

SAVE THE DATE! 2008 Events Benefiting the Steele Center

April 19, 2008

PANDA (People Acting Now Discover Answers) "Children Helping Children" Fashion Show (Phoenix) Arizona Biltmore

May 16, 2008

Father's Day Council Tucson Fathers of the Year Golf Tournament Loews Ventana Canyon Resort

June 14, 2008

Father's Day Council Tucson Fathers of the Year Awards Gala Loews Ventana Canyon Resort

June 21, 2008

Active Women's 20-30 Club Red Hot Havana Event Westward Look Resort

August 22, 2008

Tee Up for Tots Golf Tournament Hilton El Conquistador

October 10-11, 2008

Raise a Racquet for Kids Tennis Tournament Tucson Racquet and Fitness Club

To learn more, please visit www.steelecenter.arizona.edu

In Memory of a Steele Center Friend

Bob McCleery, 1942-2008

The Steele Center mourns the passing of our dear friend and supporter, Bob McCleery.

A warm, compassionate, positive and humorous man, Bob inspired us with his commitment to children.

Passionately devoted to children's health issues, Bob supported the Steele Center as an advisory board member for many years. As a member of the Arizona Elks Major Projects, Bob was instrumental in establishing the "Arizona Elks Endowed Chair in Neonatology." Bob was also actively involved with the Optimist Club, which supported a variety of clinical and research programs at the Steele Center.

We remember Bob fondly, and miss him dearly.



STEELE CHILDREN'S RESEARCH CENTER



2007 REVIEW

Building Tucson's First Children's Hospital: Diamond Children's Medical Center

PANDA Center Opens!

Exploring the Causes of NEC

Ian Jongewaard: Colleague and Friend

Understanding the Molecular Basis of Atherosclerosis in Diabetes

NHE-3 Providing Ground-breaking Clues to Deadly Diarrhea



IN LOVING MEMORY

This annual review is dedicated to the memory of Bereniz Moreno

Bereniz "Bere" Moreno was born on June 5, 1985. Her incredible faith, upbeat character and passion for life inspired those who knew Bere. She had a beautiful smile and an unselfish way about her that melted hearts. Bere enjoyed playing volleyball, dancing, singing and modeling. She loved being with her family and friends.

In August 2004, Bere was diagnosed with synovial sarcoma—a soft tissue cancer. After a courageous battle, Bere passed away on September 28, 2006. She was loved by all who knew her. Words cannot express how much she is missed.

Steele Children's Research Center Review
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Steele Children's Research Center

The Steele Children's Research Center is a place where internationally recognized researchers work together to solve the medical problems of children. Our pediatricians, who also are faculty members in The University of Arizona Department of Pediatrics, play a unique role in the community—as physicians, researchers and teachers. Our goal is to advance medical knowledge to help improve the health of Arizona's children and children throughout the world.

Dedicated in 1992, the Steele Children's Research Center was built with private funds to advance the health concerns of children. The Steele Center was named in honor of the late Horace W. Steele of Phoenix. The Steele Foundation donated \$2 million to help build the Steele Children's Research Center. We continue to thrive with the support of the community.

Only 9 percent of the Steele Center's budget is covered by state dollars. The rest comes from clinical income, research grants and philanthropic support.

To learn more about the Steele Children's Research Center, please visit www.steelecenter.arizona.edu. The Steele Center is proud to be one of the Centers of Excellence at The University of Arizona College of Medicine.

A Year of Transformation

Letter from the Director: Fayez K. Ghishan, MD

The year 2007 was one of transformation for the Steele Children's Research Center.

Thanks to our wonderful volunteer group, People Acting Now Discover Answers (PANDA), the **PANDA Children's Aerodigestive Disorders Center** is completed! We are excited that we can now serve the growing numbers of children throughout the Southwest who suffer from these troubling disorders. Please read the article about the PANDA Center on page 10. You will be inspired by what can be accomplished by a group of dedicated women.

In November, UMC announced the building of Tucson's first children's hospital—**Diamond Children's Medical Center**. The hospital is named in honor of Steele Center supporters Donald and Joan Diamond, who donated \$15 million toward the project. We are deeply touched by their wonderful gift.

Building Tucson's first children's hospital signifies a major turning point for the Steele Center. Diamond Children's will transform children's healthcare in Tucson and Southwest Arizona. Creating a children's hospital has been my vision since I arrived here from Vanderbilt 12 years ago, and the dream of all our faculty and researchers.

Because the Steele Center is the only facility in the state researching pediatric diseases, developing new treatments and making medical advances for children, it makes a natural collaboration with UMC for building a children's hospital. A children's hospital connected to an academic research facility provides an integrated system of clinical care, cutting-edge research and training of the next generation of pediatricians.

Diamond Children's will significantly increase our ability to recruit top physicians, surgeons and scientists. Growing our faculty means we will be able to create new programs and endowments to offer services that have not been available in Tucson. As we develop these programs, we will increase both research and clinical care capacity. Please read more about it in the following pages.

Toward that end, we have a lot of hard work ahead of us over the next few years! We hope you will join us in our efforts to build Diamond Children's into a world-class children's hospital—the only children's hospital in Arizona with an academic research component—the Steele Center.

With the continued support of our tireless volunteer groups, our passionate supporters and friends, Diamond Children's will become a reality in the spring of 2010. I am so thankful for your commitment, encouragement—and most importantly—your unwavering dedication to children's health.

With immense gratitude,

Fayez K. Ghishan, MD
Professor and Head, The University of Arizona Department of Pediatrics
Director, Steele Children's Research Center



Diamond Children's Medical Center: Building Tucson's First Children's Hospital

"Finally, a hospital in Tucson just for kids!" says an enthusiastic 13-year-old Lizzie Bell. "This is going to be so cool!" She would know. Diagnosed with Diamond-Blackfan anemia when she was six weeks old, Lizzie has spent a lot of time in a hospital. "I've been coming to UMC every couple of weeks to receive blood transfusions, so UMC is like a second home to me."



Kathy Bell and her daughter Lizzie

Last November, UMC announced plans to build Tucson's first children's hospital—**Diamond Children's Medical Center**, in honor of Tucson philanthropists Donald and Joan Diamond, who provided the lead gift of \$15 million.

Lizzie's mom, Kathy, was delighted when she heard the news. "We've had to travel out of state for some specialized services," says Mrs. Bell. "We've been in children's hospitals and you definitely see a difference. Kids love them."

Construction of the children's hospital is part of UMC's \$200 million expansion project, which is being funded by the sale of revenue bonds. The additional cost to complete the children's hospital—estimated at \$55 million—will be offset by philanthropic funding. "There will be many opportunities for the community to participate in making Diamond Children's a reality. This is truly an exciting time for our community," says UMC President and CEO Greg Pivrotto. Diamond Children's is scheduled for completion in 2010.

"The time is right," says Dr. Ghishan. "We have spent years planning for a children's hospital. We have held focus groups with our patients, families and children to get their input into what they would want in a children's hospital. We have

We're building...
**Diamond Children's
Medical Center at UMC**
Be a part of the dream.

consulted with experts in children's hospital design to create a truly healing environment. And now, with Tucson's population exceeding 1 million, it's time to have a hospital completely devoted to the health-care needs of children."

"Diamond Children's" is currently under construction at UMC. It will have 116 beds and occupy approximately 100,000 square feet, with room for future growth. The ground floor of the new tower will be devoted to a new children's lobby and pediatric emergency department, which will be open 24/7.

A "family-centered" children's hospital

Diamond Children's will be a "family-centered" pediatric hospital. Family-centered means the hospitalized child's parents are actively involved in all aspects of the child's care, and the design of the hospital accommodates families' physical, psychological, social and spiritual needs. Rooms are designed to make it more comfortable for patients and accessible for



parents—from private bathrooms and showers, to comfortable sleeping beds, to laundry facilities. Designated "family spaces" will be located throughout the hospital—places for parents to use computers, grab a snack or search the internet. A meditation room will provide families time to reflect, pray or meditate, and gardens will provide respite for both patients and their families.

