

Health Sciences

STEELE CHILDREN'S RESEARCH CENTER The University of Arizona COLLEGE OF MEDICINE - TUCSON DEPARTMENT OF PEDIATRICS PO BOX 245073 TUCSON AZ 85724-5073

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April 23

PANDA 17th Annual "Children Helping Children" Fashion Show and Luncheon The Phoenician Resort, Scottsdale

May 19

Father's Day Council Tucson 22nd Annual "Father of the Year Awards Gala" Loews Ventana Canyon Resort

June 4

2nd Annual "Southern Arizona Smokin' Showdown" **Hotel Congress**

August 19

Courtney's Courage 18th Annual "Tee Up for Tots Golf Tournament" Casino Del Sol Sewailo Golf Club

October 23

Kids of Steele 6th Annual Mini Golf Event Golf N' Stuff

STAY CONNECTED to the **UA STEELE CHILDREN'S RESEARCH CENTER**

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



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THE UNIVERSITY OF ARIZONA COLLEGE OF MEDICINE TUCSON

Steele Children's **Research Center**



ABOUT the **UA Steele Children's Research Center**

The University of Arizona Steele Children's Research **Center** is one of the prestigious Centers of Excellence within the UA College of Medicine – Tucson at the University of Arizona Health Sciences. Established in 1992, the UA Steele Center is the only facility in Southern Arizona where researchers and physician-scientists work together to advance medical knowledge through research to improve children's health. Areas of research include: allergy and immunology, autoimmune disorders, cancer, cardiology, critical care, developmental and behavioral pediatrics, endocrinology, gastroenterology and nutrition, genetics and pulmonology. What's more, our physician-scientists provide compassionate clinical care to patients at **Banner Children's at Diamond** Children's Medical Center and pediatric outpatient clinics in Tucson and throughout the state. As faculty members in the **UA Department of Pediatrics**, they teach and train the next generation of pediatricians and researchers. Learn more at: steelecenter.arizona.edu



About the University of Arizona Health Sciences

The University of Arizona Health Sciences (UAHS) is the statewide leader in biomedical research and health professions training. UAHS includes the UA Colleges of Medicine (Phoenix and Tucson), Nursing, Pharmacy and the UA Mel and Enid Zuckerman College of Public Health, with main campus locations in Tucson and the growing Phoenix Biomedical Campus in downtown Phoenix. From these vantage points, UAHS reaches across the state of Arizona and the greater Southwest to provide cutting-edge health education, research, patient care and community outreach services. A major economic engine, UAHS employs almost 5,000 people, has nearly 1,000 faculty members and garners more than \$126 million in research grants and contracts annually. For more information: uahs.arizona.edu

About the UA College of Medicine – Tucson

The University of Arizona College of Medicine - Tucson advances health and wellness through state-of-the-art medical education programs, groundbreaking research and advancements in patient care in Arizona and across the United States. Founded in 1967, the College ranks among the top medical schools in the nation for research and primary care and is leading the way in academic medicine through its partnership with Banner - University Medicine. For more information: medicine.arizona.edu



About the cover photo

Dr. Fayez K. Ghishan and his 2-year-old Arizona granddaughter, **Alexis,** are featured on this year's cover to commemorate Dr. Ghishan's 20-year anniversary at the UA. Alexis' parents, Adam and Jennifer Ghishan, both graduated from the UA and are proud Wildcats.

Photography by Steven Meckler

MESSAGE from the Director

Dear Friends,

During 2015, we re-energized our strategic planning for the University of Arizona Steele Children's Research Center.

We have developed plans for the next 10 years that will make the UA Steele Center one of the best pediatric research centers in the United States.

To reach our goals, we will be concentrating on three areas over the next 10 years.

The first area is autoimmune disorders. Comprised of more than 100 disorders, autoimmune diseases include IBD (inflammatory bowel disease), ulcerative colitis, Crohn's disease, celiac disease, asthma, rheumatoid arthritis, type 1 diabetes and cancer immunology, to name just a few.

The second area is genomic medicine, and how we're going to use genetic information, including whole genome sequencing, coupled with the microbiome of the gut, to understand human diseases.

The third area is developmental and behavioral pediatrics. This area is so important because of the recent increase in autism rates to 1 in 68 children.

We will embark on research in all three areas, coupled with translating our findings in basic science to clinical medicine.

Along with the Arizona Elks Pediatric Clinic, the PANDA Children's Aerodigestive Disorders Center, the PANDA Children's Neurological Center and the Angel Wing for Children with Diabetes, we will open a new center in 2016, focusing on the autoimmune disorders known as PANS/PANDAS. "PANS" stands for Pediatric Acute-onset Neuropsychiatric Syndrome and "PANDAS" stands for Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infections. These are newly recognized pediatric autoimmune diseases that are estimated to affect approximately 1 in 200 children.

Our advances over the next 10 years will make the UA Steele Center a flagship for pediatric research.

We can't do it without your help. Our success depends on the support of agencies such as the National Institutes of Health (NIH), philanthropic foundations, our community and individual donors.

I'm so grateful for your continued support of the UA Steele Center. Your help allows us to continue to improve children's health through research. Thank you!

In gratitude,

Jayez K. Ginhay

Fayez K. Ghishan, MD

The University of Arizona Health Sciences UA College of Medicine – Tucson

Professor and Head, Department of Pediatrics Director, UA Steele Children's Research Center Horace W. Steele Endowed Chair in Pediatric Research Physician-in-Chief, Banner Children's at Diamond Children's Medical Center



A Legacy of PASSION for Children's Health:



Dr. Ghishan and his granddaughter, Alexis.

sk those who know him, and they will undoubtedly tell you, **Fayez K. Ghishan, MD,** is one of the most passionate advocates for children's health they have ever met.

And it's true. His dedication to positively impact children's health is evident in the animated way he speaks about research; in the compassion he shows his patients—greeting each one with a warm smile and a gentle hug; the guidance he gives to medical students, residents, fellows and doctoral candidates; and through the stirring speeches he delivers to donors, volunteers, fundraising events and the community.

In 2015, Dr. Ghishan celebrated his 20-year anniversary at the University of Arizona, and more than 40 years in medicine.

"We are so proud of Dr. Ghishan," said **Peggy Rowley,** advisory board chair for the Steele Center. "When he asks

us to support research or tells us he must leave a meeting because he has patients, we see the dedication and compassion in his eyes. He is an amazing administrator, fundraiser, researcher and physician. His energy comes from one place—his heart."

"I'm as passionate about improving children's health now as I was when I started my career," said Dr. Ghishan. "This has been quite the journey."

His journey started in Jordan, where he was born. The oldest of nine siblings, Dr. Ghishan credits his mother with instilling in him a desire to pursue medicine.

"There were only two doctors in our town and my mom spoke fervently about how important doctors were to a community's health," he said. "In fact, she encouraged me to become a physician so I could help my community." The idea his mom planted—that he could positively impact his community—took root and grew. It has motivated Dr. Ghishan ever since.

"By the time I was 7, I knew I wanted to be a doctor," he recalled. A photo of Dr. Ghishan when he was about 7 years old shows him wearing a formal white

jacket, a tie, and carrying a leather briefcase. It reveals the determined sense of purpose he already had acquired, and that he still exudes to this day.

When Dr. Ghishan was just 16, he attended medical school at Ankara University in Turkey. He then went to the Royal Cornwall Hospital in England to pursue pediatrics. Upon completion, he returned to Jordan and worked as a general pediatrician for five years.

But something was missing.

"I saw so many children with GI problems, and many died. It was heart-breaking. I wanted to make a bigger impact, so I decided to come to the U.S. for training in pediatric gastroenterology."

Dr. Ghishan attended Pennsylvania State University and completed a residency in pediatrics. Next, he went to the University of Iowa to complete a fellowship in pediatric gastroenterology. "My mentor at Iowa sparked in me a love of science," he said. "It was through research I discovered

Dr. Fayez K. Ghishan Celebrates 20 Years at UA

I could have the greatest long-term impact on children's health."

