant Putnam Family
The Tom Rogers Family
The Christopher Rounds Family
The Mick Rusing Family
The Ryan Schoff Family
The Chip Stratton Family
The Kristi Tedesco Family
The Cam Welander Family
The Jesse Wild Family

THE DEPARTMENT OF PEDIATRICS WELCOMED THESE NEW *Faculty* MEMBERS IN THE CALENDAR YEAR 2011

Nicole Abdy, MD
Assistant Professor
Section of General Pediatrics

Mo Bader, MD
Assistant Professor
Section of Neonatology

Joel S. Blumberg, MD
Assistant Professor
Section of General Pediatrics

Melissa Cox, DO
Assistant Professor
Section of Hospital Medicine and Outreach

Rachel Garner, MD
Assistant Professor
Section of Neonatology

Aileen Har, MD
Assistant Professor
Section of Gastroenterology and Nutrition

Tiffany Herr, MD
Assistant Professor
Section of Hospital Medicine and Outreach

Joe Livingston, MD, MS, MPH
Assistant Professor
Section of Neonatology

Melissa Moore, MD
Assistant Professor
Section of General Pediatrics

Michele Munkwitz, MD
Assistant Professor
Section of Critical Care

FACULTY *Highlights* 2011

Alan Bedrick, MD, professor, Section Chief of Neonatology, was honored as one of 40 individuals chosen from the Pennsylvania State University College of Medicine faculty, deans and alumni as having positively impacted and shaped its College of Medicine and the future of medicine.

Chris Cunniff, MD, professor, Section Chief of Medical and Molecular Genetics, received a three-year, $1.35 million grant from the Centers of Disease Control and Prevention (CDC), for the research project, "Arizona Muscular Dystrophy Surveillance Tracking and Research Network (AZ MD STAR*net*)."

Michael Daines, MD, assistant professor, Section of Pulmonology, Allergy and Immunology, was awarded a $1.25 million, five-year grant by the National Institutes of Health (NIH) to study the role a common mold plays in the development of allergic asthma.

Bohuslav Dvorak, PhD, professor, Section of Neonatology, was awarded a research contract for $31,000 from the Meiji Dairy Corporation, Odawara, Japan, to study the effects of dietary proteins on necrotizing enterocolitis; received $25,000 research gift and $91,000 research contract from the Mead Johnson & Company to study the role of lactoferrin in intestinal inflammation. Publication: Branched Chain Fatty Acids Reduce the Incidence of Necrotizing Enterocolitis in the Rat Model of Necrotizing Enterocolitis. *PloS ONE*, 6(12): e29032, 2011.

Sean Elliott, MD, professor, Section of Infectious Diseases, appointed Chairman of the Academy of Medical Education Scholars at UA College of Medicine; appointed Director of the Pediatric Residency Program. Publications: Congenital Cytomegalovirus: An Overview; *Infectious Disorders - Drug Targets 2011*; 11; 432-436; Rat Bite Fever. *Atlas of Human Infectious Disease.* Wertheim HFL, Horby P, Woodall JP. Wiley-Blackwell Press (Oxford University) 2012; 80-81.

Robert P. Erickson, MD, professor, Section of Genetics; Publications: Deficiency of the Cytoskeletal Protein SPECC1L Leads to Oblique Facial Clefting, 2011. *American Journal of Human Genetics.* 89:44-55; *De novo* pathogenic mutation of SCN8A identified by whole genome sequencing a family quartet with childhood epileptic encephalopathy. *American Journal of Human Genetics*, in press. A novel mouse model of Niemann-Pick type C disease carrying a D1005G-Npc1 mutation comparable to commonly observed human mutations, 2011. *Human Molecular Genetics* 20:1-21.

