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.
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

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

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

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.”

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 allows 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.

William and Millicent Rhodes

The Rhodes family is pulling for them. And they don’t want anyone who is 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.
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

E li’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, along with 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. 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.

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

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...
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 was probably twisted when he was in the womb. It’ll straighten out,” Kathy explains. That risk would soon become the risk of the Hurler’s syndrome, “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.

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 transplant. 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 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 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 brain development.

Love uncaged
Eli, his parents and his older brother, Ben, have an extraordinary support system that helps them deal

“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, Vicky Friedel, terms Eli “smart, enterprising, funny and a jokester”; and Derek calls him “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.”

“Eli! Eli! Eli…” The videotaped chant begins: “Eli! Eli! Eli!” The St. Jude patient Danny Kurth. It must 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

[Image 1018x564 to 1187x754]

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.

Students at the University of Illinois at Urbana-Champaign (U of I) are not 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 extravagant that keeps

$1 million in 2002, with 110 schools committed for 2003. 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.

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

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

BY ELIZABETH JANE WALKER
About 900 patients, including many endocrine staff are currently treating an endocrine problem. The or chemotherapy is at risk for developing a tumor, brain tumor surgery, radiation therapy, 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 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, 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 organ failure because stress hormone keeps our blood pressure from plummeting in extreme situations.

"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."

Schreiber says that the patients’ problems are not unusual. Any patient population who have undergone cancer treatment, they may only have 2 to 3 percent of their 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 undernourished 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."

"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."

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 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 guajillo pill," 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 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."
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.”

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 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

Researchers in Stephen White’s laboratory recently collaborated with John Nitis, 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.
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.

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 biological molecules 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 can fit into the pit. “This will be one awesome machine, just incredible,” agrees White.

**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...
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.”
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.

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, 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.”

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 proves that pure dedication rather than selfishness drives Marshall, who was inspired by the AIDS Memorial Quilt.

Displaying the squares is a way for Marshall and other volunteers to see how people feel about St. Jude. “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 hundred and four quilts 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 the 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 home-land, 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.”

Marshall and other volunteers are show-cased in a rotating 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 home-land, El Salvador.

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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 quick snip, and—voilà!—it's a frog or a dragonfly or a puppy. A few quick snips, and—voilà!—it's a for cutting felt into animal shapes. A

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, 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.”

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

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 eye.

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

This self-portrait of a young girl with balloons was created by 3-year-old patient Megan Thompson of Kentucky and her mom.
FedEx helps St. Jude save lives through the FedEx St. Jude Classic

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.