In 1979, Dr. Ghishan joined Vanderbilt University School of Medicine. There, his scientific career flourished. "Vanderbilt gave me the tools of research—in molecular biology, molecular cloning and gene regulation," he said.

In 1995, Dr. Ghishan was recruited to the University of Arizona as professor and head of the UA Department of Pediatrics and director of the UA Steele Center. He is considered one of the UA's most prolific clinicians, enthusiastic teachers and productive scientists. In 2011, he was named physician-in-chief of Banner Children's at Diamond Children's Medical Center.

Patients and families adore Dr. Ghishan.

"When Dr. Ghishan is your doctor, you know your child will be cared for in every possible way," says **Erin Achilles**, whose son, **Gavin**, has been Dr. Ghishan's patient since infancy. "Dr. Ghishan's knowledge is powerful, his words comforting and his compassion and passion for his patients is amazing." His journey started in Jordan, where he

His journey started in Jordan, where he was born. The oldest of nine siblings, Dr. Ghishan credits his mother with instilling in him a desire to pursue medicine.

"Dr. Ghishan's level of knowledge, wisdom and scientific inquiry is unparalleled," said **Ellen Bublick, JD,** Dan B.

Dobbs Professor of Law, UA James E. Rogers College of Law. "I'm so grateful that he has been guiding my kids to such good health. There is no way they would be half as healthy as they are without Dr. Ghishan as their doctor."

In 2010, a long-time dream of Dr. Ghishan's was realized with the opening of Diamond Children's. "I'm so



Dr. Ghishan and Jim Click.



proud of this accomplishment," he said. "Thanks to the support of the **Diamond** family and countless others, Tucson has the only pediatric academic medical center in Southern Arizona."

Dr. Ghishan is equally passionate about research. He lights up a room with his enthusiasm as he talks about science and the impact it makes on children's health.

At the "Hyundai Hope on Wheels" ceremony in September, the UA Steele Center received \$400,000 for pediatric cancer research. Dr. Ghishan spoke about the continuing need for more research. Community supporter and philanthropist **Jim Click** attended the event.

"I'm so inspired by Dr. Ghishan," said Click. "I know he and his team work

Fayez K. Ghishan, age 7.

Dr. Ghishan has made an indelible impact on children's health. His career is marked by countless achievements and awards. His research has been continuously funded by the National Institutes of Health (NIH) for more than 30 years. He is internationally



Dr. Ghishan and his patient, Gavin.

recognized for his contributions to the field of pediatric gastroenterology. He was the first to clone a human intestinal sodium-phosphate transporter gene and has extensively characterized the structure, function and regulation of a variety of other sodium-phosphate

countless hours to discover a cure for pediatric cancer."

transporters. He's published more than 245 articles in peer-reviewed journals and more than 55 book chapters. He was the associate editor of the seminal textbook, *Physiology of the Gastrointestinal Tract, Volumes I and II*, fourth and fifth editions.

"I love my life, I love my family and I'm grateful for the opportunities I've been given at the University of Arizona over the past 20 years—to advance research, take care of children and teach the next generation of physicians and scientists."



PANDA Fashion Show Grosses Over \$1 Million to create the 'PANDA Children's Anti-Tumor Program'

he 16thannual **PANDA "Children Helping Children"** Fashion Show and Luncheon broke fundraising records, grossing \$1.1 million to support pediatric research efforts at the Steele Center.

The luncheon and fashion show took place at The Phoenician Resort in Scottsdale and was attended by nearly 1,000 people. Fifty-eight children participated in the fashion show. The theme of the event was, "When You Wish Upon a Star."

"This was an incredible and inspiring accomplishment, and we're so grateful for the PANDAs and their enduring dedication to children's health," said UA Steele Center director, Fayez K. Ghishan, MD.

The event netted about \$903,000 to create the "PANDA Children's Anti-Tumor Program." The program is led by pediatric oncologist and Steele Center researcher **Emmanuel Katsanis, MD,** professor and chief of the pediatric hematology/oncology/BMT division in the UA Department of Pediatrics.

"The traditional field of cancer treatment focuses on eliminating malignant cells," said Dr. Katsanis. "While chemotherapy directly kills cancer cells, there can be

devastating side effects. In addition, drug-resistant tumor cell clones may emerge, which leads to relapse and sometimes death. Now, our objective is to create an interface between traditional cancer chemotherapies and immune-based strategies, focusing on pediatric cancer patients," he explained. "We seek to identify a new generation of anti-cancer therapies with the ability to contain the cancer, develop natural immunity to the cells and reduce the emergence of tumor cell clones, and then translate the most promising of these approaches to treat children with cancer."

Funds from the event also enable the Steele Center to purchase two critical pieces of research equipment for pediatric cancer, support researcher start-up costs and support an endowment that will fund PANDA projects in perpetuity.

The event's co-chairs were Kylie Cook, Melinda Gulick, Sandy Hobbs and Jennifer Karas.

"The event was nothing short of amazing," said Karas, PANDA event chair. "It was truly an inspirational and emotional day, and we were able to shine a bright light on the power of medical research and the critical need for safer cancer treatments for our children."

NEC Research Advances to Human Studies

ecrotizing enterocolitis (NEC) is the most common inflammatory gastrointestinal disorder of premature infants. While advances in neonatal practice have improved the survival of infants born too early, the incidence of NEC has not decreased.

In the United States, approximately 9,000 infants per year develop NEC, with mortality rates from 20-40%.

In severe cases, a child's inflamed intestines may tear or perforate, allowing bacteria to leak into the abdomen, potentially causing a life-threatening systemic infection. Damaged intestines may require surgery to remove the infected areas. And unfortunately, many children who have surgical intervention must face lifelong digestive difficulties.

The cause of this disease remains

poorly understood. Treatment is mainly supportive and no predictive tests are available.

Steele Center researcher Melissa Halpern, PhD,

has been studying NEC for 16 years. Using neonatal rat and mouse models of NEC, Dr. Halpern and her research team were the first to show that bile acids play a crucial role in the development of this disease.

Bile acids, a normal component of digestion, are produced in the liver to break down fats for digestion and can be measured in fecal material.

"However, accumulation of bile acids within cells can be destructive, which is why there is a complicated process that moves bile acids in and out of cells," Dr. Halpern explained.

She is working with nurses at the Neonatal Intensive Care Units at Diamond Children's in Tucson and Saint Joseph's Hospital in Phoenix. To obtain a reliable sample size, nurses are gathering fecal samples from approximately 200 premature babies that will be analyzed by Dr. Halpern and her team. "We are investigating if fecal bile acid levels can be used as a biomarker to develop the first predictive test for NEC," said Dr. Halpern.

Preliminary results show significantly increased variability in fecal bile acids in babies that develop NEC, compared



"This process also controls the amount of bile acids produced. In NEC, we believe the process of bile acid transport is faulty, allowing the bile acids to accumulate within intestinal cells, which leads to cellular injury. Enough injury and the tissue eventually is destroyed."

Dr. Halpern's basic science research findings now have advanced to the next phase—human studies.

The cause of NEC remains poorly understood. Treatment is mainly supportive and no predictive tests are available.

to age-matched controls. Importantly, these variations occur before diagnosis. This information could be used to predict which babies are at risk of developing NEC, and physicians can intervene before irreparable damage to the intestines occurs.

"These studies have the potential to enable neonatologists to identify infants most at

risk, and alter their care before they develop this devastating disease," Dr. Halpern explained. For example, neonatologists may be able to use less aggressive feeding protocols to allow immature intestines to have more time to adapt—reducing the risk of NEC developing.

Dr. Halpern anticipates results of this phase of the study to be completed by June or July 2016. The next phase is to receive additional grant funding to

> collect fecal samples from more premature babies, so their findings will be statistically significant. "Of the 200 babies already enrolled, only 15 developed NEC," said Dr. Halpern. "To make a convincing

argument that variability in fecal bile acids can be a reliable predictor of NEC, a much larger sample of infants must be studied. To achieve the increased numbers needed, additional funding will be obtained to continue patient enrollment at the Tucson and Phoenix hospitals and to expand our collection sites to other NICUs."

