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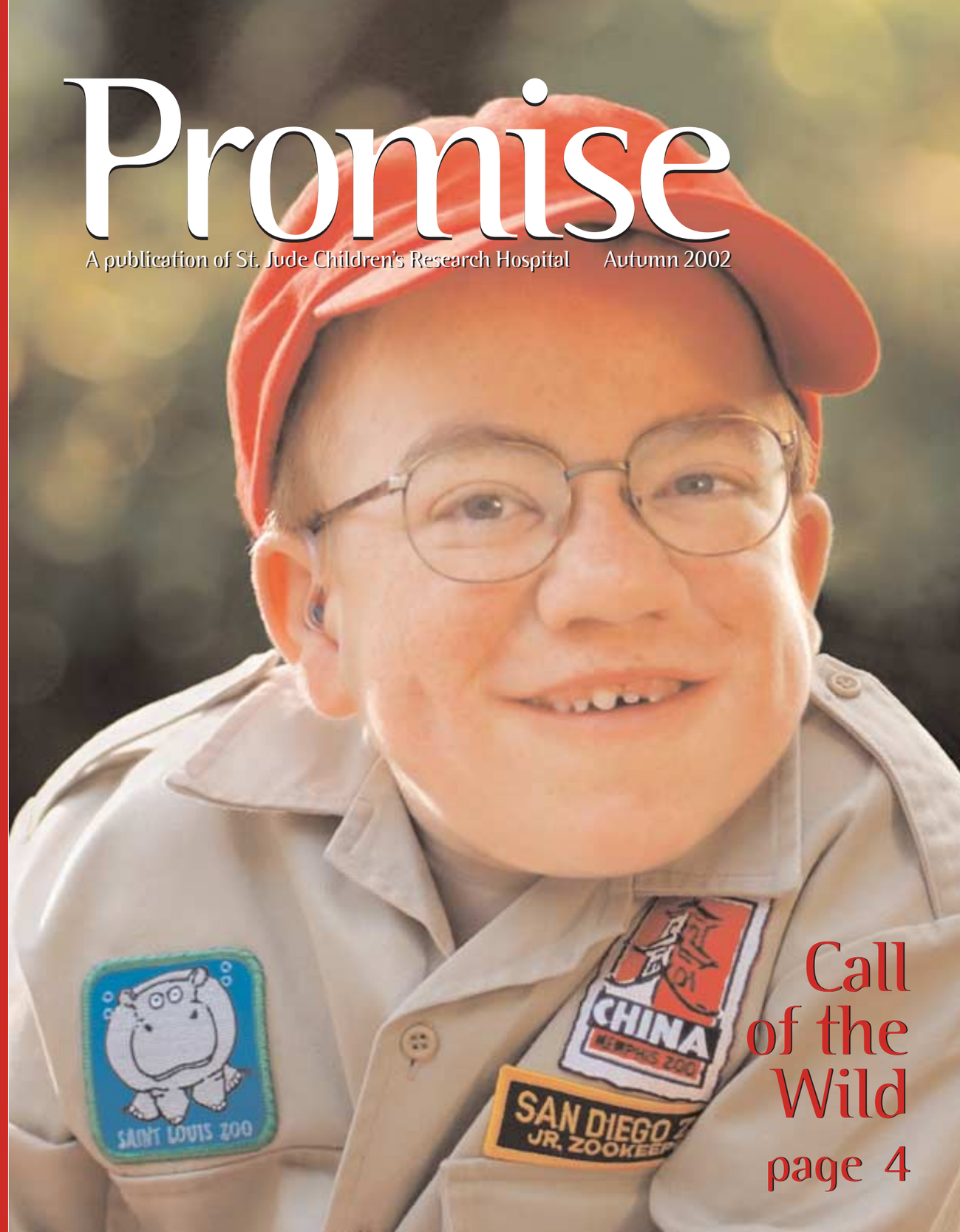
Promise

A publication of St. Jude Children's Research Hospital Autumn 2002



Call of the Wild

page 4

St. Jude Children's Research Hospital was founded by the late entertainer Danny Thomas. It opened February 4, 1962. The hospital was created because of a promise Danny made during the depression era to St. Jude Thaddeus, the patron saint of the hopeless.

"Show me my way in life," Danny prayed. In return, Danny promised to build St. Jude Thaddeus a shrine. That shrine became a hospital that would treat children regardless of race, color, creed or their ability to pay. This remarkable event also inspired the name of this magazine,

Promise.

St. Jude Children's Research Hospital, Memphis, Tennessee

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St. Jude Children's Research Hospital's mission is to find cures for children with catastrophic diseases through research and treatment.

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Promise

A publication of St. Jude Children's Research Hospital Autumn 2002

Features

Highlights

Perspective

Promise is now available on the Internet!
Check us out at ***www.stjude.org/Promise.***

Highlights

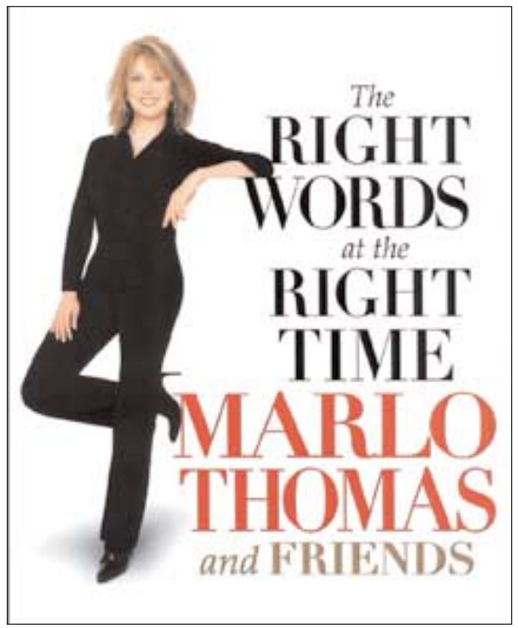
Literary benefits

Marlo Thomas, National Outreach director for St. Jude Children's Research Hospital, has published an inspiring new book that draws on the life experiences of more than 100 remarkable people. *The Right Words at the Right Time* features the wit and wisdom of Al Pacino, Paul McCartney, Gwyneth Paltrow, Walter Cronkite, Ruth Bader Ginsburg, Sarah Jessica Parker, Cal Ripken Jr., Steven Spielberg, Itzhak Perlman, Venus Williams, Rudolph Giuliani, Muhammad Ali, Katie Couric and many others, including Nobel laureate Peter Doherty, PhD, of St. Jude. The contributors recount how they reached crucial turning points by hearing the right words at the right time.

The first-person accounts encompass life's struggles and adventures, demonstrating how each individual found hope and wisdom through words that were delivered by a loved one, heard in a movie or play, sung on the radio, told in a joke or even drawn in a cartoon.

"All of these stories confirmed something I've always suspected," observes Thomas, "that whether we know it or not, each of us carries our own unique slogan, a custom-made catchphrase that resonates throughout our lives."

For many weeks, the book has been listed on *The New York Times* best-seller list, skyrocketing to No. 1 in May. All proceeds from the volume benefit St. Jude.



Genetic link discovered

Interactions between the genes mutated in two different rare inherited disorders, Fanconi anemia and ataxia-telangiectasia (A-T), provide new insights into tumor development and responses of tumors to therapy. The study was led by Michael Kastan, MD, PhD, and Bo Xu, MD, PhD, of St. Jude Hematology-Oncology and Alan D'Andrea, MD, of Dana-Farber Cancer Institute at Harvard Medical School. The collaboration unveiled a genetic link between Fanconi anemia and A-T. Published in the May 2002 issue of *Cell*, this discovery helps explain the responses of normal and tumor cells to radiation treatment and chemotherapy.

St. Jude recently opened an ataxia-telangiectasia clinic to treat A-T patients with hematological cancers.