"Research shows that a family-centered children's hospital improves health outcomes," says Vicki Began, RN, MN, vice president, UMC Women and Children's Services. "Children are not 'little adults.' They have unique needs and require specialized care that is best delivered through a dedicated children's hospital. We are committed to creating an environment that is positive and healing to children."

Unique in Arizona

Diamond Children's will be unique in Arizona because it will be the only children's hospital connected to an academic research facility—the UA's Steele Center.

"The Steele Center and UMC make an ideal collaboration for building a children's hospital," says Dr. Ghishan. "A children's hospital will enable us to recruit more top-notch pediatric specialists, surgeons and researchers than ever before, enabling us to offer additional specialized services and conduct more research." He adds, "All of the prominent children's hospitals across the country are connected to academic institutions. In the end, patients benefit from being treated by physicians on the cutting-edge of bench-to-bedside medicine."

Excellence in design

Special attention has been devoted to architecture, design and "theming" of Diamond Children's. "It will be a beautiful healing environment," says Lori Throne, RN, MSN, director of UMC Women and Children's Services. "Designed with the help of children and their parents, it will be both a warm and welcoming place, appealing to all of the senses. From the moment you walk into the hospital lobby, with its natural lighting and



creative design, you'll know you have entered a special place for children," she says.

"I can't wait," says Lizzie, who already is raising money for the new hospital. She and some friends have held a car wash and bake sale, and are planning fundraisers every month. "I wanted a way to give back," she says.



Be a Part of the Dream: Join us in Making Diamond Children's a Reality



Endowed excellence in research and clinical care

Many opportunities are available to contribute to building Diamond Children's—from program and endowment support to naming opportunities.

With the completion of Diamond Children's in the spring of 2010, will come the need to recruit and hire additional faculty: pediatric sub-specialists, surgeons and researchers. The most effective way to attract the best and the brightest is through **endowed programs** and **endowments**. An endowment is a permanent fund; the donated principal is invested in perpetuity and only the annual earnings from it are used.

Endowed funds are critical for creating key positions and major programs in pediatric research and clinical care. If you are interested in exploring tax-deductible opportunities in endowment creation at the Steele Children's Research Center, please contact: **Lori Stratton**, Associate Director of Development, Steele Children's Research Center 520-626-7799; stratton@peds.arizona.edu

You also may contribute online at www.steelecenter.arizona.edu.

Programs and Endowments:

- **Diabetes endowment**—Nearly one in 250 children will be diagnosed with Type 1 diabetes before reaching high school. Type 1 diabetes is more common than all childhood cancers combined.
- **Pediatric cardiology endowment**—Congenital heart defects are the most common birth defects, and care for children affected by them consumes 25 percent of all pediatric health-care resources.
- **Gastrointestinal/Nutrition endowment**—Such an endowment would provide funding for children's liver/intestinal transplantation, and for research in children's Celiac Disease, Inflammatory Bowel Disease, and Children's Metabolic Syndrome.
- **Pediatric Cancer and Blood Disorders endowment**—The completion of the Louise Thomas Endowed Chair for Pediatric Cancer Research would allow expansion of current research efforts to develop new treatments for children with cancer.
- **Pediatric Pulmonary Diseases Endowment**—More than 5 million children have asthma, with more being diagnosed every year. Asthma is the most prevalent chronic condition in children. An endowment in pediatric pulmonary diseases would guarantee long-term basic and clinical research programs to develop better treatments for asthma and other debilitating pulmonary disorders.

Naming opportunities

Diamond Children's has many "bricks-and-mortar" naming opportunities. Those currently available are listed below. This list will grow as plans are refined.

If you are interested in tax-deductible naming opportunities, please contact:

Kent Rollins, President, UMC Foundation

520-694-7770; krollins@umcaz.edu

Tom Sanders, Senior Development Officer, UMC Foundation

520-694-6599; tsanders@umcaz.edu

You also may contribute online by visiting

www.diamondchildrens.org.

First Floor:

- Children's Emergency Room
- Children's Exam and Treatment Area
- Children's Waiting Room and Triage Area
- Children's Hospital Lobby
- Gift Shop
- Meditation Area
- Library/Resource Center

Fourth Floor:

- Neonatal Intensive Care Unit (NICU)

Fifth Floor:

- Children's Medical/Surgical Units
- Children's Play Room

Sixth Floor:

- Blood and Marrow Transplantation Unit (BMT)
- Hematology/Oncology Unit
- Children's Play Room

Roof:

- Heliport

Grounds:

- Children's Hospital Entry Plaza
- Gardens

FEATURES OF DIAMOND CHILDREN'S:

- 116 beds; 100,000 square feet
 - ▶ NICU (Neonatal Intensive Care Unit): 36 beds; located on the fourth floor
 - The NICU will have special "nesting rooms" where parents can stay with their children long term.
 - ▶ Medical/surgery rooms: 36 private rooms; located on the fifth floor
 - Each room has a bathroom and shower
 - Sleeping bed for parents
 - Each room has wireless Internet access
 - Shell space for future growth
 - ▶ PICU (Pediatric Intensive Care Unit): 26 private rooms (includes a six-bed specialty unit); located on the sixth floor
 - Each room has a bathroom and shower
 - Sleeping bed for parents
 - Each room has wireless Internet access
 - ▶ Hematology/Oncology: 12 private rooms; located on the sixth floor
 - Each room has a bathroom and shower
 - Each room has wireless Internet access
 - ▶ BMT (Blood and Marrow Transplantation): Six private rooms; located on the sixth floor
 - Each room has a bathroom and shower
 - Each room has wireless Internet access
- Separate entrance and lobby from University Medical Center
- 24/7 Pediatric ER
- Pediatric playroom on each floor
- Teen activity room (will serve as a lounge in the evenings)
- Ronald McDonald Family Room
 - ▶ Washer/dryer available for laundry
 - ▶ Family room for parents and family members to rest, watch TV, read or use Internet
- Lactation room
- A stage for children to see performances, concerts, graduations or parties
- Library/classroom for children to receive tutoring and catch up on homework
- Meditation room
- Healing garden
- Food/beverage kiosks conveniently located on each floor
- "World Class" room service available
- Gift shop

Princess in Pink: Karlee Miller



Karlee Miller raises her arms to greet you with a hug. She is a sweet, friendly, energetic and playful 6-year-old who loves princesses, the color pink, Dora the Explorer, Build a Bear and playing games on her Wii.

In 2006, what appeared to be an innocent bump on Karlee's leg was diagnosed as Rhabdomyosarcoma—a rare pediatric soft-tissue cancer. "What a shock it was to find out that our little girl had a rare form of cancer," says Karlee's mom, Tammy. "Our whole world was instantly turned upside-down."

What followed were months of surgeries, chemotherapy, blood and platelet transfusions and many hospital stays at UMC. Tests showed that Karlee's tumor shrank, giving hope that it was operable. However, an MRI revealed that the cancer had spread throughout her left tibia—the bone just below her knee. "This was the hardest decision for a parent to make: to amputate Karlee's leg in order to save her life," says her father Steve. The surgery took place on March 28, 2007. Karlee recovered quickly and healed well. "Karlee is doing great with her new prosthetic leg and we know this won't slow her down," says Tammy.

"Even though Karlee lost her leg to cancer, she has maintained a positive attitude throughout this ordeal," says Steve. "She has received excellent care from her Steele Center pediatric oncologist Dr. Rochelle Bagatell, and the nurses have been wonderful," he says.

As Karlee continues to improve, she is contributing to improving treatments for the future by participating in a clinical trial at the Steele Center. "We hope that the discoveries made from clinical trials will improve treatment options for children with cancer in the future," says Steve.

For the next five years, Karlee will face many challenges. She will need many scans, blood draws and tests. "We look forward to the day when we're told that Karlee is cancer-free," says Tammy. Dr. Bagatell adds, "Karlee has been a real trooper, and we all just adore her." In the meantime, the Miller family is grateful for the exceptional care their extraordinary daughter has received.