A portion of this research was funded by the Phoenix Women's Board of the UA Steele Center, known as **PANDA** (People Acting Now Discover Answers), and the Arizona Elks Major Projects. Additional funding was provided by an NIH R21 grant.

Dr. Michael Seckeler Expands Teaching Methods with 3D Printer Technology



The 3-D model is converted from a CT scan.



A normal aorta (right) and a complex vascular ring (in red and white on the left).



The 3-D printer creating a model.

ediatric cardiologist Michael Seckeler, MD, **MSc**, assistant professor, is using threedimensional printing technology to transform teaching pediatric cardiology to medical students and residents at the UA College of Medicine -Tucson.

Thanks to a UA Sarver Heart Center fund that supports pediatric cardiology education, Dr. Seckeler received \$9,400 to purchase a Dremel 3D Idea **Builder** printer to create patient-specific 3D models of normal and abnormal hearts using computerized tomography (CT) and medical resonance imaging (MRI) scans.

The 3D models initially will be used to improve the educational experience for UA medical students and residents in pediatric cardiology.

"Laying a solid foundation of normal and abnormal cardiac anatomy is necessary for students learning cardiology," explained Dr. Seckeler. "The increased availability of 3D printers has created a new opportunity and method for teaching."

Dr. Seckeler already has begun using 3D models with trainees.

"Complex congenital heart lesions can be very difficult to conceptualize," said Pediatric Chief Resident Ian Thomas, MD. "3D printing technology gives residents and other trainees something tangible to learn from, which will improve patient care."

In addition, Dr. Seckeler plans to use 3D models to help patients and their families understand their specific congenital heart defects.

Dr. Seckeler already has begun using 3D models with trainees.

"Congenital heart defects and their treatment are complex and can be difficult for families to comprehend," said Dr. Seckeler. "Providing a model they can hold in their hands can help them understand what needs to be done to fix their child's heart."

Hyundai Hope on Wheels **Drives Pediatric Cancer Research Forward**

he University of Arizona Steele Center pediatric cancer researchers, **Emmanuel Katsanis, MD**, professor, and **Yi Zeng, MD, PhD**, assistant professor, received Hyundai Hope Scholar Grants from Hyundai Motor America's Hyundai Hope on Wheels® program, totaling \$400,000.

The grants were presented to Drs. Katsanis and Zeng at the Hope on Wheels Handprint Ceremony that took place in the lobby of **Diamond Children's** in September.

Every Handprint Ceremony celebrates the courageous lives of children facing cancer, and brings Hope on Wheels' community of supporters together.

Dr. Katsanis was awarded the \$250,000 Hyundai Scholar Award. This grant is awarded to senior researchers to support translational impact research. "This funding will enable me to further my research using novel posttransplant drug approaches to successfully suppress graftversus-host disease, while preserving graft-versus-tumor effects in patients who receive haploidentical bone marrow transplantation," Dr. Katsanis explained.

Every Handprint Ceremony celebrates the courageous lives of children facing cancer, and brings Hope on Wheels' community of supporters together.

Dr. Zeng was awarded the **Young Investigator Research** Award for \$150,000. This award supports innovative research by new and emerging scientists. "With this grant, I'll be able to study whether the enzyme Pak2 can be a new target for suppressing graft-versus-host disease and improving graft-versus-leukemia through its modulation of immune cells," said Dr. Zeng. "Our long-term goal is to improve the outcome of children receiving allogeneic bone marrow transplants."

In addition to the Hyundai Hope on Wheels grants, Tucson Hyundai dealer, philanthropist and long-time Steele Center supporter **Jim Click,** pledged an additional \$100,000 to support Steele Center research and the Louise Thomas Endowed Chair in Pediatric Cancer Research.

"I'm so grateful to Hyundai and Jim Click for their continued support of our pediatric cancer research program at the UA Steele Center," said Dr. Ghishan. "I'm deeply touched by their commitment to discovering new and better ways to treat children with cancer."



Bryce Taylor, patient, displays his painted hand.



Jim Click, center, presents the check for the Hyundai Scholar Grants.



Drs. Katsanis and Zeng, wearing their Hyundai Scholar white coats.

Curcumin Shows POTENTIAL to Prevent Inflammation-Associated Colorectal Cancer and Restore Microbial Gut Ecology

Researchers at the UA Steele Center made another promising discovery about **curcumin**—the bioactive ingredient in turmeric—the spice that gives curry its yellow color and flavor.

They discovered that curcumin is a potentially viable means to prevent inflammation-associated colorectal cancer and balance the microbiota of the gut.

"The microbiota of the gut is becoming recognized as a major player in health and disease," said **Dr. Ghishan.**

"This is the first study to implicate the role of curcumin in modulating the microbiota of the gut and preventing colon cancer."

Colorectal cancer (cancers of the colon and rectum) is the third-highest cause of cancer-related mortality in the United States. Individuals with Inflammatory Bowel Disease (Crohn's disease and ulcerative colitis) have a higher chance of developing colon cancer.

The American Cancer Society estimates that annually, approximately 133,000 people in the United States are diagnosed with colorectal cancer and about 50,000 will die from the disease.

Genetic components, environmental factors, inflammation and gut





Fayez K. Ghishan, MD

microbiota have been implicated as causing colorectal cancer and its progression. Diet, dietary supplements, exercise, controlling body weight and nonsteroidal antiinflammatory drugs (NSAIDs) have been proposed as the primary means to prevent colorectal cancer.

Curcumin has been shown in a number of studies to have anti-cancer effects and to enhance the effects of chemotherapy or radiotherapy.

Dr. Ghishan, **Pawel Kiela, DVM, PhD,** associate professor, and their research team have investigated the anti-inflammatory and anti-cancer properties of curcumin for several years.

In this study, former Dorrance Fellow and then-PhD candidate **Rita-Marie McFadden** studied the effects of dietary supplementation with curcumin on the development of Pawel Kiela, DVM, PhD

colorectal cancer and on changes in the composition of gut microbiota in mice with inflammation-associated colorectal cancer.

Curcumin has been shown in a number of studies to have anti-cancer effects and to enhance the effects of chemotherapy or radiotherapy.

Their study, "The Role of Curcumin in Modulating Colonic Microbiota During Colitis and Colon Cancer Prevention," was published in *Inflammatory Bowel Diseases*.

"Our research showed that specific doses of curcumin greatly reduced or prevented tumors from forming in mice with colitis-associated



Former Dorrance Fellow, Rita-Marie McFadden, PhD

colon cancer," said Dr. McFadden. "Moreover, this was associated with an increase in the diversity of bacteria within the colon, demonstrating how diet and microbial populations can play a significant role in disease prevention and treatment, especially during the switch from chronic inflammation to the onset of cancer. This is especially promising for patients with chronic inflammatory bowel disease who are at a high risk for developing colon cancer."

In the research model, the investigators used genetically modified mice, which lacked the anti-inflammatory protein interleukin to (IL-10), and thus spontaneously developed intestinal inflammation. They then were treated with azoxymethane (AOM), a chemical carcinogen capable of selectively inducing the formation of colon cancer.

The study showed that suppression of the mucosal inflammation was not necessary to see the chemopreventive effects of curcumin. In fact, at a dose of 0.5 percent in the diet, curcumin treatment led to a complete prevention of tumor formation. Moreover, in healthy and IL-10-deficient mice, long-term curcumin supplementation helped maintain bacterial richness and microbial diversity—the hallmarks of a healthy gut. This was associated with the expansion of Lactobacillales (represented mainly by genus *Lactobacillus*, which also includes known probiotic strains of bacteria). The relative abundance of the Lactobacillales order was decreased in mice with intestinal inflammation and cancer, with **dietary curcumin restoring this order to control levels.**

This finding may be highly relevant for the protective effects of curcumin, as *Lactobacillus* strains have been used successfully in preventing colorectal cancer in animal models and have been shown to protect against DNA damage, and *Lactobacillus* genus has been associated with stopping cell division and inducing apoptosis (a form of cell death) in colon cancer cell lines.