Bone bonanza

St. Jude researchers have discovered that treatment with bone marrow mesenchymal cells, specialized bone-making cells, has the potential to enhance the therapeutic effects of bone marrow transplantation in patients with osteogenesis imperfecta, or brittle bone disease. "This is the first human trial to clearly show the therapeutic potential of mesenchymal cells and represents a significant step forward in the development of cellular therapies," said Edwin Horwitz, MD, PhD, of the St. Jude Hematology-Oncology department.

The findings appeared in the June issue of the journal *Proceedings of the National Academy of Sciences*.

Something to grow about

Children whose treatment for acute lymphoblastic leukemia (ALL) causes them to stop growing can safely regain height with growth hormone shots, according to St. Jude scientists. ALL treatment can hamper the body's production of growth hormone, which is necessary to attain normal height. Wing Leung, MD, PhD, of the St. Jude Hematology-Oncology department and his colleagues compared the long-term health of childhood ALL survivors treated with growth hormone to that of childhood ALL survivors not treated with it. The researchers found that the group treated with growth hormone had no higher risk of a relapse or second cancer than the other group.

The researchers reported their findings in the July 2002 edition of *Journal of Clinical Oncology*.

One More for the Rhodes

Octogenarians William and Millicent Rhodes are survivors. Their gifts will ensure that St. Jude children are survivors, as well.

By Alicia H. Matthews

William and Millicent Rhodes

"Survivor"

has become a commonly used word in our society. From the self-assured lyrics of the singing sensation Destiny's Child to the newest rage in reality television, everyone is focused on what it means to be a survivor. But one St. Jude donor knew the meaning of the word long before it became one of the latest trends.

William Rhodes is a veteran of World War II. He clearly remembers fighting the war and almost losing his life from injuries incurred when a bomb landed near him on Normandy Beach. Lt. Rhodes received several ribbons for bravery during his tenure. And at the age of 89, he and his wife Millicent, 85, have lived through more than most people could ever imagine.

When they were young, their only child died. That's why the decision to donate to St. Jude Children's Research Hospital was an easy one. "We lost our daughter," says William, "but we believe in doing what we can to help. St. Jude is doing a good thing by helping these children, and my wife and I want to do our part."

> A charitable gift annuity allows William and Millicent Rhodes to help the children of St. Jude today while enhancing their own financial future.

Residents of Nashville, Tennessee, William and Millicent donate to several organizations around the world. But they have a unique bond with St. Jude. Because he has overcome difficult circumstances, William carries a special place in his heart for the children at St. Jude. His wish is that they will be able to enjoy life as he and his wife have over the years.

The couple has made a charitable gift annuity and have included St. Jude in their will. A charitable gift annuity enables donors to make gifts to St. Jude while still receiving the investment income for themselves or their families. In exchange for gifts to St. Jude, donors or their beneficiaries receive fixed payments for life and reap certain tax benefits. These kinds of gifts allow donors to help the children of St. Jude today while enhancing their own financial futures.

St. Jude families may never have the opportunity to meet these generous donors, but they can be assured that the Rhodes family is pulling for them.

"We just love to help people, and we're glad to be able to do what we can for the children at St. Jude," says William. "My wife and I have led an exciting life. Our hope is that these children will survive their illnesses and be able to live long, prosperous lives."

For information about how you can help St. Jude children through a charitable gift annuity or other type of gift, call the Gift Planning department at (901) 578-2108, or toll free at (800) 877-5833, ext. 2081.●

Call of the Wild

All Noah had to do was prop open the Ark's door, and the animals marched right in. But Eli Barr is facing a few more challenges on his way to owning a zoo.

By Elizabeth Jane Walker

EVANNE NEWMAN

Every blind date should be this hot. Moving with the fluid grace of a dancer, Helen turns her luminous brown eyes toward Eli as he strokes her gleaming hair. Then — smack! — she makes her move. Thirteen-year-old Elijah Barr grins, enraptured. "The thing I liked best was when she gave me that k-i-s-s," he admits after the steamy rendezvous.

Helen is a California sea lion who lives at the Memphis Zoo. When zoo officials offered Eli an opportunity to feed the sea lions, he leapt at the chance. "I think they fell in love with me," observes Eli, who communicated with the creatures through deft hand movements, a calm demeanor and a little zookeeper assistance.

It's all in a day's work for Eli; after all, this St. Jude patient is determined to own his own zoo someday.

With his no-nonsense attitude, his dry sense of humor and his brash honesty, Eli Barr attracts admirers like a zoo attracts kids. "Eli is probably one of the most fun and funniest people you'll ever meet," says fellow St. Jude patient Danny Kurth.

LAURA HAJAR

Eli and zookeeper Morgan Powers visit with one of Eli's new friends at the Memphis Zoo.

Eli's ark

Eli savors each portion of the Memphis Zoo as if it were a smorgasbord, offering delectable morsels at every turn. "Now, if you walk this way, you can see the cougars," he says, gesturing with the finesse of a seasoned tour guide. "Up here on the right you'll see a leopard and my favorite cat, the cougar, or puma." The young naturalist garnishes his commentary with tidbits of trivia, exclamations of delight and witty observations. Every so often, he pulls out his camera and captures an animal on film. These images will eventually reside in one of many photo albums, alongside snapshots of his family's cockatiels, Jerry Lee and Elvis, and a picture of himself, shoulders draped with a massive California king snake.

Eli is a walking encyclopedia of animal lore, sharing details gleaned from books and videos. "When I read about the animals, I fill my brain with nature," he asserts. But this obsession with animals is no passing phase. Eli says it's a calling.

"Every night in my dreams, God speaks to me. He says, 'I want you to save my wonderful world,'" explains Eli. "I'm going to try to go around the world and save animals, and then I'll bring those animals to my zoo."

Eli's favorite uncle, architect Paul Engert, created an architectural rendering for this zoo, which Eli hopes to build near his hometown. "I've been looking all over the state of Washington for land to buy," Eli says. In a spiral-bound notebook, he dedicates one page to each section of his zoo, listing the animals that will reside in each habitat. Thumbing through his notebook, Eli points out other details: "Here's the gift shop, Corky's Bar-B-Q, the petting zoo, the vet's office, the trash cans and the bathrooms."

Facing the flood

Eli's infatuation with zoos began in Memphis in 1994. That's when he arrived at St. Jude Children's Research Hospital for his second bone marrow transplant to treat Hurler's syndrome, an extremely rare genetic disorder.

Children with Hurler's lack an enzyme that breaks down sugar molecule chains. As these complex sugars accumulate, they wreak havoc on the body's organs and bones, causing severe physical deformity, dwarfism and mental retardation. Waste products build up in the eyes, prompting corneal clouding; excess molecules in the auditory nerves cause deafness. The stored molecules also damage the heart, brain, lungs and joints.

Soon after birth in April 1989, Eli began suffering recurrent respiratory infections. Kathy and Rob Barr also noted an odd curvature in his lower back. "Our pediatrician said, 'Oh, the

LAURA HAJAR

Eli pauses from discussing the Cubs' latest exploits to let Paul Woodard, MD, of Stem Cell Transplantation complete an examination.

spine was probably twisted when he was in the womb. It'll straighten out,'" Kathy recalls. But the Barrs insisted on obtaining an X-ray. The couple learned the diagnosis on their 16th wedding anniversary. "They called us in and said, 'Your son has Hurler's. It's a terminal disease, and he's likely going to die before he's 5 years old,'" recalls Rob.

Unwilling to accept that pronouncement, the Barrs began researching the syndrome and discovered a new treatment that offered hope: bone marrow transplantation. If Eli's bone marrow could be replaced with genetically healthy marrow, his body might begin producing the missing enzyme. At a hospital in Seattle, Washington, Eli became the 57th patient in the world to receive a bone marrow transplant for Hurler's. Before the transplant, Eli was deaf; six months after transplant, he had recovered almost 90 percent of his hearing. His mobility improved, and he began to grow taller. But the bone marrow did not engraft completely. For a couple of years Eli continued to do well, but then he began to regress.