Karlee and her parents.

Tee Up For Tots Courtney Page Zillman Fellow 2007: Collin J. LaCasse



Congratulations to **Collin J. LaCasse**, who has been named the 2007 Tee Up For Tots Courtney Page Zillman Fellow.

Collin began his PhD studies in the UA Department of Immunobiology in 2006, and joined the lab of Emmanuel Katsanis, MD. His research interests include understanding immune responses to cancer and controlling that immune response to treat pediatric cancers.

Dr. Katsanis' laboratory has developed a novel cancer vaccine, CRCL (Chaperone Rich Cell Lysate), which soon will enter clinical trials. However, the efficacy of all cancer vaccines is limited by the cancer cells' ability to suppress the immune system. Cancer does this by initiating recruitment and proliferation of immune regulatory cells. These cells dampen anti-tumor immunity in the tumor microenvironment. Collin is working with researchers Dr. Katsanis and Nicolas Larmonier, PhD, to explore ways to suppress the activity of these regulatory cells and therefore allow for greater anti-tumor immunity. To do this they are investigating a variety of drugs that may specifically inhibit the action of regulatory cells. The success of this approach should drastically impact the success of cancer vaccine treatments.

Collin attended Lafayette College in Easton, Penn. While at Lafayette, Collin was a member of the Phi Kappa Psi fraternity, International Student Association, the Catholic Newman Association and the (South Asian) Tsunami Relief Committee. As a member of these groups he twice held the office of philanthropy committee chairman and fostered numerous community service collaborations among each of these organizations. Collin's research interest in cancer immunology was sparked during this period while doing two years of independent research under Robert Kurt, MD in the Department of Biology.

"Thank You" from Collin LaCasse

Whether raising funds, supporting a loved one, working in the clinic or innovating in the lab, we are all doing what we can to make a difference in the fight against cancer. This is no small feat for any of us. Making a difference against cancer is difficult weather you choose the fight against cancer or cancer chooses



the fight against you. Shortly after being named the **Courtney Page Zillman Fellow**, I sent Mr. Zillman an e-mail. I told Mr. Zillman that even before I knew who Courtney was, I found her picture on the wall of one of Steele Center's research hallways inspiring.

Working toward a PhD in immunology and cancer biology is not easy. Courtney reminded me that as taxing as cancer research can be, my battle against cancer in the lab is absolutely nothing next to the battles that Courtney and countless other children battling cancer have fought. Those of us who have been blessed with the ability to fight cancer on our own terms should always be thankful of this fact. This is why every day I go to work, my goal is to win this fight in the lab so that all children can have an illness-free childhood like I had. Because of help from Tee Up For Tots, our lab is in a position to help bring forth a new era where cancer will someday be a thing of the past.

Cancer research is expensive and the decreasing amount of federal funding has made securing research dollars harder than in any other time in recent memory. Our laboratory is better off than most because of the strong leadership, innovation and expertise of Dr. Katsanis and Dr. Larmonier. However, even our lab has felt this pinch in federal funds. This is where Tee Up For Tots has helped us maintain our momentum at a time when many other labs have had to scale back their research.

Tee Up For Tots funding has supplied us with much of the materials and equipment we need for continued progress in the lab. Their generosity has contributed greatly to our lab's novel cancer vaccine, CRCL which will be entering clinical trials in the coming months. The Courtney Page Zillman Fellowship, in addition to making the research that I do possible, has opened up funding for other promising researchers whose continued efforts have been indispensable.

I am truly thankful for this opportunity as the Courtney Page Zillman Fellow. I can't wait for the day when our findings in the lab and the implementation of those findings in the clinic will contribute to the eradication of pediatric cancers. Tee Up For Tots has helped us immensely to help make this day come a little sooner.



Exploring the Causes of Necrotizing Enterocolitis

Every year, more than half a million babies in the U.S. are born prematurely. That's about 12.5 percent of all births. Babies born prematurely (before 37 weeks) face a host of serious health problems. Many of these potential health risks are well known and understood, including mental retardation, cerebral palsy, lung and gastrointestinal problems, vision and hearing loss.

Another less-known disease that threatens premature babies is Necrotizing Enterocolitis (NEC)—a painful inflammatory gastrointestinal disorder. Every year, approximately 9,000 premature infants are diagnosed with NEC in the U.S., and 20-50 percent won't survive. And these numbers are increasing annually.

Steele Center Research Assistant Professor **Melissa Halpern, PhD**, recently was awarded a five-year grant from the National Institutes of Health (NIH) to investigate the mechanisms involved in the development of NEC. Dr. Halpern's interest in this disease isn't just professional; it's personal, too. Her son, Ryan—born 8 weeks prematurely—developed NEC when he was 4 weeks old. "We were lucky," says Dr. Halpern. "Ryan's NEC wasn't severe enough to require surgery. But this was a wake-up call to a disease that is fairly common among preemies, but not well known or understood." This personal experience profoundly influenced Dr. Halpern, and she changed her research focus to NEC.

The exact cause of NEC is unknown, and there are no specific treatments for this devastating disease. 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. New research also has shown a higher rate of learning disabilities in children that developed NEC as newborns.

Using a neonatal rat model of NEC, Dr. Halpern and her team were the first to show that elevated levels of intestinal bile acids contribute to disease development. Building upon their past research, her laboratory now is focused on understanding why bile acids accumulate in the intestine causing the damage that leads to NEC.

For a variety of reasons, babies born prematurely usually are fed formula instead of breast milk. The essential fats in formula are different than those in breast milk and require more bile acids to break down the fats for digestion. Normally, the liver produces bile acids and sends them to the intestines to do their job of breaking down the fats. Transporter systems move the bile acids into the intestinal cells to complete the digestion process.

Next, another transporter system removes the bile acids from the cells and takes them back to the liver, where the liver determines if more bile acids are needed for digestion.

With NEC, however, this doesn't happen. Dr. Halpern and her team hypothesize that there is a malfunction with the transport system responsible for exporting the bile acids from the cells back to the liver. "Essentially, we believe that the transporter mechanisms fail to adequately remove the bile acids from the intestinal cells. Because little bile is re-circulated back to the



Dr. Halpern and her son, Ryan.

liver, the liver continues to send more bile acids to the intestine. Consequently, bile continues to accumulate, causing damage to the intestines—leading to NEC," Dr. Halpern explains. "Our grant is exploring the reasons why the transport mechanisms are faulty."

"If these hypotheses are verified through our research, we may be able to use elevated levels of bile acids in premature infants' intestines to predict which babies are at risk of developing NEC. Once identified, we can intervene before irreparable damage to the intestine occurs," explains Dr. Halpern.

A Dream Realized: the PANDA Children's Aerodigestive Disorders Center Opens

"Whatever you can do or dream you can do, begin it. Boldness has genius, power and magic in it. Begin it now." — Goethe



After months of hard work, planning, dedication and creativity, the "PANDA Children's Aerodigestive Disorders Center" has been completed and is seeing children. "The PANDA Center has been made possible through the generosity, vision and passion of our Phoenix Women's Board—the PANDAs," says Dr. Ghishan. "We are immensely grateful for their fundraising efforts that have made the center a reality."

"To know that we have contributed to creating a new center that provides such wonderful and effective treatments for so many children just encourages us to work harder," says Penny Gunning, a founding member of the PANDAs, which stands for **People Acting Now Discover Answers**.

The PANDA Center is the only one of its kind in the state of Arizona and the Southwest. Located within the UPH Multi-specialty Clinic at 535 N. Wilmot, the center serves children who

suffer from aerodigestive disorders—complex problems involving the airway, lungs and digestive tracts caused by food allergies and airborne allergens. A few examples of these disorders include eosinophilic esophagitis (EE), eosinophilic gastroenteritis (EG) and gastroesophageal reflux disease (GERD), to name a few. Children with aerodigestive diseases experience nausea, vomiting, stomach pain, choking, cramping and diarrhea. Many children often fail to grow.