"Curcumin is a safe supplement and may have significant clinical value both in the general population and in those with inflammatory bowel disease in which increased occurrence of colorectal cancer has been documented," said Dr. Kiela.

About the Dorrance Endowed Fellowship

In 2008, the **Dorrance Family** Foundation gave a generous \$1 million gift to establish the **"Dorrance Endowed Fellowship in Pediatric** Gastroenterology and Nutrition" at the UA **Steele Center. The** goal of the endowed fellowship is to train promising young researchers in the areas of pediatric gastroenterology and nutrition, leading to improvements for

children.

'Kids of Steele' MAKE AN IMPACT through Fundraising, Service Projects and Community Outreach



ow in their sixth year, **Kids of Steele** (KOS) continue making a positive impact through fundraising, service projects that help patients, and community outreach.

In October, the group raised approximately \$71,000 at the Fifth Annual Mini Golf Event. held at Golf N' Stuff. For 2015, Kids of Steele raised \$110,000 for the UA Steele Center. Funds donated to the UA Steele Center are used for a variety of pediatric medical research projects and physician recruitment.

"Our mini golf event, presented by VIP Mortgage, was a huge success," said Jenny Horn, co-chair for the event. "Kids of Steele supporters had a blast playing mini golf and laser tag, riding bumper boats and go karts, plus

making special snack packs and fun crafts for patients. The event's theme was 'We Believe in Magic,' and promoted the idea that with community support, we can use research and advanced medical treatments to 'make magic happen' for patients and their families."

"I'm so impressed with the commitment of our Kids of Steele families," said Dr. Ghishan. "They continue to help the young patients we treat at Diamond Children's and outpatient clinics, while supporting the research we conduct at the Steele Center."

Throughout the year, Kids of Steele members participated in a variety of service projects and community outreach. Here are some highlights:

"Team Up Event with UA Football Team and Head Coach Rich Rodriguez"

community outreach event: This annual event for kids enabled them to participate in football drills and other activities with UA Coach Rich Rodriguez, his players and staff.

Breakfast in the Pediatric Hematology/Oncology clinic: Kids of Steele members hosted monthly breakfasts with donated food for patients and their families.

Angel Snack Packs: Kids of Steele provided more than 500 healthy snack packs that were distributed to patients at the Angel Wing for Children with Diabetes on a monthly basis.

Snacks in the Pediatric Hematology/Oncology clinic: Kids of Steele stocked staple snacks for patients—snacks that are available to patients on a daily basis.





"The event's theme was 'We Believe in Magic,' and promoted the idea that with community support, we can use research and advanced medical treatments to 'make magic happen' for patients and their families," said Jenny Horn.

"Frost Gelato Summer Fun": Kids of Steele shared gelato, courtesy of Frost, with patients in the lobby of Diamond Children's and to patients in their rooms.

Hematology/Oncology Activity Packs: At the mini golf event, KOS members assembled activity packs that were given to patients in the pediatric hematology/ oncology clinic.

Stocking Stuffing/Santa Visit: Members stuffed more than 200 holiday stockings that were distributed to patients at the pediatric outpatient clinics by Santa and KOS board members.

Adopted Families: During the holidays, Kids of Steele adopted four families whose children were receiving treatment at the pediatric hematology/oncology clinic. Kids of Steele provided gifts for the families-everything on their "wish list" and more.

To get involved or learn more, visit: kidsofsteele.org



Kids of Steele 2015 Superhero Members (\$500)

Jill & Chris Baker Kerry & Andy Byrd Nicole & Adam Churchill Sasha & Chris Clements Barbara & Michael Cusick Lizette & Manny Figueroa Adrienne & Jay Foust Shirley & Eric Geile Jenny & Matt Horn Jessica & Bob Huber Lisa & Thomas Kramkowski Wendy & Tim Kurtin Katie & Tony Milo Amy & Omar Mireles Julie & Matt Muehlebach Nicola & Adrian Ralph Anne & Chris Rounds Kacy & Ryan Schoff Rebecca & Jerry Sundt Kelly & Jesse Wild

Helping Kids is a Family Tradition for 'Dr. Ruth' and Her Daughters

Ruth Mondschein and her two daughters, Paula and Joan, spent much of their professional lives helping children – especially children with disabilities.

When Joan passed away in August 2014, Ruth and Paula wanted to do something meaningful to honor her memory.

Toward that end, they made a bequest to establish the **Dr. Ruth, Joan, and Paula Mondschein Endowment for Children's Research** at the UA Steele Center to honor Dr. Ghishan.

"Joanie loved and admired Dr. Ghishan, so we thought this would be a wonderful way to memorialize her and honor Dr. Ghishan at the same time," Ruth Mondschein explained. With a doctorate in humanities, letters and education, she is affectionately known as "Dr. Ruth."

"The reason for this endowment is to return to the beginning – to find new ways to prevent children's diseases – and that begins with research," she said. "I have such admiration for Dr. Ghishan. He is brilliant and progressive, and he knows which areas of research to focus on."

Dr. Ghishan was deeply grateful for the Mondscheins' generosity. "We are so touched by Dr. Ruth and Paula creating this endowment in Joanie's honor," he said. "Their commitment to improving children's lives is extraordinary."

An endowment builds a donor's legacy by advancing the mission of the UA in perpetuity. Endowments fulfill donors' wishes to support students, faculty or programs year after year using investment income and gains earned on the gifts' principal amounts.



Ruth and Paula Mondschein, 1987



Paula and Joan Mondschein, 1997

Funds from the endowment will support pediatric autoimmune disorders research as it relates to cancer, kidney diseases, type 1 diabetes, irritable bowel disease (Crohn's disease and ulcerative colitis), to name just a few.

They also hope to provide support for the UA School of Dance – under the direction of **Jory Hancock**, dean of the College of Fine Arts and director of the school – to encourage the talent of young artists.

"There is a joy that holds the world together: the joy of children," Ruth said, quoting Pearl S. Buck. "This really sums up why we chose to support the Steele Center. It's so important to help children as much as we possibly can."

Background

At 92, Ruth Mondschein exudes a joy and zest for life that is uplifting.

She swims every day. She is quickwitted and happy to describe in vivid detail a fascinating experience from her illustrious past – as an actor, singer, dancer, professor, professional speaker and an international advocate for people with disabilities, particularly children.

Ruth lived in Washington, D.C., for about 20 years, working for the U.S. Secretary of Education as director of special projects. During this time, she traveled throughout Latin America, helping raise awareness about children with disabilities and establishing programs to provide assistance.

Ruth moved to Tucson in 1995. She met Dr. Ghishan in 1996 through her friend, **Maxine Henig**, a member of the Steele Center's advisory board. Maxine invited Ruth to join her on the board.



"I've worked most of my professional life helping children, so it felt natural that I become involved with the Steele Center," Ruth said. In 1997, Ruth worked with her friend, **Jim Click**, to

In 1997, Ruth worked with her friend, **Jim Click**, to create the nonprofit organization Linkages, which "links" employers to qualified candidates with disabilities.

Her daughter, Paula, also devoted part of her career to enriching the lives of disabled children. She spent many years as a professional opera singer, performing and teaching opera in Rome. When she returned

"We are so touched by Dr. Ruth and Paula creating this endowment in Joanie's honor," said Dr. Ghishan. "Their commitment to improving children's lives is extraordinary."

to the United States, she completed a master's degree in music education. She then combined her love of music and children by establishing a successful opera educatio program for disabled youth and adults in New York. She expanded the program and worked with teachers and children throughout the United States.