The Barrs' health insurance company denied coverage for a second transplant, and the hospital refused to perform the $300,000 procedure, even though the Barrs offered a substantial down payment. "Then we talked to the state of Washington," says Rob. "They said, 'If you give everything away that you have and declare bankruptcy, then we will pay for it.'" That suggestion appalled Rob, a nuclear engineer, and Kathy, a teacher. "I think the hardest thing was to know that there was treatment available, but not to be able to get it," says Kathy.

Then they discovered St. Jude, a hospital that would treat Eli regardless of his family's ability to pay. At St. Jude, Eli again received bone marrow from an unrelated donor. His condition improved dramatically as a result of the enzyme boost, but once again he lost the graft. "The doctors told us, 'We're not going to give up on you. Go home and recover from this transplant, and we'll figure out how we're going to get Eli through this,'" Rob says.

> "Every month, every day he was getting worse. Eli wouldn't make it through if he didn't have this transplant."

St. Jude staff members suggested that the Barrs wait until Eli began to regress before making him undergo a third procedure. "The risk of a third transplant needed to be outweighed by the risk of the Hurler's syndrome," Kathy explains. That risk would soon change after one fateful soccer game.

Wild about sports

The only thing Eli likes as much as animals is sports—baseball, golf, fishing, soccer, football. You name it, and he follows it. During a FedEx St. Jude Classic patient event in June, Eli sunk a hole-in-one with a fancy, new putter. Turning to one of the professional golfers, he asked, "Can you beat that?"

An avid Cubs fan, Eli knows statistics and jersey numbers as well as any commentator. "He can talk about baseball for days," says St. Jude Child Life Specialist Shawn Brasher. "I like the Braves, so he makes signs and puts them on my office door saying, 'Cubs rule; Braves drool.' Anytime he sees me, even if we're on opposite sides of the cafeteria, he yells, 'Go, Cubs!'"

When a Cubs game is in progress, don't try to call Eli at Target House. Chances are, he's talking on the phone to his friend Derek Friedel, who is simultaneously watching the game in Washington. The two have often been teammates, with Derek's father, Bill Friedel, serving as soccer coach.

"Even when the other kids were a head taller than him, we'd set him as goalie," says Bill. "He just wouldn't quit. Every game, he would give it his all."

One day, Eli fell and nearly passed out while running down the field during a soccer game. "He got up and asked to play again," recalls Rob. "He got mad when we wouldn't let him."

When Eli visited a cardiologist in Spokane, Washington, the Barrs learned that blood flow through his heart was only 40 percent of normal. His mitral valve had been damaged by the progression of Hurler's. "If he doesn't have surgery within the next few weeks, he's probably going to die," said the physician. The cardiologists were concerned because they had never before replaced a heart valve in a child with Hurler's or in a bone marrow transplant recipient.

The doctors told Eli that he would be in the hospital for at least three weeks. The energetic young man went home after only three days, determined to return to the playing field. He couldn't compete with the same ferocity as before, so his baseball team welcomed him back as its official bat boy, a position that Eli cherishes.

LAURA HAJAR

"Every night in my dreams, God speaks to me. He says, 'I want you to save my wonderful world,'" explains Eli, who chats with his mom, Kathy Barr, in the Memphis Zoo's butterfly exhibit.

LAURA HAJAR

Eli and his dad share a passion for golf. "There's only one person who likes golf more than Eli and that's me," admits Rob. Here, Eli concentrates on the ball during a FedEx St. Jude Classic patient event at Target House.

Surviving the storm

Last year, the deterioration of Eli's health accelerated. His hearing and mental abilities decreased, and his liver and spleen enlarged.

Rupert Handgretinger, MD, director of Stem Cell Transplantation at St. Jude, had recently begun transplanting stem cells that were obtained from parental donors and purified with a revolutionary new procedure. Instead of infusing patients with bone marrow, which can include unwanted cells, Handgretinger and his staff could process billions of parental cells, isolating the precious stem cells for transplantation. Because the method had yet to be approved by the Food and Drug Administration (FDA), St. Jude staff members approached the agency for special permission to use the procedure on Eli.

"We were seeing him decline," says Rob. "Every month, every day he was getting worse. Eli wouldn't make it through if he didn't have this transplant."

Eli received stem cells in February 2002 from "that handsome man Mom's married to." The FDA has subsequently given St. Jude approval to use the experimental process on many patients who require parental stem cell transplants for various catastrophic illnesses.

"Eli's doing extremely well," says Paul Woodard, MD, of Stem Cell Transplantation. A weekly DNA study helps Woodard evaluate the percentage of donor cells in Eli's blood. When the level decreased, Eli received additional stem cells and lymphocytes from his dad.

Woodard is optimistic about Eli's future. "In the past, none of the children with Hurler's survived, so we don't know whether or not he'll have problems with his joints as he gets older," Woodard says. "We'll watch

"The hardest thing was to know that there was treatment available, but not to be able to get it," recalls Kathy. Then the Barr family discovered St. Jude.

KATHY BARR

Eli dispenses batting advice to baseball superstar Sammy Sosa of the Chicago Cubs.

him closely over the years to see how he does and to make sure that his engraftment stays stable." The St. Jude Endocrine Division *(see related story, page 10)* will also begin giving Eli growth hormones to increase his chances of growing taller.

Woodard says Eli is fortunate to have avoided some of Hurler's cruel symptoms. The most obvious difference between Eli and many other children with the disorder lies in his bright intelligence. Doctors theorize that each bone marrow transplant gave Eli a boost of the crucial enzyme, which aided in brain development.

Love uncaged

Eli, his parents and his older brother, Ben, have an extraordinary support system that helps them deal with the challenges of Hurler's syndrome. After Eli came to St. Jude for his stem cell transplant, the students at Chief Joseph Middle School held a pep rally to honor the popular seventh-grader. Eli enjoys watching the videotaped rally. As the camera pans the gym, 800 children whoop encouragement, holding banners emblazoned with Eli's name. Then the chant begins: "Eli! Eli! Eli!…" The videotape arrived the week after Eli's transplant. "It made me feel much better," he says.

Eli seems to attract people with his sense of humor, his brash honesty and his paucity of self-pity. "Eli is probably one of the most fun and funniest people you'll ever meet," comments fellow St. Jude patient Danny Kurth. It must be true. Woodard deems Eli "hilarious"; Derek calls him "smart, entertaining, funny and a jokester"; and Derek's mom, Vicky Friedel, terms Eli "an original." "He's Elijah, and that's all you can say," Rob quips.

Kathy derives support from her faith, her husband, her friends and the people at St. Jude. "This is a test of faith," says Kathy, "in my personal faith in God, and in my faith in the doctors at St. Jude. We've had this extraordinary opportunity to live at Target House, which is a sort of mini-world, with people from every walk of life and many different countries. They're all living here with the common goal to make our children well. To me that's a gift. In this day and age when there's so much fighting and people cannot get along and the world is in such turmoil, here's this little island of sanity where people care about you no matter what color your skin is, no matter what church you belong to, no matter what. That's a remarkable thing to me."

Rob takes comfort in his unwavering conviction that something exciting is in store for his younger son. "Kathy and I are convinced that there is something in this world that's going to be very special for Eli. There is some calling for him. None of us knows exactly what it is, but it's going to be great."

Tiger pause

Today, Eli is learning about tigers from his new friend, a 525-lb. Bengal tiger. TOM II, the mascot of The University of Memphis, emerges from his private swimming pool and ambles, muscles rippling, toward the fence where Eli stands. The enormous cat turns his steady gaze toward Eli. "Hi, TOM!" calls Eli, who, like the fabled Doctor Doolittle, converses with every animal he meets.

After touring TOM's habitat and watching him eat a chunk of raw meat, Eli grasps his mother's hand and turns to leave. As gates clank shut and lock tumblers fall, TOM emits a deafening roar. Eli laughs heartily in response. Emerging from the building, he announces, "I think he really liked me!"