Arizona has far more cases of EE/EG and other aerodigestive disorders than the national average. Until now, there has been no dedicated clinic in the entire Southwest region where children



Dr. Ghishan with patient Gavin Achilles.

could receive the special care needed for these painful disorders. This meant that children and their families often had to travel to Cincinnati or Philadelphia to receive the specialized care they needed.

What makes the PANDA Center unique is its team approach to treat children with aerodigestive disorders. "Because aerodigestive disorders span the sub-specialties of gastroenterology/nutrition, pulmonary and allergy/immunology, a team approach is the best way to treat these children," says Dr. Ghishan. The team includes pediatric gastroenterologist Dr. Ghishan; pediatric allergist/immunologist Michael Daines, MD; pediatric pulmonologist Cori Daines, MD; and nutritionist Lindsay Brown, MS, RD.

Robyn DeBell, another founding member of the PANDAs,



PANDA Center Treatment Room

says, "The PANDA Center is at the core of the philosophy of Phoenix Women's Board members. We believe in 'acting now to discover answers'—answers to help physician-scientists bridge the gap between research and treatment, and answers to reduce the anxiety of a child affected by illness. We feel fortunate to participate in promoting state and worldwide children's health through the physician-researchers at the Steele Center."

Those who benefit the most from the new center are, of course, the children who receive care. Erin Achilles, the mother of 2½-year-old Gavin (diagnosed with EG when 4 months old) is delighted with the new center. "We are so grateful and blessed to have the new PANDA Center in our community, she says.

"The physicians and the nursing staff have given us the best possible experience and positive outcome for Gavin. Their passion for treatment, education and raising awareness of aerodigestive disorders in our community is inspiring. Thank you to the whole PANDA team and above all, thank you for our son's life back!"

Donor Highlight: Mark and Lorna Kipphut

Mark and Lorna Kipphut share a passion for improving the lives of children. Serving in the Air Force, they have lived all over the world, including Germany, Korea, Washington D.C., Virginia and Hawaii. They loved Tucson when first stationed here in 2002. Upon retirement from the military, they decided Tucson would become their permanent home.



Lorna, Mark and Madeline Kipphut

They have one daughter—Madeline—who is currently a freshman at Catalina Foothills High School.

The Kipphuts learned about the Steele Children's Research Center through their neighbors. As they learned of the exciting research being conducted at the Steele Center, they became enthusiastic supporters. "We know our contributions to the Steele Center will help improve children's health," says Mark.

Mark and Lorna have been personally touched by children who passed away from illness. Mark's older brother died of viral meningitis as a toddler, and Lorna's nephew died at early birth from congenital heart disease. Blessed that their daughter, Madeline, is healthy, they want all families to feel that blessing as well. "We believe that supporting the Steele Center is important because the research conducted there will help children for decades," says Lorna.

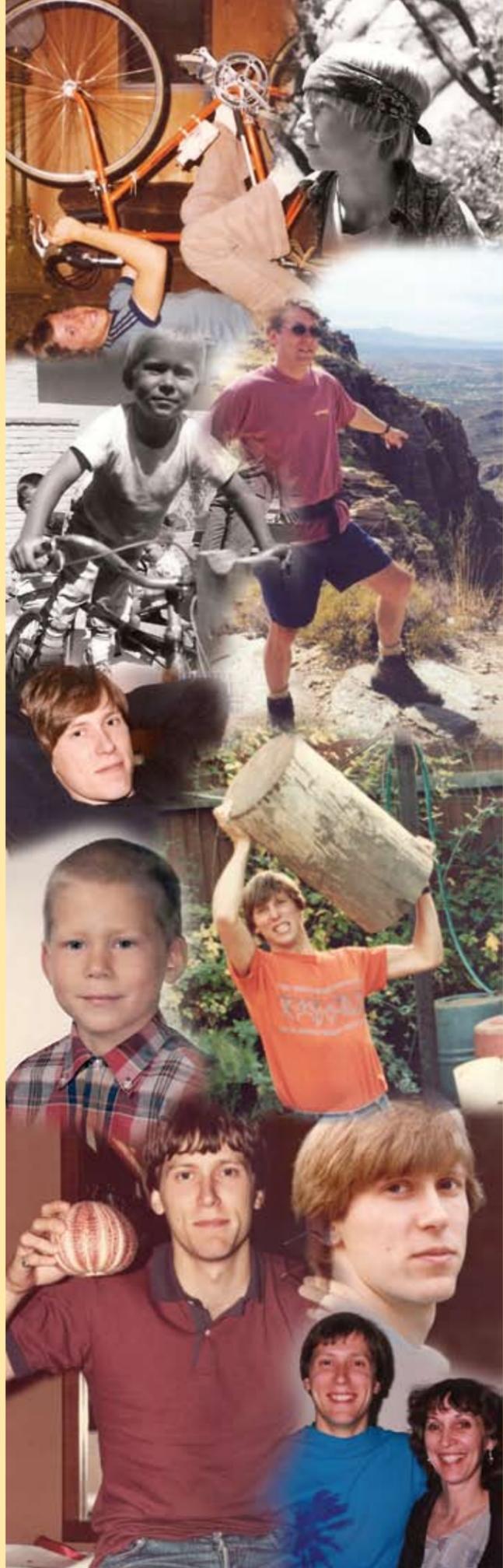
Lorna retired from the Air Force in 1998. She currently volunteers at Davis-Monthan Air Force Base and is part of the Officers' Spouses Club which is a non-profit organization geared to improving the lives of military families' worldwide. She also volunteers at her daughter's high school in various capacities.

Since 2006, Mark has been the Director of Strategy and Business Development at Raytheon Missile Systems. In addition to serving on the Tucson Advisory Board for the Steele Center, he also serves on the Catalina Foothills School District Foundation.

"Children are our future, and giving to the Steele Center now will reap benefits for years to come," says Mark. Lorna adds, "We think it is important to give to the community where you live."



Entrance to the Panda Center.



Beloved Colleague and Friend: Ian Jongewaard, PhD 1961-2006

On November 19, 2006, we lost our beloved colleague and friend, Ian Jongewaard, PhD, Research Assistant Professor. He was 45.

Ian specialized in pediatric heart development research. An energetic, positive, friendly and fun-loving individual, Ian exuded warmth and joy to both colleagues and visitors to the Steele Center. "Ian exemplified the best of the scientific minds in this country. He was intelligent, creative and innovative. We miss him," says Dr. Ghishan.

In February 2004, Ian was diagnosed with glioblastoma multiforme—an aggressive brain tumor. He underwent three brain surgeries, radiation and continuous chemotherapy. Even during treatment, Ian continued to passionately investigate heart development and what causes it to sometimes develop abnormally. His partner, Michelle Goetz, was by Ian's side during his battle with cancer. "Ian showed considerable strength. Even during his first round of radiation treatment, he continued to walk to work. He never complained," she says. "I loved that he loved to giggle. He had a sense of innocence about him that was refreshing. He was my best friend, my partner, my hero."

Curiosity, laughter and joy

Ian was born on June 2, 1961, in Oakland, California. "As a young boy," his mother Brie Jongewaard recalls, "Ian was curious about everything, which sometimes got him into trouble." "He loved frogs. He loved to observe nature in action," she says. As Ian grew, his insatiable curiosity and keen eye for observation developed into an interest in science.

Ian was naturally athletic. As a teenager, Ian was active in weightlifting and bicycling. While in high school, he was one of the original members of the Berkeley Bicycling Club. He built the frame for his racing/touring bike.

Ian was a gregarious and outgoing person who had many friends of all ages and ethnicities. "He was my closest friend at work," says colleague Sherman Garver, PhD. "He was the one person I could really talk to. Ian was humble and always willing to help me, when needed."