"I believe the greatest compliment I received were letter from teachers, telling me they had changed their way of teaching based on my program," Paula said. Dr. Ghishan, Ruth and Paula Mondschein

s. Joan, too, worked to improve the lives of children with disabilities. She traveled throughout Europe, Latin America

and the Middle East, organizing and directing special projects for the U.S. Department of Agriculture, Very Special Arts (now known as VSA) and the President's Committee on Employment of People

n	With Disabilities. While in Guatemala, she worked with the minister of economic affairs and created a new initiative to train and hire disabled youth.
s	"The Mondschein family's long history of helping others, particularly children, is inspiring," said Ann Weaver Hart , president of the UA. "We are honored that Ruth and Paula have made this generous gift to the university so that the talented scientists in the Steele Children's Research Center can continue their work that makes such an important difference in the lives of children and their families."

"I Think I Can" Gala Raises Funds for

he fifth annual "I Think I Can" gala, benefitting the UA Steele Center and Banner Children's at Diamond Children's Medical Center, raised nearly \$160,000 for pediatric clinical and research programs.

Approximately 400 people attended the whimsical, lively, fun-filled and entertaining event that featured the theme, **"I Think I Can"** from the children's classic book, **"The Little Engine That Could."**

The event took place Oct. 16 at The Westin La Paloma Resort and Spa and was hosted by former UA Wildcat and San Antonio Spurs basketball player **Sean Elliott** and his wife, **Claudia**. The **UA Jazz Trio** and **Tucson Circus Arts** provided entertainment.

"I'm deeply grateful to the members of the UA Steele Center advisory board who worked countless hours to make this event a success," said **Dr. Ghishan**. "I'm also thankful to the **University of Arizona** and **Banner** for their support and commitment, because it is by working together that we can positively impact children's health through research and clinical care."

Proceeds from the event were designated for pediatric autoimmune disease research and pediatric health outreach.

Patients **Sarah Koenig** and **Bryce Taylor** inspired the audience by sharing their experiences struggling with cancer.

A surprise tribute video was shown to honor Dr. Ghishan, for his 20-year anniversary at the UA. It featured friends, donors, patients and colleagues from throughout his career.

Sean and Claudia Elliott, Dr. Ghishan, UA President **Ann Weaver Hart** and **Kathy Bollinger**, executive vice president of Banner University Medicine, delivered heartfelt speeches that emphasized the continuing need for community support in the areas of pediatric research and clinical care.

"'The 'Little Engine That Could' theme really hit home as I viewed the music video of children bravely fighting for their lives," said event co-chair **Louise Thomas**. "Their perseverance and optimism brought me to tears and confirmed the need to raise funds that will lead to their recovery."

The central decor piece for the gala was an award-winning float in the 2015 Rose Bowl Parade. Built and donated by the **Sierra Madre Float Association**, **Focus Logistics** generously trucked it to Tucson, where it was housed and rehabbed by the **Tucson Electric Power Company** and its employees, along with local racing enthusiasts led by **Jon** and **Peggy Rowley**.

"Although this was a fun evening, I hope our supporters know how important it is to keep research flowing at the Steele Center and support the care for children at Diamond Children's," said event co-chair **Peggy Rowley**.









UA Steele Center and Diamond Children's

















21st Annual Father of the Year Event Funds **Research & Education** for **Type 1 Diabetes**



ather's Day Council Tucson celebrated five outstanding Tucson fathers at its 21st annual "Father of the Year Awards Dinner and Gala," while raising about

FATHER'S DAY COUNCIL TUCSON

\$150,000 for type 1 diabetes research, fellowship education and the "Father's Day Council Tucson Endowed Chair for Type 1 Diabetes" at the UA Steele Center.

Type 1 diabetes is a lifelong, incurable autoimmune disease that occurs when the body fights itself and kills the insulinproducing cells in the pancreas. In the United States, approximately 18,000 children are diagnosed with type 1 diabetes every year. Currently, about 800 Tucson-area children have type 1 diabetes, and benefit from the impact made by Father's Day Council Tucson.

The event honors men who have demonstrated that they are dedicated fathers, outstanding community role models and successful in their chosen field. The honorees were: Greg Byrne, vice president for athletics, University of Arizona; Lorenzo Livingston, master sergeant, U.S. Air Force; **Patricio P. Lopez, III**, partner/attorney, Rusing Lopez & Lizardi Attorneys at Law; Warren S. Rustand, chief executive officer, Providence Service Corp.; Mark Wheeler, **MD**, associate professor, chief, Division of Endocrinology, the University of Arizona, Department of Pediatrics, UA Steele Children's Research Center.

Over the past 20 years, Father's Day Council Tucson has raised nearly \$3.5 million.

With their contribution in 2015, Father's Day Council Tucson has almost reached the \$1.5 million mark for the "Father's Day Council Tucson Endowed Chair for Type 1 Diabetes," which will be completed at \$2 million.

"We are so grateful for Father's Day Council Tucson," said Fayez K. Ghishan, MD. "Their support enables us

Over the past 20 years, Father's Day Council Tucson has raised nearly \$3.5 million.

to advance critically important research, and soon the endowment will be completed, which will enable us to recruit a world-class physician-scientist in pediatric endocrinology."

"I attend the Father's Day Council dinner every year because they are working hard to help bring more doctors to Tucson and give kids better care," said 17-year-old Saylor Stratton, diagnosed with type 1 diabetes when she was 2 years old. "The money they raise for research helps find better treatments for us, like the sleep study I participated in to see if sleep affects blood sugar levels."

Studying the Relationship between **Type 1 Diabetes and Sleep**

or the past few years, researchers at the UA Steele Center and the UA College of Education School Psychology Program have been studying the relationship between type 1 diabetes and sleep.

The research began with a pilot study that was partially funded by Father's Day Council Tucson and a faculty seed grant awarded through the **UA Foundation**. The pilot study examined the impact of sleep, sleep disordered breathing (like sleep apnea), sleep duration on daytime functioning and glucose regulation in children with type 1 diabetes.



The pilot program was led by Michelle M. Perfect, PhD, associate professor and associate program director, UA College of Education School Psychology Program and pediatric endocrinologist and Steele Center researcher Mark Wheeler, MD, associate

The research team discovered that children with type 1 diabetes did not sleep as deeply as those without diabetes. Youth with lighter

professor.

sleep, sleepiness and/or sleep-wake behavior problems experienced higher blood glucose levels, emotional and behavioral difficulties, reduced diabetes-related quality of life, lower grades, depression and lower math and reading scores.

"Sleep affects everyone. Studies have found a relationship between the quantity and quality of one's sleep and many health problems and learning," said Dr. Perfect.

The results of their study,

"Sleep, glucose, and daytime functioning in youth with type 1 diabetes," were published in the journal, Sleep. Another article that was published in the Journal of Applied School Psychology focused on self-reported sleep data and data obtained from school records, further supporting the role of sleep on GPA, attendance and standardized test scores.

These results led to a new grant, funded by the American Diabetes Association (ADA), "Elucidating the Role of Sleep in Glycemic Control and Neurobehavioral

> Saylor Stratton, participating in the sleep study.





Michelle M. Perfect, PhD



Mark Wheeler, MD



Cindy Chin, MD

Functioning in Youth with Type 1 Diabetes." This study examines the role of sleep in daytime functioning and glucose regulation in youth with type 1 diabetes, with a particular focus on developing a clinically relevant

"Sleep affects everyone. Studies have found a relationship between the quantity and quality of one's sleep and many health problems and learning," said Dr. Perfect.

intervention to improve sleep in this population. The project was one of four recently selected to be co-sponsored by the Order of the Amaranth Diabetes Foundation.

Dr. Perfect is the principal investigator, and Dr. Wheeler and pediatric endocrinologist **Cindy Chin**, **MD**, assistant professor, are co-investigators on the study. Results from this study are expected in 2016.



"This is the first sleep-related experimental study with a large enough sample size to examine if extending sleep in youth with type 1 diabetes will help facilitate their acquisition of important skills needed to be successful in school and to better manage their diabetes, as well as to improve their glycemic control," said Dr. Wheeler.

The researchers hope to receive additional grant funding to move this research forward.

For further information on this project, contact Dr. Michelle Perfect, mperfect@email.arizona.edu



The Arizona Elks Major Projects: An Enduring Legacy of Support

n every corner of the state, members of the **Arizona Elks** continue to propel the UA Steele Center forward in improving children's health through their generous legacy of giving.