Another day, another date for Eli Barr—golfer, Cubs fan and future zoo owner.●

Party with a Purpose

By Amanda Shaker

St. Jude survivor Kathleen Brown and thousands of other college students across the nation are organizing mega-parties to raise funds for St. Jude.

EBERT PHOTOGRAPHY

Kathleen Brown

Students at the University of Illinois at Urbana-Champaign (U of I) are no strangers to a good party. So when sophomore Kathleen Brown talked about throwing an all-night bash, no one objected. It looked like a typical college event—hundreds of young adults dancing, singing, staying up late. But these Illinis weren't just partying for the fun of it; they were raising money for St. Jude Children's Research Hospital.

Brown co-chaired U of I's Up 'Til Dawn® program last February. Under her leadership, U of I raised $51,000, more than any other first-year Up 'Til Dawn. She brought the program to campus not just for St. Jude patients, but for St. Jude survivors like herself.

In August 1995, while performing a routine cyst removal on Brown's back, doctors found a grapefruit-sized tumor, which was diagnosed as Ewing sarcoma. At St. Jude, the 13-year-old underwent 52 weeks of chemotherapy and six weeks of radiation. On December 2, 1996, with her cancer in remission, Brown left Memphis carrying St. Jude in her heart. Now, she has taken her love of St. Jude to Southern Illinois.

"I brought the Up 'Til Dawn program to U of I because I believe in giving sick children a chance to live the sort of life that we sometimes take for granted. Being a St. Jude survivor, I wanted to give back to the hospital that allowed me to live a healthy and normal life," Brown explains. "The St. Jude staff is my second family, and I am grateful that I was treated with such loving care. I can never repay them for their efforts."

Brown caught the Up 'Til Dawn bug that has been swarming campuses nationwide. "We are really pleased with schools' responses to the program. It's a fun event, and it gets the students interested in the hospital," says Jeff Gardino of ALSAC, St. Jude's fund-raising organization. The student-run program extends throughout the year, culminating in an extravaganza that keeps sleep-deprived college students up all night. As ALSAC's first program for young adults, Up 'Til Dawn has surpassed all expectations. More than 70 campuses participated in its fourth year. The program raised more than $1 million in 2002, with 110 schools committed for 2003.

College students across the country raised more than $1 million through Up 'Til Dawn® events last year.

COURTESY OF THE DAILY ILLINI

Students from the University of Illinois at Urbana-Champaign show their St. Jude spirit during last year's Up 'Til Dawn.

Up 'Til Dawn generates campus-wide awareness of St. Jude. A student executive board leads each Up 'Til Dawn program by coordinating the finale, organizing fund-raisers and recruiting teams. To participate in the all-night bash, teams must raise money through special events and a letter-writing campaign. U of I's letter campaign alone raised $34,599, and Brown's fund-raisers included spaghetti dinners, Krispy Kreme doughnut sales and a date auction, to name a few.

If the teams fulfill the entrance fee requirement, they are free to party! The drug- and alcohol-free finale keeps students awake with live music, dancing, hypnotists, karaoke, patient speeches and other entertainment.

With last year's success still fresh, Brown looks forward to leading another Up 'Til Dawn, bigger and better than the last.●

The Good News CLINIC

By Elizabeth Jane Walker

The St. Jude Endocrine Clinic helps patients recover from the effects of treatment and return to normal lives.

When Trista Matlock was in the second grade, she learned how to give herself injections, using oranges as practice subjects. Today, she spends her days awash in a sea of orange, working at Tennessee Sports Zone, her family's store, and maintaining their Web site while she completes her senior year in high school.

She still gives herself those injections. As a result of a brain tumor, Trista's body does not produce the hormones she needs to grow, respond to stress or develop sexually. So for the past 12 years, she has been receiving care from endocrine clinicians at St. Jude Children's Research Hospital.

Most people don't realize that St. Jude has an Endocrine Clinic, but Trista's dad is a vocal advocate of the service. "If it were not for the Endocrine Clinic, Trista would now be about the same size she was when she was in the first grade," says David Matlock.

"When doctors found my tumor, they said it would be a miracle if I reached 5 feet tall," says Trista, who has now surpassed that prediction by 5 inches.

Trista's parents always knew she was one in a million, but when their daughter was in the first grade they found out that she had a disease that struck with similar odds. Trista had craniopharyngioma, a rare tumor that occurs just above the pituitary gland near the bottom of the brain. David was horrified when he learned the diagnosis. "I was scared to death to take Trista to St. Jude," he recalls. "I thought that's where kids go to die. It took me a while to realize that that's where kids go to live."

Kids at risk

Trista's tumor and its treatment wreaked havoc on her endocrine system. This system consists of a group of structures that include the hypothalamus, pituitary, thyroid, parathyroid, adrenal, pancreas and reproductive glands. Each gland secretes chemical mes-

LAURA HAJAR

As a result of a brain tumor, Trista's body does not produce the hormones she needs to grow, respond to stress or develop sexually. So for the past 12 years, she has been receiving care from endocrine clinicians at St. Jude.

sengers called hormones into the bloodstream. These hormones affect almost every bodily function by transferring information from one set of cells to another. Hormones regulate growth and development, metabolism and energy, tissue function, sexual maturation and reproductive processes.

Trista experienced damage to her pituitary gland, a pea-sized structure located at the base of the brain. Often dubbed the body's master gland, the pituitary produces growth hormone, thyroid hormone, puberty hormone and stress hormone and secretes substances that control several other endocrine glands.

The pituitary releases hormones that control the ovaries and reproductive processes; because her pituitary is damaged, Trista must take estrogen. She also lacks an adequate level of thyroid hormones, so she must take medication to combat hypothyroidism, a condition that causes fatigue, slow heart rate, weight gain and delayed puberty. If Trista were to undergo physical trauma—a car wreck or high fever, for instance—she could die from absence of stress hormones. She always keeps a supply of medication handy in case of emergency.

> "I was scared to death to take Trista to St. Jude. I thought that's where kids go to die. It took me a while to realize that that's where kids go to live."

Randi Schreiber, physician assistant in the St. Jude Endocrine Clinic, says Trista's problems are not unusual. Any St. Jude patient who has a brain tumor, brain tumor surgery, radiation or chemotherapy is at risk for developing an endocrine problem. The endocrine staff are currently treating about 900 patients, including many children with sickle cell disease and AIDS.

"Almost all St. Jude patients are at risk for endocrine problems," Schreiber says. "Endocrine is actually a 'good news' clinic, because there are medications and other interventions available to treat almost every endocrine problem we see. Our goal is to put the body back into the state it would have been before the cancer or treatment ever happened. If patients no longer produce certain hormones, we would give them medications to replace those hormones."

Robert Danish, MD, clinic director, says the treatment of endocrine disorders has increased as survival rates have skyrocketed.

"Years ago, because so many children died of their cancer, no one was really concerned about long-term life issues," he observes. "Today, it's absolutely incredible how many children are able to survive cancer. With that has come a whole new field that deals with complications of treatment. Our presence at St. Jude means that we can provide much, much better care to cancer survivors."

Schreiber says few cancer institutions have clinics devoted to the long-term effects of oncology treatment on the endocrine system. "Most general hospitals have endocrinology departments, but they don't follow oncology patients exclusively; they may only have 2 to 3 percent of their patient population who have undergone cancer treatment," she says. I don't know of any other center besides St. Jude that specializes in endocrine-oncology."

Because Schreiber and her colleagues see so many patients who have undergone cancer treatment, they are able to provide early diagnoses. In other institutions, endocrine problems may not be identified until they become obvious. "If the patient has symptoms, then it may be too late," Schreiber says. "For example, if a 15-year-old first comes to us because of abnormally short stature, we may not be able to help that child grow because he or she may have completed the growth process. On the other side of the spectrum, if a patient has undiagnosed stress hormone deficiency and has a severe illness or undergoes surgery, that patient may die from organ failure because stress hormone keeps our blood pressure from plummeting in extreme situations."