Pursuing a love of science

After graduating from high school, Ian pursued his love of science, earning a B.S. in biology and chemistry from California State University and a PhD in molecular biology/biochemistry from the University of California, Irvine. He completed post-doctoral fellowships in molecular biology at the Scripps Research Institute and the Burnham Institute in San Diego. In 1998, Ian joined the pediatric cardiology research team at the Steele Center, led by Scott Klewer, MD.

"Ian was a rare individual," says Dr. Klewer. "He was a gentleman, a true friend and an outstanding scientist. His infectious enthusiasm and genuine warmth made Ian a pleasure to interact with each day."

In 2001, Ian was promoted to Research Assistant Professor, and managed the Genomic Research Laboratory at the Steele Center. Ian's research investigating gene expression of developing hearts and protein engineering received funding from the American Heart Association, National Science Foundation and the National Institutes of Health.

"Ian's intense desire to gain new knowledge greatly accelerated our progress in understanding the molecular regulation of heart development. He truly loved science while living life to the fullest," says Dr. Klewer.

An extraordinary life

"Ian was a marvelous mixture of fun and wit, intelligence, generosity, compassion and athletic prowess. He had the remarkable ability to make fun of himself and get really silly giggling at his own humanity," says his mother.

In short, Ian was an extraordinary person—although he would never admit it—who touched countless lives. He was authentic and brilliant, yet down-to-earth and approachable. He had that gleaming spark and joie de vivre that results from living a life of purpose and passion.

We miss Ian, our beloved colleague and friend.

Endowment Established in Ian's Memory

In his honor, the Steele Center is establishing an endowment in Ian's name. The Ian Jongewaard Endowment will support promising young investigators who are dedicated to pediatric research.

Donations for this endowment may be made to the Steele Center through UAF/SCRC.

Please call Lori Stratton at 520-626-7799 for more information.

NHE-3 Providing Clues to Deadly Diarrhea

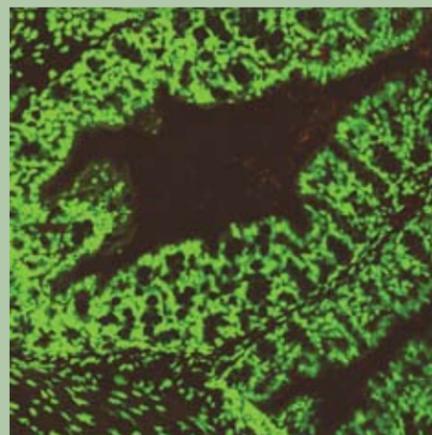
The numbers are staggering and heartbreaking: approximately 5 million children under the age of 5 die from diarrhea every year. One of the most widespread and pervasive health problems in underdeveloped nations, diarrhea is a leading cause of childhood deaths worldwide.

With a \$1.8 million grant from the National Institutes of Health (NIH), Steele Center researchers **Fayez K. Ghishan, MD**, Professor and Head, and **Pawel Kiela, PhD**, Research Associate Professor, are investigating the reasons why diarrhea can be so deadly. "What we have discovered in the lab is of enormous significance and answers the question of why so many children die from diarrhea," Dr. Ghishan says.

Most children (and adults) are plagued by acute diarrhea a few times each year. We're all familiar with the unwelcome symptoms: abdominal pain and cramping, bloating, nausea, and loose bowel movements. Individuals with gastrointestinal disorders like celiac disease, ulcerative colitis and Crohn's disease frequently struggle with inflammatory-associated chronic diarrhea.

Diarrhea occurs because the intestines cannot absorb salt. Caused by bacteria, viruses, parasites, medications, functional bowel disorders and food allergies, diarrhea typically is treated by drinking ample amounts of electrolyte-rich liquids to provide essential salts and nutrients. Normally, diarrhea is resolved within a few days, although some conditions that cause chronic diarrhea require medical treatment.

For children living in sanitary conditions with clean water and plenty of food, diarrhea is easily treated. However, because so much of the water in the Third World is contaminated, most of the population is exposed to disease-carrying bacteria. Malnutrition leaves children weakened, making them especially susceptible to infection from tainted water or other means. And the immune systems of very young children are not completely



The epithelial lining when NHE-3 is not inhibited.



Drs. Kiela and Ghishan

developed, so when they get diarrhea, it quickly can develop into a dangerous condition.

"Severe diarrhea can lead to death in a matter of days—from dehydration or sepsis resulting from highly inflamed intestines," Dr. Kiela says.

Discovery through research

Drs. Ghishan and Pawel are working at the basic-science level to understand what happens in the GI tract during severe diarrhea.

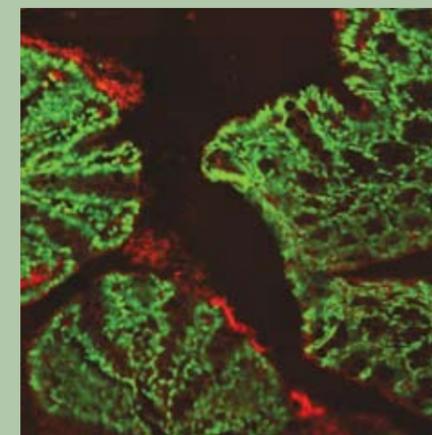
Individuals have nine sodium-hydrogen exchangers, or "transporters," known as NHE (Na-H-Exchanger). NHEs are proteins responsible for transporting sodium across the GI tract for absorption. "The classic premise to explain diarrhea is that inflammation inhibits the sodium-hydrogen transporters' ability to move salt through the GI tract. Thus, your intestines cannot absorb salt and this is why you get diarrhea," explains Dr. Ghishan.

Drs. Ghishan and Kiela have documented new findings about the role of NHE-3, one of the nine sodium-hydrogen transporters. It is well known that NHE-3 is the predominant sodium-hydrogen transporter responsible for the majority of sodium transport across the GI tract. "When the intestines become inflamed, NHE-3 becomes inhibited, so it can't move sodium through the GI tract, resulting in diarrhea," says Dr. Kiela.

"But there is more," Dr. Ghishan explains. "Our research has revealed that NHE-3 has a role beyond that of transporting salt to the GI tract for absorption. We found that NHE-3 is involved in the integrity of the epithelial lining—the cellular structure

that creates the intestinal wall, which separates the gut from the bloodstream. We discovered that when NHE-3 is inhibited, or 'knocked down' by inflammation, the intestinal wall is breached—the gut becomes leaky—and bacteria escape from the intestines into the bloodstream. Consequently, sepsis likely develops, which may cause death," he explains. "This is why so many children die."

"The inhibition of NHE-3 loosens the tightly woven fabric of the intestines. This is the mechanism of action for why the gut becomes leaky. Now, the task before us is to identify compounds that will restore NHE-3, so that the epithelial layer can be restored, reducing the deadly effects of diarrhea," says Dr. Ghishan.



The epithelial lining when NHE-3 is inhibited. The red area is bacteria leaking through it.

"Our research not only sheds new light on the function of this important sodium-hydrogen transporter, but also suggests that NHE-3 should be considered in future therapeutic approaches to diarrhea and disorders that cause chronic diarrhea," Dr. Kiela says.

Dr. Robert Berg Receives American Heart Association "Lifetime Achievement Award"

Steele Center pediatric intensivist and researcher **Robert Berg, MD**, Professor of Pediatrics and Associate Dean for Clinical Affairs, UA College of Medicine, was honored by the American Heart Association. Dr. Berg was chosen out from approximately 350 nominees from around the world for the prestigious "2006 Resuscitation Science Symposium Lifetime Achievement Award for a Cardiac Resuscitation Scientist."



This award is presented annually to recognize an individual for outstanding contributions to the cardiac resuscitation science field. Dr. Berg is the fourth recipient of this award for an international leader in cardiac arrest and CPR research. "Dr. Berg is a world-class researcher and physician, and this award acknowledges his contributions to improving cardiac resuscitation in both children and adults," says Dr. Ghishan.