For more than two decades, their extraordinary partnership has positively impacted the UA Steele Center's ability to improve children's health through research, and 2015 was no exception.

Last year, the Arizona Elks Major **Projects** donated more than \$250,000 to the UA Steele Center, the fourth installment of a 10-year commitment to raise \$2.5 million for research and education. From Apache Junction to Yuma, Kingman to Tucson, and in lodges throughout the state, Elks members raised funds in many ways: statewide raffles, golf tournaments, auctions and other unique charity events.

In making this \$2.5 million commitment, Elks members work tirelessly throughout the year to support the Steele Center's research in autoimmune diseases, including type 1 diabetes, inflammatory bowel disease and other research projects in Tucson and Phoenix.

"Their support has strengthened our ability to recruit the very best researchers to help us find answers to the most complex health issues facing our children," said **Dr. Ghishan.**

Since 1992, members in lodges around the state have contributed more than \$6 million, including funding for the Arizona Elks Pediatric Clinic and pediatric educational training for future physicians and scientists. Their amazing generosity is centered on a single purpose: help to create a healthier future for all children.

The Arizona Elks Major Projects, through its member lodges, has embraced the UA Steele Center's mission for more than 20 years.

"We are honored and grateful for their support again this year and for many years to come," said Dr. Ghishan.





The share and an an







Pilot Study Explores How Dogs May Help Children with Autism Improve Social Interaction Skills

an dogs help children with autism improve their social interaction skills?

To explore this auestion. developmental pediatrician and Steele Center researcher Sydney Rice, MD, MSc, associate professor, and her team, developed a pilot project to explore how a research study could be performed when it included dogs and children with autism.



It is well known that dogs and humans share a special bond.

What's more, interacting with dogs has been shown to confer significant health and therapeutic benefits.

Dogs are believed to improve the quality of social interactions in children with autism because dogs mimic social cues such as eye contact, shared enjoyment, and looking in the direction of a point, but they don't have the complex and subtle human facial and vocal cues that children with autism often cannot interpret.

Dr. Rice and her team looked at the feasibility of collecting "We plan to continue our partnership with the Humane information in an environment with many different Society Pet VIP program to expand this research into a variables (e.g., age and level of autism for the child, and larger study," said Andrews. personality of the dog). They focused specifically on the child's initiation of social interaction with the dog, their parents or their play facilitator during 25-minute weekly structured play environments.

The pilot program, named the **Autism and Animal**-Assisted Intervention Study was done in partnership with the **Humane Society Pet VIP** pet therapy program, of the Humane Society of Southern Arizona. In addition, experienced UA medical and undergraduate student researchers spent their evenings implementing the project.

"Research has shown that when humans and dogs interact and develop a relationship, the person's body increases production of the social hormone oxytocin and reduces production of the stress hormone cortisol," said Jennifer Andrews, PhD candidate, MBA, who wrote the protocol for the study was one of the program's facilitators.

"A study from Stanford showed that when oxytocin levels are increased in children with autism, their social function also increased," said Andrews.

> Jennifer Andrews, PhD candidate, MBA; Maureen Kelly, research coordinator; Sydney Rice, MD, MSc

Dr. Rice and her team wanted to determine if there was a change in social engagement when children interacted with dogs, compared to how they interacted with humans. "Our study evaluated interaction with pets for four weeks, and was focused on the feasibility of performing this type of study. We had to learn how to measure changes with a wide range of variables," said Dr. Rice.

Heba Albasha worked on the project as part of her participation in the Medical Student Research Program at the UA College of Medicine – Tucson . "We found that the number of social interactions initiated by the children toward the facilitator or their parent decreased over time and much more so in the groups with dogs," said Albasha. "We are now reviewing all videos again to see if this decrease matches up to a corresponding increase in social interaction with the proxy or the dog."

"This was a project of love," said Dr. Rice. "We had an army of dedicated volunteers and families. It was a positive and intense experience for all of us. The children and the dogs were all very different and we learned a lot about how to code and measure changes within the child-pet pairs. In future projects, we would like to measure biological markers of stress as well as coding social interactions."

The researchers' next step is to obtain funding to advance this research. "These preliminary data and experiences will help us with future projects and studies," said Andrews.



Advisory Board Member Jeannine Mason: A Creative Spirit with a Heart for Children's Health



he UA Steele Center advisory board member Jeannine **Mason** is a talented illustrator and graphic designer, with a heart for children's health.

"I first heard about the UA Steele Center from my longtime friend, Kathy Orr, who is a member of the advisory board," said Jeannine.

Jeannine joined the UA Steele Center advisory board at the end of 2014, and soon was actively involved. Contributing her artistic talents, Jeannine illustrated and designed all of the graphics for the "I Think I Can" Steele Center/Diamond Children's 5th annual fundraising gala that took place in October.

"I was so impressed when I met Dr. Ghishan and his staff, toured the Steele Center labs and learned about the

important research they are doing," she said. "I joined the advisory board so I could help raise awareness in the community about the work they are doing."

Jeannine also has a personal reason why she is so passionate about children's health and the need for research: her daughter **Mia** is a cancer survivor.

When Mia was 12 years old, she was diagnosed with a rare form of stage 2 ependymoma—a tumor that emerges from the ependyma, a tissue of the central nervous system. She had a walnut-sized tumor that was located in her cerebellum, which controls coordination. She was successfully treated with surgery and 33 rounds of radiation therapy.

"This harrowing experience changed our entire family," said Jeannine. "So, advancing awareness about research for children's diseases is something very close to my heart."

Jeannine is a native Tucsonan who attended the UA on a volleyball scholarship, and earned a BFA, with an emphasis on illustration. While there, she met her husband, former Arizona Basketball player **Harvey Mason Jr.** After graduating from the UA, Jeannine worked for different design firms for many years, in a variety of roles-from designer to creative director.

In 1995, she started her own company, Jeannine Mason **Graphic Design**, specializing in corporate identity programs, collateral pieces and print advertising for clients like the University of Arizona Foundation, Sunrise Ski Resort and many local financial institutions and small businesses.

Jeannine also has a personal reason why she is so passionate about children's health and the need for research: her daughter Mia is a cancer survivor.

Jeannine and Harvey also have a son, **Trey**, who is a junior at the UA and plays on the basketball team. Mia is currently a UA freshman and plays sand volleyball. "We are die-hard Wildcats, and I come from a long line of UA

> graduates," said Jeannine. "Yes, I bleed red and blue!"

As an advisory board member, Jeannine looks forward to raising awareness in the community about the UA Steele Center in order to increase funding for research.

"We can only do that if more and more people learn about and appreciate the important work being done right here in Tucson," she said.

UA Pediatric Pulmonary Center: Training Leaders to Care for Kids with Pulmonary Disorders

he University of Arizona Pediatric Pulmonary Center (UA PPC) received a five-year, \$1.69 million renewal grant from the Maternal and Child Health Bureau (MCHB) of the Health Resources and Services Administration (HRSA).

First funded in 2000, the UA PPC serves as a regional and national resource center for training and educating the next generation of leaders who care for children with chronic pulmonary disorders within the disciplines of medicine, nursing, nutrition, social work, pharmacy and family advocacy.

"In addition to training the next generation of leaders, this important grant allows the UA PPC to provide technical assistance to governmental and non-governmental agencies involved in maternal and child health," said pediatric pulmonologist Mark Brown, MD, professor, and director of the UA Pediatric Pulmonary Center. "We also provide continuing education to maternal and child health professionals in our region—Arizona, Nevada, California, Hawaii and the six U.S. Pacific Island Territories."

Training and educating the next generation of leaders in pediatric pulmonary health.

Training programs promote comprehensive, family-centered and culturally sensitive interprofessional systems of health care that serve

the diverse needs of families within their communities. PPC traineeships are available in pulmonary medicine, nursing, nutrition, pharmacy, family advocacy and social work.