Life after treatment

Patients come to the Endocrine Clinic with a wide range of problems. They may be at risk for reduced growth rate, osteoporosis, obesity, diabetes, or early or late onset of puberty; children with Hodgkin lymphoma may experience thyroid damage; patients who have pelvic radiation may have testicular or ovarian damage; patients with certain brain tumors may develop hypothyroidism; children with damage to the pituitary may develop diabetes insipidus, a dangerous condition that causes excessive urination. The litany of possible complications goes on and on. But Schreiber cites an equally impressive list of success stories.

Three years after completing therapy, one 19-year-old cancer survivor became so fatigued that she had to use a wheelchair and sleep about 15 hours a day, excluding naps. The Endocrine staff discovered that the young woman had a growth hormone deficiency. Even though the patient was an adult, she still needed the hormone to increase her energy levels and bone mineral density. "Now she's active in her sorority, she has a long-term boyfriend, she's involved in various clubs at college, and she has become very successful as a productive member of society," reports Schreiber.

Another teenager was obese because her hypothalamus had been damaged. "She was so depressed, because she was a size 22, and she just felt terrible," recalls Schreiber. "She never ate much—just salads—and she exercised, but she kept gaining weight." Schreiber helped the young woman obtain special approval to take a new, experimental medication. Today, that patient is a size 12, and she feels great. Her prom picture hangs in Schreiber's office.

SETH DIXON

Randi Schreiber makes check-ups fun, says Jerry Wright, who perfects his bubble-blowing techniques in the Endocrine Clinic. When he was 5 years old, Wright underwent chemotherapy and radiation to treat medulloblastoma, a brain tumor. Today, the active 10-year-old must take growth hormone, thyroid hormone replacement and stress hormone replacement.

Danish and Schreiber are involved in several research projects that may help future St. Jude patients. They have been heavily involved in a study involving cancer survivors and bone mineral density. Other projects still in the planning stages involve such topics as osteoporosis in patients who have HIV; a search for methods to preserve fertility in patients who receive total body radiation; and a new treatment method for chemotherapy-induced diabetes. Each of these studies will provide St. Jude researchers with the opportunity to help survivors lead healthier lives.

Going forward, giving back

"I take a gajillion pills," says Trista, as she matter-of-factly displays her Medic Alert bracelet and sings the praises of staff members in the St. Jude Endocrine Clinic. "But I'm very fortunate. I've turned out pretty fair, considering." What the self-effacing young woman fails to mention is that she has sailed through high school with an A-B average. She is deeply involved at her church, and she was the top St. Jude fund-raiser at her school for six consecutive years.

"She has a normal life," says David, who credits Schreiber and James Magness, RN, of the Endocrine Clinic for their ceaseless efforts on her behalf. "When Trista would have problems, they would work with us to switch and swap medicines around until we would finally get the dosage amounts just right," he says. "I just can't say enough good things about them."

Trista counts Schreiber as one of her favorite people at St. Jude. "She's so sweet and understanding, and she relates so well to me," says Trista, who also treasures her relationships with other staff members at the institution. "Even when I was a child and they were sticking me with needles, I loved the people at St. Jude. As a child, I always dreamed of working there."

The long-time patient is about to transform that dream into reality. Next fall, she plans to enroll in college at—naturally—the University of Tennessee, Martin. "I don't think I'll ever be able to repay St. Jude for what they've done for me," Trista says, "but I'm going to try. I'm going to be a St. Jude nurse."•

Tools of the Trade

By Elizabeth Jane Walker

Structural biologists at St. Jude now have access to the world's best tools for studying the atomic structure of protein molecules.

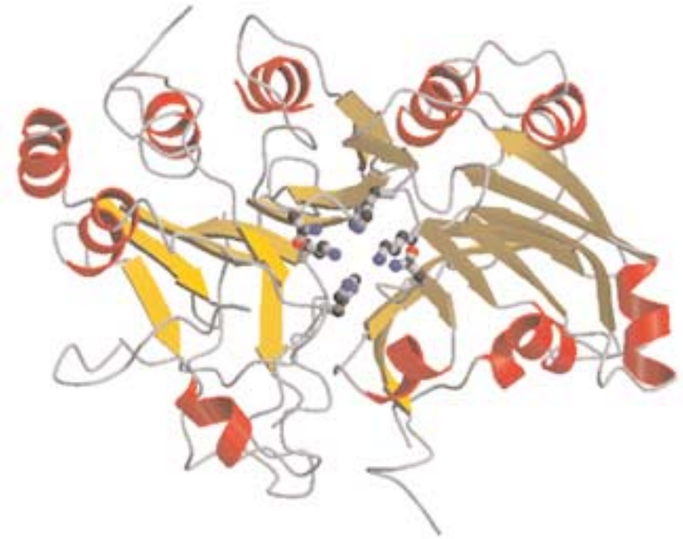
To make huge discoveries in medical research, scientists at St. Jude Children's Research Hospital must think small. As a matter of fact, an entire department is dedicated to studying the atomic structure of proteins. Now, *that's* small.

Why study proteins? Well, proteins control almost all of the biological processes in the human body. Your muscles, skin, and hair are made of proteins; these macromolecules are even responsible for your digestion. Proteins speed up important chemical reactions, fight infections, control the activity of genes, provide the framework of cells and serve as messengers among cells. You may have as many as 100,000 different types of protein molecules in your body. Each has its own function.

Genes contain the blueprint for making proteins. A mutation in a gene can damage the protein it encodes.

"Most diseases occur when things go wrong with proteins," says Stephen White, DPhil, chair of Structural Biology. "If you can understand the structure of the protein, you can understand what's going wrong with it."

Data collection that would take a day at St. Jude is possible in minutes at Argonne National Laboratory's Advanced Photon Source. St. Jude belongs to a consortium that has built a beamline at the Illinois facility, which contains the world's brightest X-ray source.



Researchers in Stephen White's laboratory recently collaborated with John Nitiss, PhD, of Molecular Pharmacology to complete the crystal structure of the enzyme tyrosine DNA phosphodiesterase, or TDP. Another view of this protein appears on page 17.

Structural biologists at St. Jude help save the lives of children by uncovering information about the molecular bases of disease. The discoveries help researchers create new drugs to fight those diseases.

White and his colleagues try to determine the size and shape of biological molecules. By understanding the 3-dimensional structure, they gain insight into how the molecules function. White likes to compare structural biology to working on and repairing an automobile. "If you want to understand how a car works, you need first to take it apart," he explains. "Then, when you've understood the structure of the car you can go in and figure out what's wrong with it."

Just as mechanics require specific tools to work on cars, St. Jude structural biologists use specialized techniques to determine the structure of proteins, as well as DNA and RNA. The primary tools they use are called X-ray crystallography and nuclear magnetic resonance (NMR) spectroscopy. Beginning this fall, St. Jude structural biologists have access to the best such tools on the planet.

X-ray crystallography

As its name implies, X-ray crystallography is a technique that involves shining X-ray beams through proteins that have been crystallized. In the St. Jude protein production facility, a scientist takes a drop of purified protein the size of a pencil point and mixes it with substances that encourage crystals to grow. In a crystal, all of the molecules are aligned in exactly the same way. The more perfect the crystal, the better the information it yields. This crystallization process can take several days or several months to complete.

Protein crystals are not hard like the rock crystals children make for science fairs from salt or sugar solutions; instead, they are fragile structures that resemble cubes of jelly. These soft crystals are frozen so that they can undergo irradiation. When X-ray beams pass through a protein crystal, the beams scatter and create a distinctive pattern of spots. This collection of spots, called a diffraction pattern, contains information about every atom in the crystal. Researchers then use computers to convert the pattern into elegant protein models.

Researchers have access to sophisticated X-ray diffraction equipment at St. Jude, but the process of creating crystals and collecting data is fraught with challenges. The procedures are time-consuming and scientists at the hospital can use only one wavelength of radiation for their experiments. But recently, St. Jude crystallographers acquired regular access to a different kind of radiation source—a synchrotron billed as the world's brightest X-ray source.