Dr. Berg's research focuses on pediatric and adult cardiac arrest, CPR, ventricular fibrillation and defibrillation, catecholamine pharmacology, and hemodynamics. Dr. Berg has published more than 150 research articles, books, and abstracts, and is acknowledged nationally and internationally as a leader in improving CPR methods. He has contributed to the development of "Continuous Chest Compression CPR" or "Cardio-cerebral Resuscitation," a simple and exciting technique that has increased survival from sudden-collapse cardiac arrest.

Dr. Berg was the senior author on two landmark studies recently published in *The New England Journal of Medicine*. The first of these articles, "A comparison of high-dose and standard-dose epinephrine in children with cardiac arrest," established the appropriate dose of epinephrine for children in cardiac arrest. The other article, "Outcomes of Pediatric In-Hospital Ventricular Fibrillation," established that ventricular fibrillation occurs in more than 25 percent of in-hospital pediatric cardiac arrests (much more commonly than previously thought), and revealed a new paradigm for understanding and treating in-hospital pediatric ventricular fibrillation cardiac arrest.

"This is a great honor," says Dr. Berg. "I'm proud to be in a community of health-care professionals that is committed to improving the outcomes of individuals who have suffered from cardiac arrest."

Steele Center Diabetes Program Grows Thanks to Fathers' Day Council Tucson



Thanks to the ongoing generosity of Fathers' Day Council (FDC) Tucson, the Steele Center diabetes program continues to flourish.

The Steele Center is honored by the continuing support from FDC Tucson. "Without their dedication and hard work, the diabetes program simply wouldn't be what it is today," says Dr. Ghishan.

The diabetes program encompasses the Angel Wing for Children with Diabetes and lab space to conduct diabetes research. "Our pediatric endocrinology section has grown from one pediatric endocrinologist to four because of FDC Tucson," says Mark Wheeler, MD, Associate Professor of Clinical Pediatrics and section chief of endocrinology. And now, the Steele Center is developing a three-year pediatric endocrinology fellowship to train future pediatric endocrinologists. The first fellow is planning to begin in July 2008.

Diabetes research update

Understanding the Molecular Basis of Atherosclerosis in Diabetes

Atherosclerosis (hardening of the arteries) is the leading cause of premature death among individuals with type 1 and type 2 diabetes. It is caused by a slow buildup of plaque (an accumulation of fatty substances, cholesterol, calcium and other substances) within the artery wall.

Grant money from FDC Tucson and the NIH has enabled Steele Center scientist **Sherman Garver, PhD**, Research Associate Professor, to investigate the molecular basis for why individuals with type 1 and type 2 diabetes develop "diabetic dyslipidemia," a condition often characterized by increased triglycerides, increased LDL cholesterol and decreased HDL cholesterol—risk factors that contribute to atherosclerosis.

Dr. Garver is researching how glucose and insulin—both altered in individuals with diabetes—affect cholesterol and lipoprotein metabolism. "We know that individuals with diabetes typically have low amounts of 'good' cholesterol—HDL—and high amounts of 'bad' cholesterol—LDL," says Dr. Garver. "Since various cells throughout the body are responsible for determining the amount of LDL and HDL cholesterol present in the blood, we suspect that glucose and insulin may affect cellular cholesterol metabolism, and subsequently lipoprotein metabolism."

Using human cells (fibroblasts) grown in culture and exposed to glucose and/or insulin at concentrations that are similar to individuals with diabetes, Dr. Garver monitors the internalization of LDL-derived cholesterol into the cell, the flow of cholesterol throughout different compartments of the cell, and finally the removal of cholesterol by HDL.

His preliminary studies are showing promise. "So far, the results suggest that both glucose and insulin affect important aspects of LDL and HDL metabolism. We have determined which cholesterol transport pathways are regulated by glucose and insulin. The next step is to identify the genes and respective proteins involved in these pathways that are regulated by



glucose and insulin," he says. "Knowledge gained from these studies will benefit individuals with type 1 and type 2 diabetes by providing therapeutic targets for preventing long-term complications like atherosclerosis."



Thanks, Jonathan!

Jonathan Vogel is a very special young man. Now 11, Jonathan was diagnosed with type 1 diabetes when he was 8 years old. An active and creative boy, Jonathan loves reading, basketball, playing piano and guitar, and math. Jonathan doesn't let diabetes slow him down at all. At the 2007 Fathers of the Year Awards Dinner and Gala, Jonathan gave a deeply moving speech about what it is like living with diabetes. The audience was so touched and inspired by him that they donated an additional \$13,000 to the Steele Center. These additional funds were used to buy much-needed equipment for the Angel Wing for Children with Diabetes. Jonathan's speech enabled the Steele Center to purchase the following items:

- *Lipid machine*
- *Manual blood pressure machine*
- *Color laser printer for printing patient literature*
- *Stadiometer (height-measurement device)*
- *Infantometer (length measurement for infants)*
- *Development of an instructional DVD for patients with type 1 diabetes and their families*

"We're very proud of Jonathan," says his mom, Rosi.

Lori Stratton joins Steele Center as Associate Director of Development

We are pleased to welcome **Lori Stratton, MPH**, to the Steele Center as our Associate Director of Development.

Ms. Stratton is responsible for managing and directing development and fundraising activities for the Steele Center.

Ms. Stratton earned a bachelor's degree in business administration/marketing from The University of Arizona and a master's degree in public health, specializing in biostatistics, from the UA Mel and Enid Zuckerman College of Public Health.

Ms. Stratton has many years of special-event planning and fundraising experience. She has been actively involved in fundraising for the Juvenile Diabetes Research Foundation's Walk for Diabetes, and participated in fundraising for Sam Hughes School.

Ms. Stratton served on the Board of the Juvenile Diabetes Research Foundation from 2002-2006, and was one of the co-founders of the Southern Arizona Women's Active 20-30 Club, which raises funds for the Steele Center.

"Lori's background in event planning, fundraising and biostatistics makes her a great fit for the Steele Center. Her clear passion for children's health issues will enable her to communicate authentically with our volunteers, supporters and donors," says Dr. Ghishan.

"I'm looking forward to combining my interests in research and children's health into my role as associate director of development for the Steele Center," says Ms. Stratton.



Faculty Highlights 2007

Cardiology

Marc Berg, MD, Associate Professor, contributed to the development of the new course "PEARS," (Pediatric Emergency Assessment, Recognition and Stabilization), published jointly by the American Heart Association and American Academy of Pediatrics. Dr. Berg also received a special commendation from the UA for teaching the first ever "Pediatric Advanced Life Support" course to leaders from Japan at the University of Tokyo. Dr. Berg had publications in *Pediatric Critical Care Medicine* on pediatric defibrillation and invited reviews in *Pediatric Clinics of North America* and *Current Opinion in Critical Care* on CPR in children.

Brent Barber, MD, Assistant Professor Clinical Professor, was named as UMC Director of Pediatric Cardiac Services. He was also named one of the "Best Doctors in America."

Richard Donnerstein, MD, Professor, was named one of the "Best Doctors in America."

Scott Klewer, MD, Associate Professor, was selected as UMC Chief of Staff-Elect. He also was named as one of the "Best Doctors in America."

Ricardo Samson, MD, was promoted to Professor. He was the first author in an article published in the *New England Journal of Medicine* titled, "Outcomes of Pediatric In-hospital Ventricular Fibrillation." He was also as one of the "Best Doctors in America." Dr. Samson contributed to the development of the new course, "PEARS" (Pediatric Emergency Assessment, Recognition and Stabilization), published jointly by the American Heart Association and American Academy of Pediatrics.

Critical Care

Robert Berg, MD, Professor, received the American Heart Association's 2006 Resuscitation Science Symposium Lifetime Achievement Award as a Cardiac Resuscitation Scientist. Dr. Berg was an Invited Professor for the Japanese Ministry of Health, Labor and Welfare and the Japan Cardiovascular Research Foundation in Tokyo and Osaka, the Scientific Symposium of Emergency Medicine in Hong Kong, the International Congress of Pediatric and Adult Cardiopulmonary Resuscitation in Mexico City, and the American Heart Association Scientific Sessions 2006. In 2007, he was an Invited Professor for the Resuscitation Science Center at University of Pennsylvania. He is listed in "Best Doctors in America," the Guide to America's Top Pediatricians, Marquis' Who's Who in the World, and Strathmore's Who's Who in Medicine and Healthcare. Dr. Berg also contributed to the development of the new course, "PEARS" (Pediatric Emergency Assessment,

Recognition and Stabilization), published jointly by the American Heart Association and American Academy of Pediatrics.