"This program was an amazing introduction to an interdisciplinary health-care approach for working with children and adults," said former PPC trainee Dane Clark. MSW. "The curriculum was well-designed, with a variety of learning activities, community site visits and cuttingedge lectures. The hands-on approach of working directly with patients, collaborating with professionals and creating new ideas was beneficial. Most importantly, I felt like I was actually making a difference in the lives of the people we were helping."



associate director.







Seventh Annual PPC School Healthcare Training Event. Pictured from left: (back row) Mailin Rivera, PPC social work trainee; Sofhia Ytuarte, PPC nurse trainee; Mary McGuire, MSW, PPC social work faculty member; Mark Brown, MD, PPC director; Joanne Douthit, MN, RN, CPN, PPC nurse faculty member; Patricia Settle, MS, RDN, PPC nutrition faculty member; Melanie Esher-Blair, MAdm, PPC program coordinator; (front row) Hanna Phan, PharmD, BCPS, PPC pharmacy faculty member; Amanda Sharpe, BS, PPC family liaison and Cystic Life coordinator; Lisa Rascon, MEd, PPC

Courtney's Courage Donates \$40K for Pediatric Cancer Research

• ourtney's Courage (formerly known as Tee Up For Tots) donated \$40,000 to the UA Steele Center for its pediatric cancer research program.

Courtney's Courage raised the funds through its "17th Annual Tee Up For Tots Golf Tournament" that took place at the Omni Tucson National Resort in August.

Funds will support research examining novel immunotherapy strategies to treat pediatric cancer. "This is an approach that will continuously release tumor antigens and immunostimulatory cytokines for a few weeks, thus stimulating effective tumor-specific immunity," said pediatric oncologist **Emmanuel Katsanis, MD**, professor, division chief of pediatric hematology/oncology, and the Louise Thomas Endowed Chair in Pediatric Cancer Research. "We are hoping this research will lead to novel immunotherapies."

Dr. Katsanis and his team are working in collaboration with Klearchos Papas, PhD, professor, UA Department of Surgery. "I believe this research will lead to a breakthrough approach in stimulating potent and tumor-specific immunity against cancer with a special emphasis on pediatric tumors," said Dr. Katsanis. "We are so grateful to Courtney's Courage for their continued support to help us find more effective treatments for pediatric cancer."



Kathy Zillman-Oqden, administrator for Courtney's Courage, presents the check to Dr. Katsanis.

FY2014-2015 **FACTS & FIGURES**

Total amount raised: \$2,630,770

Types of Donors: ▶ 11% Corporations ▶ 50% Foundations ▶ 39% Individuals

Types of Donations: ▶ 46% Direct donations ▶ 54% Donations raised from events

The Department of Pediatrics Welcomed these NEW FACULTY **MEMBERS** in the Calendar Year 2015



Daniel Combs, MD Assistant Professor Division of Pulmonology, Allergy/ Immunology and Sleep Medicine



Zoe González-García, MD Assistant Professor Division of Endocrinology

Jenny Mendelson, MD

Assistant Professor

Division of Critical Care



Geetha Gopalakrishnan, MD Assistant Professor Division of Hospital Medicine



Clare Lindner, MD Assistant Professor Division of Nephrology



Alicia Palmer. MD Assistant Professor Division of Hospital Medicine



Rajan Senguttuvan, MD Assistant Professor Division of Endocrinology

Where Philanthropy Funds were Directed: 60 I ▶ 55% Research 50 32% Endowment > 2% Education 40 ▶ 5% Clinical ▶ 12% Annual Fund/Greatest Need 30 20 10



How Philanthropy Funds were Used

▶ 94% Teaching, Healing, Discovering ▶ 6% Administration and Fundraising



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A Priceless Gift from the Heart... and Hands

ohn Shamy, 88, is a creative man with a love for building and restoration.

For more than 30 years, John has been building dollhouses. He started making them for his granddaughters and then for his great granddaughters and some close family friends

In 2015, he built his 13th dollhouse, specifically to donate to the UA Steele Center.



Hannah and Claire Achilles

"This dollhouse was a delight for my dad to make," said his daughter Michelle Hobbs, who is a member of the UA Steele Center's Phoenix Women's Board, known as PANDA (People Acting Now Discover Answers). "It took him considerably more time to complete, and he worked up to 6 hours every day for about 4 months."

"This dollhouse is truly a work of art and we are deeply touched by John's magnificent gift," said **Dr. Ghishan.**

"My dad's love for creative projects began when he started restoring vintage automobiles," said Michelle. "He then moved on to 'slightly' smaller projects, like building a life-size playhouse—with electricity! —and a full-size backyard gazebo as well."

Dr. Ghishan knew his patients Claire and Hannah Achilles would enjoy the dollhouse. "The girls love it!" said their mom Erin Achilles. "Actually, all my kids doand we are so blessed by John's creation."

Faculty Highlights 2015

Alan Bedrick, MD, professor, division chief, Division of Neonatology; editorial board of the American Academy of Pediatrics NeoReviewsPlus.

Mark Brown, MD, professor, Division of Pulmonology; Grants: Maternal and Child Health Bureau (MCHB) 5-year funding renewal (\$1.7M) for the UA Pediatric Pulmonary Center; Recognition of Quality Award, Chapter Quality Network Asthma Project Phase 4, American Academy of Pediatrics. Publications: Underutilization of guideline-recommended chronic asthma management in children hospitalized to the intensive care unit: A multicenter observational study. Annals of Allergy Asthma & Immunology 2015; 115(1):10-16. Fluticasone furoate for the treatment of childhood asthma. Expert Review of Respiratory Medicine 2015; 9:391-404.

Daniel Combs, MD, assistant professor, Division of Pulmonology, Allergy and Immunology; Award: "Ann Elizabeth Surrett Young Investigator Award," received at the 14th International Symposium on Sleep and Breathing (Pernambuco, Brazil). Publications: Longitudinal differences in sleep duration in Hispanic and Caucasian children. Sleep Medicine. 2015 Jun 29; Modified STOP-Bang Tool for Stratifying Obstructive Sleep Apnea Risk in Adolescent Children. PLoS One. 2015 Nov 18; 10(11).

Sean Elliott, MD, professor, Division of Infectious Diseases: chair. Western Region – Association of Pediatric Program Directors, 2015; director, Southern Arizona Biocontainment Unit, a CDC and ADHS-licensed Treatment Center for Highly Infectious Diseases (including Ebola Virus and MERS); Publication: Rat Bite Fever. Red Book®: 2015 Report of the Committee on Infectious Diseases. 30th ed. Kimberlin DW, American Academy of Pediatrics, 2015; 666-667.

emeritus, Division of Genetics and Developmental Pediatrics; *Publications*: Altered regulation of hepatic efflux transporters disrupts acetaminophen disposition in pediatric nonalcoholic steatohepatitis. Drug Metabolism and Disposition, 43:829-835; Association Study of Genotype by Depressive Response During Trytophan Depletion in Subjects Recovered from major Depression. *Molecular Neuropsychiatry*, 1:165-174.

Robert Erickson, MD, professor

Hillary Franke, MD, associate professor, Division of Critical Care; completed two-year fellowship program in integrative medicine from the UA Center Integrative Medicine at the UA College of Medicine – Tucson.

Kimberly Gerhart, MD, assistant professor, division chief, Division of General Pediatrics; Publications: Identification of young children for participation in studies of spectacle correction through pediatric primary care clinics: A pilot study. Investigative Ophthalmology & Visual Science 2015;56: ARVO E-Abstract 2204; Assessment of Grating Acuity in Infants and Toddlers using an Electronic Acuity Card: The Dobson Card. Clinical & Experimental Optometry (manuscript accepted 12/2015). Honors: Best Doctors in America, 2015.