The Advanced Photon Source (APS) at Argonne National Laboratory in Illinois is 10,000 times brighter than any other light source in the United States. St. Jude is part of the Southeast Regional Collaborative Access Team (SERCAT), a consortium that has worked together to fund and

SETH DIXON

Stephen White, DPhil, and Hee-Won Park, PhD, don special goggles to study and manipulate 3-D images of crystals. Working at another computer in the laboratory are Jie Jheng, PhD, and Tina Izard, PhD. Each of these researchers seeks to determine the size and shape of biological molecules. By acquiring insight into how the molecules function, the structural biologists help save the lives of children around the world.

build a beamline at this facility. Construction of another SERCAT beamline will be completed next year. Crystallographers from the Structural Biology department will use these beamlines to conduct their research.

Photographers use bright light to capture brilliant images on film. In the same way, St. Jude scientists can harness the brighter light at APS to obtain exquisitely detailed images in a fraction of the time they would normally spend. The facility is shaped like a large doughnut—so large that Memphis' Liberty Bowl Memorial Stadium could be dropped into the middle of it. Inside the synchrotron, electrons zip around at fantastic speeds. They bend. They accelerate. Then they generate the world's strongest X-ray beam.

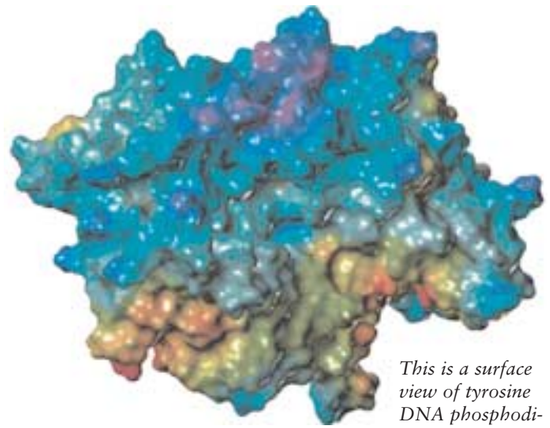
Data collection that would take a day at St. Jude is possible in minutes at Argonne. "Two days at APS is like two months of data collection here," says Brenda Schulman, PhD, of Structural Biology, who made her first trip to the St. Jude beamline in August.

Scientists at APS can obtain higher-resolution images and expand their research by using multiple wavelengths. "We have state-of-the-art equipment at St. Jude, but it's impossible to collect data using multiple wavelengths without synchrotron radiation," Schulman says.

NMR spectroscopy

Scientists use NMR spectroscopy to determine the structure of proteins suspended in liquids. Because the samples are not immobilized the way crystals are, researchers can obtain information about how the proteins move and how they bind to other proteins. "NMR is really the only technique for studying dynamic biological molecules in a natural setting," says Richard Kriwacki, PhD, assistant member of Structural Biology. "So NMR complements crystallography in that way."

To conduct an NMR experiment, scientists first prepare a high-concentration solution of protein. A researcher pours the solution into a long glass tube and lowers it into a probe located at the center of an extremely powerful magnet. The probe emits and collects radio signals at varying frequencies. As the sample in the powerful magnetic field is excited by the radio waves, the protein's atomic nuclei make detectable responses. Scientists then use computers to determine the protein's structure based on the unique NMR spectrum created.



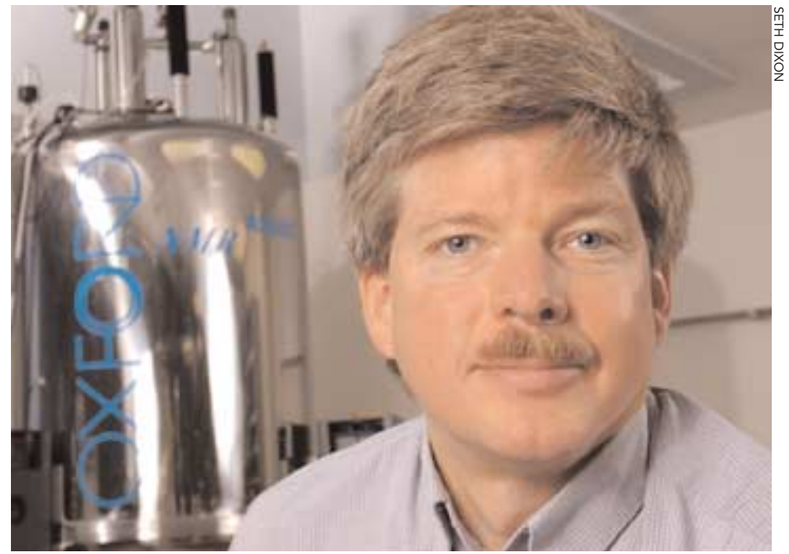
This is a surface view of tyrosine DNA phosphodiesterase, an enzyme also pictured on page 15.

Two 600-megahertz (MHz) spectrometers resembling gigantic steel thermos bottles are tucked away in a specially designed facility in the Danny Thomas Research Center. The term "megahertz" indicates the speed at which a proton spins in the magnetic field. "The bigger the magnet, the better," says Kriwacki.

This fall, St. Jude will install an 800-MHz instrument just down the hall from the existing NMR lab. The new spectrometer will be equipped with a cryoprobe, a device that will greatly increase the instrument's sensitivity. "We will be amongst the first four-to-six labs in the world to have an 800-MHz cryoprobe," observes Kriwacki.

The ultra-sensitive spectrometer will enable St. Jude researchers to study a wider range of biomolecules and to determine the structure of smaller proteins more efficiently than ever before. "Having the 800-MHz spectrometer will open the door to a new era of NMR experiments that previously were simply inaccessible to us," Kriwacki says.

The 12-foot-tall magnet will be lowered into a 6-foot pit that has been dug into the basement floor. Only one spectrometer in the world is stronger. "The one we're getting will be among the first half-dozen of its type in the world, and the second or third one delivered in the U.S.," says Kriwacki. "This will be one awesome machine, just incredible," agrees White.



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Richard Kriwacki, PhD, currently uses 600-megahertz spectrometers like the one behind him to figure out what goes wrong when human proteins mutate. He and his colleagues are awaiting delivery of an 800-MHz instrument equipped with an ultra-sensitive cryoprobe. St. Jude will be one of the first institutions in the world to have such an instrument.

Scientists saving lives

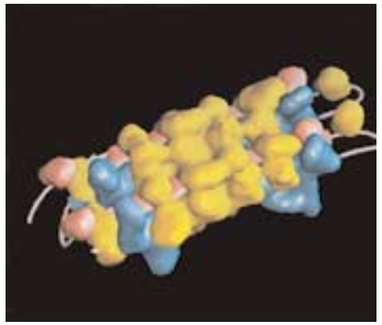
Structural biologists at St. Jude help save the lives of children by uncovering information about the molecular bases of disease. The discoveries help researchers create new drugs to fight those diseases.

White and his colleagues are solving structures of proteins for possible drug design. First, White solves a structure and obtains insight into the active site of an enzyme. He then works with chemists to design molecules that bind to the site and ultimately inhibit disease. White collaborates with St. Jude Infectious Diseases faculty and with chemists at the National Institutes of Health on these projects.

Kriwacki and his team are trying to figure out what goes wrong when human proteins are mutated. Tumor suppressor proteins provide a natural defense against cancer by preventing

SETH DIXON

Brenda Schulman, PhD, is excited to have regular access to a beamline at Argonne National Laboratory's Advanced Photon Source. At the new beamline, she and other St. Jude researchers can obtain high-resolution images of protein crystals and expand their research by using multiple wavelengths. "We have state-of-the-art equipment at St. Jude, but it's impossible to collect data using multiple wavelengths without synchrotron radiation," Schulman says. St. Jude researchers began using the APS beamline in August.