Fayez K. Ghishan, MD, professor and head, Section of Gastroenterology and Nutrition; appointed Physician-in-Chief of The University of Arizona Medical Center – Diamond Children's; awarded a five-year $1.65 million grant by the NIH National Institute of Diabetes and Digestive and Kidney Disorders to study the role of the sodium/hydrogen exchanger protein, NHE8. Publications: NHE3 modulates the severity of colitis in IL-10-deficient mice. *American Journal of Physiology: Gastrointestinal and Liver Physiology*, Jun;300(6):G998-G1009; 2011. Somatostatin stimulates intestinal NHE8 expression via p38 MAPK pathway. *American Journal of Physiology: Cell Physiology*, 300(2):C375-382, 2011. NHE2X3 DKO mice exhibit gender-specific NHE8 compensation. *American Journal of Physiology: Gastrointestinal and Liver Physiology*, 300(4):G647-653, 2011.

Puja Gupta, MD, assistant professor, Section of Hematology/Oncology, received a $50,000 "Hyundai Scholar Grant" from the Hyundai Hope on Wheels program. The funding will support her research on the role nutrition plays in pediatric oncology.

Pawel Kiela, PhD, **DVM,** associate professor, Section of Gastroenterology and Nutrition; Publications: Advances in the understanding of mineral and bone metabolism in inflammatory bowel diseases. *American Journal of Physiology: Gastrointestinal and Liver Physiology*, 300(2):G191-201, 2011; Curcumin inhibits interferon gamma signaling in colonic epithelial cells. A*merican Journal of Physiology: Gastrointestinal and Liver Physiology,* 302(1):G85-96, 2011; Advances in the understanding of mineral and bone metabolism in inflammatory bowel diseases. *American Journal of Physiology: Gastrointestinal and Liver Physiology*, 300(2):G191-201, 2011.

Nicolas Larmonier, PhD, associate professor, Section of Hematology/Oncology. Publications: Th-1 Lymphocytes Induce Dendritic Cell Tumor Killing Activity by an IFN-γ-Dependent Mechanism. *The Journal of Immunology*, 2011 Nov 9. [Epub ahead of print]; Cytotoxic dendritic cells generated from cancer patients. *The Journal of Immunology*, 2011 Sep 1;187(5):2775-82; The dendritic cell-regulatory T lymphocyte crosstalk contributes to tumor-induced tolerance. *Clinical and Developmental Immunology*, 2011; 2011:430394.

Emmanuel Katsanis, MD, professor, Section Chief of Hematology/Oncology, received a $100,000 "Hope Grant" from the Hyundai Hope on Wheels program to support his research in the treatment of relapsed acute leukemia following stem cell transplantation. Publications: Th-1 Lymphocytes Induce Dendritic Cell Tumor Killing Activity by an IFN-γ-Dependent Mechanism. *The Journal of Immunology*, Dec 15;187(12):6310-7; Cytotoxic dendritic cells generated from cancer patients. *The Journal of Immunology*, Sep 1;187(5):2775-82; Allogeneic effector/memory Th-1 cells impair FoxP3+ regulatory T lymphocytes and synergize with chaperone-rich cell lysate vaccine to treat leukemia. *Blood*, 2011 Feb. 3;117(5):1555-64.

Scott Klewer, MD, professor, Section of Cardiology; completed his term as Chief of Staff at The University of Arizona Medical Center – University Campus, and will assume Past Chief of Staff for one year.

Eileen McGrath, PhD, assistant professor, Section of Developmental and Behavioral Pediatrics, received a $3.6 million, five-year LEND grant.

Sydney Rice, MD, MS, associate professor, Section of Developmental and Behavioral Pediatrics, received a $3.6 million, five-year LEND grant.

Hua Xu, PhD, associate professor, Section of Gastroenterology and Nutrition; Publications: Somatostatin stimulates intestinal NHE8 expression via p38 MAPK pathway. *American Journal of Physiology: Cell Physiology*, 300(2):C375-382, 2011; NHE2X3 DKO mice exhibit gender-specific NHE8 compensation. *American Journal of Physiology: Gastrointestinal and Liver Physiology*, 300(4):G647-653, 2011.