Hillary Franke, MD, MS, Assistant Professor, Clinical Pediatrics, completed her Master of Science degree in Clinical Investigation, Feinberg School of Medicine, Northwestern University, Chicago.

Robyn J. Meyer, MD, Associate Professor, Clinical Pediatrics, received the UA College of Medicine "Dean's List for Excellence in Teaching in the Clinical Sciences" award.

Simon S. Wong, MD, MPH, Research Assistant Professor, received a grant from the Health Effects Institute (HEI)/U.S. EPA, titled, "The molecular effects of diesel exhaust particulates (DEP) on respiratory neutral endopeptidase." This study will examine how DEP, the most toxic component of combustion-derived nanoparticles (CDNP), induces adverse health effects in airways through down regulation of epithelial neutral endopeptidase.

Endocrinology

Mona Zawaideh, MD, Assistant Professor, received the UA College of Medicine "Vernon and Virginia Furrow Award for Excellence in Graduate Medical Education Teaching."

Gastroenterology

Fayez K. Ghishan, MD, Professor and Head, was senior author on the following publications: Molecular mechanism of rat NHE3 gene promoter regulation by sodium butyrate. *American Journal of Physiology-Cell Physiology*; Sp1 and Sp3 mediate NHE2 gene transcription in the intestinal epithelial cells. *American Journal of Physiology-Gastrointestinal and Liver Physiology*; 1,25-DihydroxyvitaminD3/VDR-mediated induction of FGF23 as well as transcriptional control of other bone anabolic and catabolic genes that orchestrate the regulation of phosphate and calcium mineral metabolism. *The Journal of Steroid Biochemistry and Molecular Biology*; Cell confluence-induced activation of signal transducer and activator of transcription-3 (STAT) triggers epithelial dome formation via augmentation of sodium hydrogen exchanger-3 (NHE3) expression. *Journal of Biological Chemistry*. Dr. Ghishan received the "Distinguished Alumni Award," from Pennsylvania State College of Medicine. He was visiting professor to the International Congress of Pediatric Hepatology, Gastroenterology and Nutrition in Sharm El Sheikh, Egypt; visiting professor in pediatric gastroenterology, hepatology and nutrition, at Vanderbilt University Medical Center; visiting professor at the University of Cairo, Egypt. He also received two five-year NIH grants, "Development of Intestinal Transport of Ca⁺⁺ and PI"; and "Development of Intestinal Ion Transport."

General Pediatrics

Kathryn Bowen, MD, Professor of Clinical Pediatrics, was appointed Medical Director of Children's Center at UPH Hospital. Dr. Bowen also received the "President's Volunteer Service Award," awarded by the President's Council on Service and Civic Participation, for her volunteer work in the Marshall Islands.

Conrad Clemens, MD, Associate Professor of Clinical Pediatrics, was appointed Director of the Pediatric Residency Program.

Kimberly Gerhart, MD, Assistant Professor of Clinical Pediatrics, was appointed Medical Director of the Arizona Elks Clinic for Children and Young Adults.

Genetics

Christopher Cunniff, MD, Professor, recently was elected to the Board of Directors of the American Board of Medical Genetics. He also was appointed as a member of the Care Considerations Expert Panel for Duchenne Muscular Dystrophy, convened by the Centers for Disease Control and Prevention. At the UA College of Medicine, Dr. Cunniff was appointed as the Director of Faculty Instructional Development, where he organizes faculty education in delivery of the ArizonaMed curriculum, particularly as it relates to small-group and team-learning activities.

Hematology/Oncology

Michael Graham, MD, Professor, received the "People Who Light the Way" award by the Candelighters Foundation.

Emmanuel Katsanis, MD, Professor, was senior author on the following publications:

Tumor -derived CD4+CD25+ regulatory T cell suppression of dendritic cell function involves TGF- and IL-10. *Cancer Immunology Immunotherapy*; Human ovarian tumor-derived chaperone-rich cell lysate (CRCL) elicits T cell responses *in vitro*. *Clinical and Experimental Immunology*; Chaperone-rich cell lysate embedded with BCR-ABL peptide demonstrates enhanced anti-tumor activity against a murine BCR-ABL positive leukemia. *The FASEB Journal*; A chaperone protein enriched tumor cell lysate vaccine generates protective humoral immunity in a mouse breast cancer model. *Molecular Cancer Therapeutics (in press)*; Chaperone rich tumor cell lysate-mediated activation of antigen presenting cells resists regulatory T cell suppression. *Journal of Leukocyte Biology (in press)*.

Kartik Krishnan, MD, Assistant Professor, received a grant from the Milheim Foundation for Cancer Research to study the molecular biology of pediatric solid tumors.

Nicolas Larmonier, PhD, Research Assistant Professor, received a "Career Development Fellow Award" from the Leukemia and Lymphoma Society. Dr. Larmonier was also

an author of the following publications: Dendritic cells trigger tumor cell death by a nitric oxide-dependent mechanism. *The Journal of Immunology*; Increase of CD4+CD25+FoxP3+ regulatory T cells in the peripheral blood of patients with metastatic carcinoma. A Phase I clinical trial using cyclophosphamide and immunotherapy to eliminate CD4+CD25+FoxP3+ T lymphocytes. *Clinical and Experimental Immunology*; Protective effects of dietary curcumin in mouse model of chemically-induced colitis are strain dependent. *Inflammatory Bowel Diseases, in Press*.

Infectious Disease

Sean P. Elliott, MD, Associate Professor, received the UA College of Medicine "Clinical Science Educator of the Year" award (second year in a row). Dr. Elliott was named as one of the "Best Doctors in America." He was confirmed as Medical Director and Chairman for the Infection Prevention Committee at UMC. Dr. Elliott published the prestigious manuscript, "Rat Bite Fever and Streptobacillus moniliformis," in *Clinical Microbiology Reviews* 2007.

Ziad Shehab, MD, Professor, was named one of the "Best Doctors in America."

Neonatology

Heather Cahan, MD, Assistant Professor, received the UA College of Medicine "Innovation in Medical Education" grant.

Melissa Halpern, PhD, Research Assistant Professor, received a five-year grant from the NIH, "Bile Acids in the Pathogenesis of Necrotizing Enterocolitis," and a three-year grant from the Arizona Biomedical Research Commission, "Enterohepatic Circulation of Bile Acids in Necrotizing Enterocolitis."

Pulmonary

Wayne Morgan, MD, Professor, was an author of the following publications:

Effect of Breastfeeding on lung function in childhood and modulation by material asthma and atopy. *AJRCCM*; Comparison between reported and recorded total sleep time and sleep latency in 6-to11-year-old children: the Tucson Children's Assessment of Sleep Apnea Study (TuCASA). *Sleep Breath*; Investigators and Coordinators of the Epidemiologic Study of Cystic Fibrosis. Infant care patterns at epidemiologic study of cystic fibrosis sites that achieve superior childhood lung function. *Pediatrics*; Childhood Asthma Research and Education Network of the National Heart, Lung, and Blood Institute. Long-term comparison of 3 controller regimens for mild-moderate persistent childhood asthma: the Pediatric Asthma Controller Trial. *Journal of Allergy and Clinical Immunology*.

Thank You to Our Volunteer Groups!

The Steele Center is grateful to its fabulous volunteer groups, who spend countless hours working hard to raise funds for research and other projects. Your support makes our work possible — thank you!



The **Active Women's 20/30 Club "Red Carpet" Event** raised \$9,000 that will be applied to the Melody Luyties Endowment, which supports a variety of research and educational programs.