Fayez K. Ghishan, MD, professor and head, Division of Gastroenterology and Nutrition; Publications: The Role of Curcumin in Modulating Colonic Microbiota During Colitis and Colon Cancer Prevention. Inflammatory Bowel Disease, 2015 Nov;21(11):2483-94; Intestinal NHE8 is highly expressed in goblet cells and its expression is subject to TNFa regulation. The American Journal of Physiology-Gastrointestinal and Liver Physiology, 2015 Nov 12:ajpgi.00367; Loss of NHE8 expression impairs intestinal mucosal integrity. The American Journal of Physiology-Gastrointestinal and Liver Physiology, 2015 Dec 1;309(11):G855-64.

Emmanuel Katsanis, MD, professor, Division of Hematology/Oncology/ BMT; Hyundai Scholar Senior Researcher Award (\$250k), "Posttransplant bendamustine, a novel approach to T replete haploidentical BMT." Publications: Endoplasmic reticulum chaperones and their roles in the immunogenicity of cancer vaccines. Frontiers in Oncology. 2015 Jan; 4:379. PMID: 25610811; Immunotherapy for pediatric solid tumors. In *Cancer Immunology: Cancer* Immunotherapy for Organ-Specific Tumors 2015, Springer-Verlag Berlin/ Heidelberg 47-67.

Pawel Kiela, DVM, PhD,

associate professor, Division of Gastroenterology and Nutrition; *Publications*: T Lymphocyte Dynamics in Inflammatory Bowel Diseases: Role of the Microbiome. *BioMed Research* International, 2015; 2015:504638; The Role of Curcumin in Modulating Colonic Microbiota During Colitis and Colon Cancer Prevention. Inflammatory Bowel Disease. 2015 Nov; 21(11):2483-94.

Lisa Kopp, DO, associate professor, Division of Hematology/Oncology/ BMT; promoted to associate professor; Publications: Neuroblastoma. In Reference Module in Biomedical Sciences 2015, Elsevier Science Direct, New York/Amsterdam; Extramedullary breast relapse of acute lymphoblastic leukemia controlled with a second allogeneic/autologous hematopoietic cell transplant. Journal of Adolescent and Young Adult Oncology 2015 Mar; 4(1): 50-53.

Margaret Kurzius-Spencer, MPH, MS, PhD, assistant professor, Division of Gastroenterology and Nutrition; Grants: September 2015 (5 year), NIH/ EPA-funded Center for Indigenous Environmental Health Research (CIEHS), University of Arizona. Role: Co-Lead, Exposure Science Core; October 2015, Pilot Study Award (1 year), Southwest Environmental Health Sciences Center (SWEHSC),

University of Arizona. Role: PI. Study titled: Dietary Arsenic Species: Exposure, Dose, Metabolism and Toxicity. *Publications*: Dietary inorganic arsenic intake in the US and relation to serum matrix metalloproteinase-9 at different threshold concentrations of tap water arsenic. Journal of Exposure Science and Environmental Epidemiology 2015, Jan 21. [Epub ahead of print] (PMID: 25605447); Prevalence and Characteristics of Autism Spectrum Disorder among 4-year-old Children in the Autism and **Developmental Disabilities Monitoring** Network. Journal of Developmental and Behavioral Pediatrics 2015, Dec 9. [Epub ahead of print] (PMID:26651088).

Daniela Lax, MD, professor, Division of Cardiology; promoted to professor; Publication: Application and utility of iPads in pediatric teleechocardiography. *Telemedicine and* e-Health, September 2015.

Francis J. Meaney, PhD,

lecturer, Division of Genetics and Developmental Pediatrics; Publications: Fetal Alcohol Syndrome among children aged 7-9 years in 2010 - Arizona, Colorado and New York. Morbidity and Mortality Weekly Report, 64(3):54-57, 2015 January 30; Health services received by individuals with Duchenne/Becker muscular dystrophy. Muscle and Nerve [published online June 4, 2015].

Robyn Meyer, MD, associate professor, Division of Critical Care; Publications: Drowning Resuscitation: Pediatric Comments and Considerations. Chapter in Handbook on Drowning - Prevention, Rescue, Treatment, 2nd edition, Bierens J, ed. Springer (2015) pp. 641-649. Honors: Best Doctors in America, 2015-2016.

Wayne Morgan, MD, professor, division chief, Division of Pulmonology, Allergy and Immunology; Honors: Named co-chair of the 29th Annual North American Cystic Fibrosis Conference (NACFC).

Melissa Moore, MD, assistant professor, Division of General Pediatrics; director of pediatric global health; Publication: Global Health Education in U.S. Pediatric Residency Programs. Pediatrics. 2015; 136 (3): 458-465.

assistant professor, Division of Cardiology; Award: Elected to the Executive Committee for the Pediatric Interventional Cardiology Early Career Society (PICES) as the online content editor. Grants: Vernon & Virginia Furrow Award for Medical Education Research: Use of 3-D Models of Congenital Heart Defects to Improve Pediatric Cardiology Education; Sarver Heart Center Congenital Heart Disease Education. Publications: Use of Smart Technology for Remote Consultation in the Pediatric Cardiac Catheterization Laboratory. Congenital Heart Disease. Published online Nov. 11, 2015. (DOI: 10.1111/chd.12308); Hospital Resource Utilization for Common Non-cardiac Diagnoses in Adult Survivors of Single Cardiac Ventricle. The American Journal of Cardiology. Vol. 116, No. 11 2015, pp. 1756-1761. (DOI: 10.1016/j.amjcard.2015.09.008); Other: Local Primary Investigator for closure of atrial septal defect with the AMPLATZER® Septal Occluder (ASO) post market surveillance study. Sponsor: St. Jude Medical, Inc.

Andreas Theodorou, MD, professor, Division of Critical Care; appointed Chief Medical Officer for Banner - University Medical Center; Publications: Therapeutic hypothermia after out-of-hospital cardiac arrest in children. New England Journal of Medicine. 2015 May 14:372(20):1898-908.

Michael Seckeler, MD, MSc,

Katri Typpo, MD, MPH, assistant professor, Division of Critical Care; Session moderator and invited speaker at the National Institutes of Health, Eunice Kennedy Shriver National Institute of Child Health and Human Development Multiple Organ Dysfunction: Invited faculty speaker at the Society of Critical Care Medicine, Pediatric Current Concepts Course to speak on "Pediatric ICU Nutrition: Can We Improve Outcomes?"; PI on multi-center clinical trials: Age of Blood in Children in the Pediatric Intensive Care Unit (ABC PICU) Trial; Genetic Epidemiology and Immune Response of Life-Threatening Influenza in Children and Young Adults (PICFlu Study). Grants: Sarver Foundation William "Billy" Gieszl Pediatric/Congenital Heart Disease, "Gut Dysbiosis is a Target to Improve Surgical Outcomes for Infants Born with Congenital Heart Disease;" Baxter Corporation Investigator Initiated Research Grant, "Supplemental Parenteral Nutrition for Pediatric Respiratory Failure (Supper) Trial"; Publications: Clinical characteristics associated with postoperative intestinal epithelial barrier dysfunction in children with congenital heart disease. Pediatric Critical Care Medicine. 2015 Jan; 16(1):37-44

Yi Zeng, MD, PhD, assistant professor, Division of Hematology/Oncology/ BMT; Hyundai Scholar Senior Researcher Award (\$150k), "Exploring Pak2 regulation of MDSC associated with GvHD and GvL"; Publications: The complex pathophysiology of idiopathic aplastic anemia. Clinical & Experimental Immunology 2015 Jun;180(3):361-70. Epub 2015 Apr 23. PMID: 25683099; Pak2 regulates hematopoietic progenitor cell proliferation, survival, and differentiation. Stem Cells. 2015 May;33(5):1630-41. doi: 10.1002/ stem.1951. PMID: 25586960.

2015 List of Donors

\$250,000+

Angel Charity for Children Arizona Elks Major Projects Iacqueline Cowin and Family Hyundai Hope on Wheels Ruth Mondschein and Paula Mondschein PANDA (Phoenix Women's Board)

\$100,000-\$249,999

Father's Day Council, Tucson Gifts in honor of Warren Rustand. Father of the Year Kids of Steele

\$50,000-\$99,999

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