Richard Kriwacki and his colleagues generated this image, which is the world's first molecular view of a complex called Arf/Hdm2. The researchers believe that when this complex forms in human cells, a key tumor suppressor pathway is activated.

uncontrolled cell growth. But if the proteins experience a mutation, their function can change.

Kriwacki recently worked with Raul Ribeiro, MD, of International Outreach and Gerard Zambetti, PhD, of Biochemistry to develop a genetic explanation for a type of cancer that occurs in Brazilian children. Kriwacki identified a defect in the structure of one particular protein that made it fall apart under certain circumstances, leading to the onset of adrenal cortical carcinoma.

"This is the first time that a particular molecular defect has been associated so clearly with a single type of cancer," Kriwacki says. As a result of the study, all children are being screened in families that have the mutated protein. "If they catch it early, then the prognosis is very good," explains Kriwacki.

Schulman is studying how proteins become degraded in cells. After proteins finish their work, they need to be turned off or eliminated. For instance, if proteins that replicate DNA remain after they have done their job, cells will have too much DNA, and cancer will occur. Regulated protein degradation plays an important role in the cell cycle, organ development, gene expression and the immune response.

Schulman's work may help researchers understand the progression of birth defects and diseases such as cancer, Parkinson's and AIDS. She is one of 20 U.S. scientists to be named a Pew Scholar in the Biomedical Sciences this year. The prestigious award will allow her to share ideas and collaborate with some of the brightest young researchers in the country.

Tools for tomorrow

In 1996, the Structural Biology department was established to combine the disciplines of molecular biology, physics, mathematics and computer science. As a newcomer to St. Jude, White visited other departments, drumming up business. "I was knocking on people's doors saying, 'What do you work on? Do you have any proteins that you might want to know what the structure is?'"

Faculty answered with a resounding "Yes!"

Today, Structural Biology researchers collaborate with faculty in almost every area of the institution, and they use the expertise and facilities in the St. Jude Hartwell Center for Bioinformatics and Biotechnology as they determine their structures. The addition of a new NMR spectrometer and access to the APS beamline will accelerate the work that St. Jude structural biologists can accomplish.

"Technically," says White, "there will be no limit to what we can do. There will be nobody else in the world who will be better off than us in terms of the problems that we can tackle."•

Strings Attached

It may look like a simple, colorful sewing project, but the tales behind these squares weave the amazing story of St. Jude.

By Tanuja Coletta

LAURA HAJAR

Patient Rodolfo Cáceres demonstrates patience, concentration and creativity as he fashions El Salvador's flag and map on a quilt square.

It's 10 a.m. on the dot, and Dana Marshall, PhD, already has her first customer, 9-year-old Shaliea Mathis. The spunky third-grader waits patiently as Marshall cuts a square from a bolt of muslin and sets out the rainbow of puff paints, sequins, fuzzy balls and magic markers. Shaliea pours out her life's story to Marshall as she waits: Her 2-year-old brother is a patient at St. Jude Children's Research Hospital; her family just moved to Memphis, and she cannot wait for the first day of school. "I am ready," she declares. "Who wants to be sitting at home all the time when you can be learning something fun?"

Shaliea begins deftly mixing paints on a scrap of aluminum foil with a Q-Tip. Soon her blank canvas is hot pink, bedecked with a glittering felt frog and a wolf made from grey fuzz and google eyes.

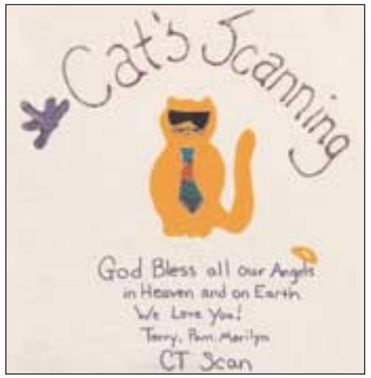
St. Jude patient Jessica Turri made this square when she was 11. The young seamstress depicted some of her friends standing on a gray road near the gleaming dome of the Danny Thomas/ALSAC Pavilion. "My dad let me use his pants for the road," recalls Turri, who is now 14 years old.

Each square lays bare a person's soul, depicting feelings of gratitude, sorrow, faith or utter glee.

Before long, other children peek into the St. Jude cafeteria and make their way to the table. They are joined by mothers and fathers, doctors and nurses. All of these people are making squares for the St. Jude Quilt of Hope.

Bedazzled by the array of supplies, some children gaze at the spread with the same look they might have in front of a candy store—unsure which supplies to choose. Others plop down in chairs, grab fistfuls of markers and write messages that come straight from their hearts: most often, "I love you, St. Jude." Patient Emma Miller, 15, sends a staffer to bring cloth and supplies to the Medicine Room so that she can make a square there. When she's finished, she races to the cafeteria with her striped butterfly drawing.

Each square lays bare a person's soul, depicting feelings of gratitude, sorrow, faith or utter glee. As a whole,



Three employees from the Diagnostic Imaging department chose a jaunty cat to communicate their love for St. Jude patients.

the tapestry tells the tale of unwavering determination displayed each day by the St. Jude staff, patients, volunteers and donors who share the goal of ridding the world of childhood cancer and other catastrophic diseases.

"Seeing the quilt makes you appreciate the human spirit," says Marshall. "It really shows you how strong people can be when they're going through major adversity."

A quilt is born

Marshall is too humble to take credit for the quilt project she began three years ago. Section leader for the Clinical Application Core Technology Lab in the Hartwell Center for Bioinformatics and Biotechnology and formerly an Immunology researcher, Marshall still bristles at seeing her name in lights on the hospital's quilt display. "I don't want to be thanked," she says. "I think I'm pretty lucky to be a part of this project."

LAURA HAJAR

"Seeing the quilt makes you appreciate the human spirit," says Dana Marshall, PhD. "It really shows you how strong people can be when they're going through major adversity."

She says the quilt idea originated from a selfish motivation. "When I came to work here I knew this was a special place," she says. "Even though I am in basic science and I know my work does ultimately help our children, I wanted to do something that would give me a chance to experience the kids—to *see* why we are here doing what we do."

The countless hours she spends after work and on the weekends prove that pure dedication rather than selfishness drives Marshall, who was inspired by the AIDS Memorial Quilt. "I knew how much that meant to people and thought we could do something similar here," she explains.

Her instincts were accurate; people jumped at the chance to take part in the project, mailing pieces from as far away as Switzerland and New Zealand. One year and hundreds of quilt squares later, Marshall organized a sew-a-thon, sponsored by Hancock Fabrics, to sew the patches into 4½-foot-square panels. About two dozen volunteers stayed up more than 36 hours to complete the job.

Today, the panels—65 and growing—are showcased on a rotating basis in a permanent display in the hospital. The St. Jude Quilt of Hope won't yet cover the Tennessee Titan's football field, but it has grown far beyond Marshall's dreams. "One of my friends who's a nurse said it best," Marshall says. "People want others to know that their children made a difference. This is one way to tell their stories."

Perhaps that is why a weary Deborah Wells is taking a quick break from a 24-hour vigil at her daughter's bedside to make a square. With simple pastel markers she writes baby Nicole's name and birth date and places an angel with glittering feathers above it. "She's a good girl, and we want her to be well for her next birthday," she says, before dashing back to Nicole's side. It could also be why patient Rodolfo Cáceres' mother sits patiently for more than an hour helping him create the flag and map of their homeland, El Salvador.

Marshall remembers most of the names and stories behind each quilt square. Even the simplest square can be dramatic. Marshall is touched by a piece of white canvas with two hearts that reads, "Thanks. In loving memory of Chad D. Creech." Survivor Tommy Hackman, then age 16, wrote about his square, "I made a friend at St. Jude named Chad, and he didn't make it so this is in his memory."

"Isn't it grand…how mere pieces of cloth sewn together have the power to lift the human spirit?" muses Pennie Horras of Iowa. Horras says this square was inspired by the song "Send in the Clowns."