The **Arizona Elks Major Projects** raised \$125,000 to continue the "Arizona Elks Endowed Chair in Neonatology." The Elks donated hundreds of toys, blankets and hand-knit caps to the Arizona Elks Clinic for Children and Young Adults, and the Neonatal Intensive Care Unit (NICU).



Father's Day Council Tucson "Fathers of the Year Awards Dinner and Gala" was a huge success. FDC also hosted its first FDC Golf Tournament. FDC raised more than \$278,000 to fund type 1 diabetes research projects.

The **PANDA (People Acting Now Discover Answers) "Children Helping Children"** fashion show raised approximately \$532,000 to create "PANDA Children's Aerodigestive Disorders Center."



Raise a Racquet for Kids raised \$90,000 from its annual tennis tournament. These funds support pediatric cancer research—specifically the CRCL cancer vaccine research project that is showing promise in the lab for treating cancer.

Tee Up For Tots raised \$43,000 from its Ninth annual golf tournament. Funds are used to



support the Courtney Page Zillman Fellow. This year's recipient is Collin LaCasse, who is working on the CRCL cancer research project in Dr. Katsanis' lab. (See story on page 8).

New Faculty Join the UA Department of Pediatrics

The UA Department of Pediatrics welcomes the following new clinical and research faculty:



Alan Bedrick, MD
Section Chief and Professor
Clinical Pediatrics,
Section of Neonatology
and Developmental Biology



Cori Daines, MD
Assistant Professor
Clinical Pediatrics
Section of Pediatric
Pulmonology, Allergy
and Immunology



Michael Daines, MD
Assistant Professor,
Section of Pediatric
Pulmonology, Allergy
and Immunology



Hillary Franke, MD
Assistant Professor
Clinical Pediatrics
Section of Critical Care



Chetan Patel, MD
Assistant Professor
Clinical Pediatrics
Section of Endocrinology



Sabrina Shih, MD
Assistant Professor
Clinical Pediatrics
Section of Hospital
Medicine and Outreach



Santiago Valdes, MD
Assistant Professor
Clinical Pediatrics
Section of Pediatric
Cardiology

GIVING THANKS

We appreciate every gift made to the Steele Children's Research Center to improve children's health. We want to give special thanks to the following donors who gave \$1,000 or more from January 2006–July 2007.

\$250,000 or more

Arizona Elks Major Projects
Estate of Sarah W. & Golden R. Smith
Father's Day Council Tucson
PANDAs--Phoenix Womens Board
The Steele Foundation, Inc.

\$100,000 or more

Mark and Lorna Kipphut

\$50,000 or more

Armstrong McDonald Foundation
Dorrance Family Foundation
Raise a Racquet for Kids
The Vision for Tomorrow Foundation
Tee Up for Tots, Inc.

\$25,000 or more

Arizona Diamondbacks
Courtland Gettel - EXG Enterprises
Mark L. Witten
Caitlin Robb Foundation
Stuart and Linda Nelson

\$15,000 or more

Adelante Foundation
Bashas Charitable Fund
Broadway Volvo Motors, Inc.
Catalina Mechanical Contracting, Inc.
Mary Emmans
Arduth Evans
Immunovative Therapies, Ltd.
Joseph Stanley Leeds Foundation
Meiji Dairies Corp
Molina Fine Jewelers
UMC Foundation

\$10,000 or more

Anonymous
Arizona Cardinals
Ashley D. Baiker
Borderland Construction Co.
Charity Charms
Ginny L. Clements
Desert Christian Schools
Helen V. Eklund
Ralph and Maxine Henig
Karen A. Hobbs
Jasam Foundation
Scott and Julie Klewer
Marshall Foundation
Paul & Helen Eklund Trust
Charles H. and Doris Strub
Sharon J. Ulrich

\$5,000 or more

America West Airlines
American Openings, Inc.
AZ Prof Society Child Abuse
Blue Cross Blue Shield
Carondelet Health Network
Kristi Chagaris and Peter Chagaris
Gerie and Jan Clayton
F. Wesley Clelland
Tod V. Dickey
DMB Associates
Fennemore Craig, PC
Frances Chapin Foundation
Kevin B. Gilchrist
Peggy and Larry Gunning
Kimberly M. Jacobsen
Jes Development, Inc.
Jim Click Family Foundation
Linda Kaplan

Kitchell Corporation
Pam Kolbe
M&I Marshall & Ilsley Bank
Macerich Management Company
Sandra and Robert Maxfield
Deborah F. Morse
Office of the Pima County Attorney
Preston & Maurine Hotchkis Family Foundation
Susan and Lawrence Ring
Tammy L. Underwood
Ventana Medical Systems, Inc.
Vogel Family Foundation
F. Keith Withycombe

\$1,000 or more

A.F. Sterling Homebuilders
Michael G. Anderson
Robert Anderson
Anonymous
Patricia H. Anthony
Arcadia Management Group Inc.
Victor and Patricia Arida
Ayco Charitable Foundation
Baboquivari Cattle Company
Alice and Paul Baker
Elizabeth E. Bayless
BCCox Properties LLC
Beach, Fleischman & Co., P.C.
Margaret D. Beaver
Nancy C. Berge
Anna Binkiewicz
Carolyn A. Bosworth
Bourn Administration
Donna C. Brammer
Kim Brown
Mary Ellen Brown
Judy and Darren Burke
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C & H Sales Solutions
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Joo Cantor
Bryon Carney
Joan K. Cauthorn
CBIZ
Celebrity Fight Night
Herman Chanen
John T. Chesley
Chestnut Construction Corp.
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Taber Collins
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Conley Publishing Group
Heather M. Cook
CoolGiving
Tami R. Copoloff
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Tina and Dave Curran
Dana Lim Insurance, Inc.
Eric Danziger
Christie Darby
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Kristin Dean
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Kathy and Greg DeSanto
Lisa A. Winski DeVaul
Diamond Ventures, Inc.
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Dover Associates, LLC

Ducey Family Foundation
Peter and Millie Economidis
Suellen Edens
Enterprise Rent-A-Car
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First Magnus Financial Corp.
Pamela J. Fitzgerald
Juanita F. Francis
Stanley D. Friedman
Dr. Vincent and Shirley Fulginiti
Jack Furrier
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Dee Anne and Gregg Gibbons
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Michael J. Kaiserman
Beth C. Kasser
KB Home
James B. Kirke
Al and Janice Kivel
Richard and Sandra Kolasa
Sandra L. Kramer
Philip and Jane Lacovara
Patricia G. Lau
Christy Dean Liebes
Steven A. Lightman
Loews Ventana Canyon Resort
John W. Lowe
Karen A. Lunda
Janis J. Lyon
Dr. Lorraine Mackstaller
Magnum Paving, Inc.
Paul P. Manley
Johanna E. Martin
Elizabeth Matthews
Lizabeth and John Matthews
Maurice & Meta Gross Foundation
Traci L. Mead
Sidney N. Mendelsohn
Christopher Milisci
Darrel A. Moffitt
Moreno Family Foundation
Georgann M. Munic
Caroline Musil
Delta Delta Delta
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Andrew and Sylvia Norell
Sheryl A. North
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James and Jane Prescott-Smith
R. E. Lee Mechanical Contracting, Inc
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Kathy Ritt
Laurie and Brad Ritt
Alan Robertson
Ilana Roga
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Zion's Management Services Co.

Department of Pediatrics Faculty

Fayez K. Ghishan, MD, Professor and Head

Cardiology

- Brent Barber, MD**
Assistant Professor
Clinical Pediatrics
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About the Cover:

Cover photo is Jonathan Vogel and his mom, Rosi. Both Rosi, Jonathan, and his dad Ben (not pictured) actively participate in causes that support type 1 diabetes research at the Steele Center. Jonathan is a patient at the Steele Center Angel Wing for Children with Diabetes, and is an inspiring spokesperson for Father's Day Council Tucson.

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