DEPARTMENT OF PEDIATRICS *Faculty* CALENDAR YEAR 2011

Fayez K. Ghishan, MD, Professor and Head

Cardiology

Section Chief:
Ricardo Samson, MD
Professor

Brent Barber, MD
Associate Professor

Stan Goldberg, MD
Professor Emeritus

Scott Klewer, MD
Professor

Daniela Lax, MD
Associate Professor

Gregory Mike Nichols, MD
Clinical Lecturer

Santiago Valdés, MD
Assistant Professor

Critical Care

Section Chief:
Andreas Theodorou, MD
Professor, Clinical Pediatrics

Marc Berg, MD
Associate Professor

Hillary Franke, MD
Assistant Professor

Mary Gaspers, MD
Assistant Professor

Michael Karadsheh, MD
Assistant Professor

Robyn Meyer, MD
Associate Professor

Michele Munkwitz, MD
Assistant Professor

David Nathalang, DO
Assistant Professor

Katri Typpo, MD
Assistant Professor

Developmental & Behavioral Pediatrics

Sydney A. Rice, MD, MS
Associate Professor

Alan McBride, DO
Clinical Instructor

Eileen McGrath, PhD
Assistant Professor

Margaret Trouard, MD
Clinical Lecturer

Endocrinology

Section Chief:
Mark Wheeler, MD
Associate Professor

Kurt Griffin, PhD, MD
Assistant Professor

Chetan Patel, MD
Assistant Professor

Priti Patel, MD
Assistant Professor

Gastroenterology

Section Chief:
Hassan Hassan, MD
Professor

Rana Ammoury, MD
Assistant Professor

Fayez K. Ghishan, MD
Professor and Department Head

Aileen Har, MD
Assistant Professor

Pawel Kiela, PhD, DVM
Associate Professor

Hua Xu, PhD
Associate Professor

General Pediatrics

Section Chief:
Kimberly Gerhart, MD
Assistant Professor

Nicole Abdy, MD
Assistant Professor

Joel S. Blumberg, MD
Assistant Professor

Kathryn Bowen, MD
Associate Professor

Conrad Clemens, MD
Associate Professor

Karen Davenport, MD
Assistant Professor

William Marshall Jr., MD
Professor

Melissa Moore, MD
Assistant Professor

Richard Wahl, MD
Professor

Gracie Wilcox, MD
Clinical Assistant Professor

Genetics

Section Chief:
Christopher Cunniff, MD
Professor

Robert Erickson, MD
Professor

John Meaney, PhD
Research Lecturer

Hematology/Oncology

Section Chief:
Emmanuel Katsanis, MD
Professor

Puja Gupta, MD
Assistant Professor

Lisa Kopp, DO
Assistant Professor

Nicolas Larmonier, PhD
Associate Professor

Brenda Wittman, MD
Assistant Professor

Hospital Medicine/Outreach

Section Chief:
Cleo Hardin, MD
Associate Professor

Interim Section Chief:
Chan Lowe Jr., MD
Assistant Professor

Melissa Cox, DO
Assistant Professor

Rachel Cramton, MD
Assistant Professor

Deepti Deshpande, MD
Assistant Professor

Valerie Ebert, DO
Assistant Professor

Nancy Gruchala, MD
Assistant Professor

Tiffany Herr, MD
Assistant Professor

Eliza Holland, MD
Clinical Lecturer

Hengameh Rastegar-Murphy, MD
Clinical Lecturer

Jasna Seserinac, MD
Assistant Professor

Infectious Diseases

Section Chief:
Ziad Shehab, MD
Professor

Sean Elliott, MD
Professor

Neonatology

Section Chief:
Alan Bedrick, MD
Professor

Mo Bader, MD
Assistant Professor

Bohuslav Dvorak, PhD
Professor

Rachel Garner, MD
Assistant Professor

Melissa Halpern, PhD
Associate Professor

Ranjit Kylathu, MD
Assistant Professor

Joe Livingston, MD
Assistant Professor

Nephrology

Section Chief:
Emmanuel Apostol, MD
Associate Professor

Rouba Garro, MD
Assistant Professor

Pulmonology, Allergy and Immunology

Section Chief:
Wayne Morgan, MD
Professor

Mark Brown, MD
Professor

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