This quilt square was created by the family of Brian Michael Bush, in memory of the St. Jude patient. Brian was heavily involved in charity work until his death in 1989. The miniature golf tournament depicted in the square continues Brian's work: the Michigan event has raised more than $225,000 for St. Jude.

"I love that one for so many reasons," says Marshall. "First, when you can get a 16-year-old boy to use the word "love" on anything, that's special right there! But the fact that it's so simple, from a patient to a patient, is what gets me. That's all that had to be said. That's the family feeling I see all the time at St. Jude; that's what this project is all about."

Tommy Hackman, then age 16, fashioned this simple square to honor the memory of a friend and fellow patient. "I made a friend at St. Jude named Chad, and he didn't make it so this is in his memory," wrote Hackman. "The fact that it's so simple, from a patient to a patient, is what gets me," says Dana Marshall about the square. "That's the family feeling I see all the time at St. Jude; that's what this project is all about."

"People want others to know that their children made a difference. This is one way to tell their stories."

Dolphins and horsies

Alice Lynch is called to duty the moment she arrives at the cafeteria. The professional quilter has a knack for cutting felt into animal shapes. A few quick snips, and—voilá!—it's a frog or a dragonfly or a puppy. A Navy veteran who resides in Arkansas, Lynch is one of Marshall's longtime volunteers.

Lynch is a favorite at the regular quilt square making days and never says "no" to a child no matter how difficult the animal is she's asked to cut. "Seeing a kid smile is worth it," she explains. Most recently, Lynch fulfilled wishes for galloping "horsies," majestically leaping dolphins and an accordion-playing crocodile.

The Quilt of Hope is a celebration of life, but it is also a tribute to those who showed great courage before their untimely deaths. Ruth Williams, RD, EdD, director of Clinical Nutrition Services, and Pamela Henry, CT technologist in Diagnostic Imaging, have made squares for children who lost their battles with cancer, including one who died September 11, 2001.

"It was really difficult for us, and we couldn't even travel to the memorial service because the planes were grounded because of the World Trade Center tragedy," says a teary-eyed Williams. "This is one of those things that helps you get your feelings out and get through it. It helps keep their memory alive long after they've gone."

"There is a whole grieving process that you go through," agrees Henry. "Sometimes something as simple as sitting down to make a square can heal you." Henry has added a handful of squares to the quilt, including the grooving Cajun crocodile for a patient from Louisiana and a whimsical skeleton—probably the most unusual and most difficult figure Lynch cut that day—to honor the Diagnostic Imaging department.

Six-year-old Lisa Maria Nelson of Japan created this whimsical illustration. At St. Jude the talented young artist underwent treatment for retinoblastoma, a malignant tumor of the eyes.

Surfing the quilt

While nothing beats a trip to the hospital to see the St. Jude Quilt of Hope, the next best thing is looking at the squares on the St. Jude Internet site. Visit the quilt site at *http://www.stjude.org/quiltofhope/*. With a click of the mouse, viewers can look at the 400 or so patches and read the stories behind them.

"I love the fact that anyone with a computer can now see these and be touched by them," says Marshall. "It's a way for patients and families and all of those touched by St. Jude to share our faith and encouragement."

Marshall's work is far from over. In the future, she'd like to start a project to capture the quilt squares in a coffee table book with proceeds benefiting St. Jude.

"The outpouring of enthusiasm for this project really speaks to this institution and the people who come here," says Marshall. "That's what it's all about."●

How to make a square for the St. Jude Quilt of Hope

Design your square

The theme of each square must involve St. Jude.

Ensure that your square meets size specifications

Squares should be either 1-foot square or 2-feet square. Leave 2 to 3 inches of material per side outside the finished square for sewers to use in assembling the squares into a quilt.

The quilt is intended to serve as a lasting memorial, so use durable fabrics and materials. Baste (sew) or tape the edges of your square so that it does not fray. Quilt makers will sew the squares together with a border and backing so you do not need to affix fabric backing.

Write an accompanying letter

Please send us a brief letter explaining the thoughts and experiences that inspired your square. Include your name, address, phone number and e-mail address (if applicable).

Mail your package

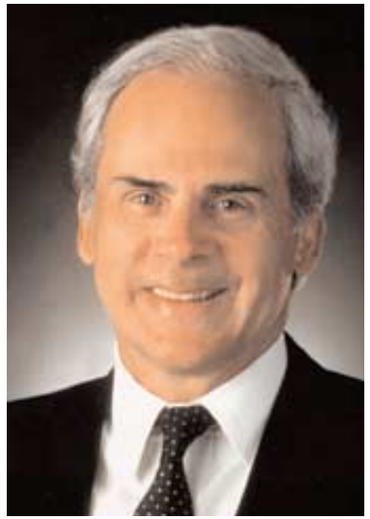
Wrap your square in a plastic bag before mailing to decrease the chance of damage through the mail. Send squares to the St. Jude Quilt of Hope, St. Jude Children's Research Hospital, 332 North Lauderdale Street, Memphis, TN 38105.

This self-portrait of a young girl with balloons was created by 3-year-old patient Megan Thompson of Kentucky and her mom.

St. Jude nurse Margaret Edwards created this square to spotlight the "Happy Cart," in which volunteers bring craft packets to St. Jude patients.

Perspective

FedEx helps St. Jude save lives through the FedEx St. Jude Classic



Frederick W. Smith

By Frederick W. Smith

"The original name of the event was the Danny Thomas Open, and Danny told me personally that he was very pleased when FedEx assumed sponsorship."

Memphis is a wonderful city with many impressive treasures. One of those is St. Jude Children's Research Hospital. As the largest employer in the area, FedEx has an obligation to help Memphis acquire and showcase its treasures to the world. No venue affords us that opportunity more completely than the FedEx St. Jude Classic. This event combines two genuine Memphis gems—St. Jude Children's Research Hospital and one of the oldest stops on the PGA tour—to create a rare sponsorship opportunity.

FedEx has been the proud title sponsor of this classic event for 17 consecutive years. In that time, the tournament has raised more than $11.6 million for St. Jude. But our commitment to the FedEx St. Jude Classic goes beyond just financial support.

Close to 400 FedEx employees spend vacation days volunteering as caddies, hospitality stewards, standard bearers, Pro-Am assistants and more to help make the tournament a success. There's no way to put a price tag on our employees' time, talent and enthusiasm, but such contributions are just as crucial as financial support to the tournament's success.

Certainly, the passion and compassion the great Danny Thomas brought to the founding of St. Jude 40 years ago is alive and well in our employee and community support of the FedEx St Jude Classic. The original name of the event was the Danny Thomas Open, and Danny told me personally that he was very pleased when FedEx assumed sponsorship.

This year, some 150,000 spectators witnessed a field of 156 professional golfers compete for a purse of $3.8 million. Out-of-town visitors accounted for 35 percent of that total attendance. And droves of golf fans unable to make it to Memphis tuned in to ESPN and ABC to watch the national television coverage. All of this national exposure also publicizes the life-saving work of St. Jude and provides a boost of more than $15 million to our local economy.

It's probably not difficult to understand why FedEx recently announced we are extending our title sponsorship of the tournament through 2006.

To thousands of golf fans coming to Memphis to see top-tier PGA competition, the FedEx St. Jude Classic certainly delivers. And to thousands of families who come to Memphis hoping for a miracle, St. Jude delivers with more regularity than any other childhood cancer research center in the world.•

Frederick W. Smith is chair, president and chief executive officer of FedEx Corporation, a $20 billion global transportation and logistics holding company. He is also co-chair of the St. Jude Professional Advisory Board.

SETH DIXON

They wear kimonos, kilts and khaki and speak many different languages. But members of the St. Jude community are united by a common mission. In July, hundreds of people gathered in the Danny Thomas Research Center atrium to unveil 88 new international flags, which celebrate the diversity of nationalities at St. Jude. The St. Jude Women's Club spearheaded the project by offering employees, volunteers, visitors and patient families the opportunity to help sponsor banners representing their countries.