Learning from Luisa
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.
Survivors of childhood non-Hodgkin lymphoma (NHL) are 10 times more likely to develop other cancers than the general population. But in the journal Cancer, a St. Jude researcher says the news is not as disheartening as it may seem. “Contemporary treatment strategies at St. Jude have doubled the survival rate of childhood NHL from about 40 percent 20 or 30 years ago to the current rate of 80 percent, without increasing the risks of developing other cancers,” says principal investigator Wing Leung, PhD, Hematology-Oncology. “It’s very encouraging.”

Leung’s findings are important to oncology. “It’s very encouraging,” Leung’s findings are important to doctors who can now be on the lookout for new bouts of cancer in survivors of childhood NHL.

Launch of a journal

Two St. Jude researchers have accepted positions on the editorial board for a new peer review journal devoted to all aspects of cancer research. James Downing, MD, Pathology chair, and Charles Sherr, MD, PhD, Tumor Cell Biology chair, will join a cadre of the world’s leading cancer researchers in editing Cancer Cell. The journal will launch in February. Its publishers envision that Cancer Cell will become the definitive journal for cancer research.

Molecular whodunit

An article titled “A Molecular Whodunit,” written by Robert Webster, PhD, of the Infectious Diseases department, was published in a recent issue of Science. In the article, Webster offers his views on recent influenza-related studies. Since 1975, Webster’s influenza research laboratory at St. Jude has served as the World Health Organization’s Collaborating Center for the Ecology of Influenza Viruses in Lower Animals and Birds. It is the world’s only laboratory designed to study influenza at the animal-human interface. As a result of the Science article, Webster was featured in The New York Times, The Philadelphia Inquirer, The San Francisco Chronicle, and on National Public Radio’s All Things Considered, MSNBC.com, Yahoo news, Excite news and other media.

ALL advances

By studying the genetics of leukemic and normal cells and by learning how genetic differences influence patients’ drug responses, scientists are revolutionizing the treatment of childhood acute lymphoblastic leukemia (ALL), according to an article published in Lancet Oncology. Ching-Hon Pui, MD, and Dario Campana, MD, of Hematology-Oncology and Pathology, and William Evans, PharmD, Pharmaceutical Sciences chair, reviewed advances that may be useful to improve the ALL cure rate. “Advances in biotechnology and the Human Genome Project have accelerated progress in leukemia research,” Pui says. “Someday, it is quite possible that childhood leukemia can become a uniformly curable and even preventable disease.”

Scientists and clinicians at St. Jude Children’s Research Hospital demonstrate their dedication every day by sharing their research knowledge with the rest of the world.

Inciting citations

Charles Sherr, MD, PhD, Tumor Cell Biology chair, and Michael Kastan, MD, PhD, Hematology-Oncology chair, are among the top 20 most cited scientific authors of the 1990s according to Essential Science Indicators, which provides statistics on the impact of research authors, institutions, countries and journals. Eleven of Sherr’s papers have been cited a total of 8,545 times, and seven of Kastan’s have been cited 7,832 times.

Understanding infections

Understanding the intricate chemical warfare between host cells and stealthy invaders could lead to the development of a new category of drugs that help cells resist infection, according to a St. Jude cell physiological. In American Scientist magazine, Enric Golubins, MD, PhD, and a research colleague in Germany report that if a pathogen, like a virus or bacteria, can be prevented from entering and hiding in host cells, it will be visible to the immune system and possibly killed by the body’s defense mechanisms. Pathogens are less likely to evolve resistance to drugs that work in this way. The investigators reviewed recent research and implications for drug development.

Harry Feinstone, ScD, has created a charitable lead trust to endow a chair in Infectious Diseases.
The class: Psychology 3010
The assignment: Write about your earliest memory
The memory: St. Jude
Surekha Murti thinks it is a little strange. But no matter how much she racks her brain, the hospital is what keeps coming to mind. The memories run together—some good, some bad, all centering around the chemotherapy treatments she received after a leukemia diagnosis at age 2.
“I remember sitting in a room and it was me, my mom and a nurse, who had a pair of scissors,” says Surekha, now a 22-year-old pre-med student at East Tennessee State University in Johnson City. “We were thinking we didn’t need to cut all my hair, since only a little had fallen out. But the nurse came up to me and just picked up my hair, and it all lifted up off my head in one clump.”
She also remembers the glass partition between her and the rest of the world when the chemotherapy left her immune system too weak to risk visitors. Her big sister pouted on the other side because they couldn’t play.
And then there were the special shoes that allowed for IVs in her feet, the frightening spinal taps and finally, the long nights when her dad stayed at her bedside watching *Hawaii Five-O* with her.
“I guess it’s kind of crazy that those are the things I remember,” Surekha says. “I guess it’s because all that was such a big part of my life from the very beginning.”
The “all that” was acute lymphoblastic leukemia (ALL), and cancer wasn’t just a big part of Surekha’s life. It was and would continue to be important to her whole family.

Images with impetus
Surekha’s father, Gopal Murti, PhD, has been on the front lines of the battle to wipe out cancer for 26 years. As director of Scientific Imaging Shared Resource, Gopal helps St. Jude researchers see enemy cells magnified through his powerful microscopes and colorful images. He never forgets his mission. “You can’t ever forget why we’re here,” he says. “We’re here to cure children, and whatever we can do, we must do with a lot of determination. It still bothers me to see children sick. These are beautiful children, but horrible diseases.”
The emotion in his voice shows his compassion for the patients. “I love all children,” he says. “They don’t have to be mine. When you come here and you see them, it makes you really want to do something great.”
Gopal Murti is doing just that. He captures static images of cancer cells and viruses and transforms them into dynamic colorful illustrations. The key to a good image is that it must be both scientifically significant and aesthetically pleasing. Gopal sees himself as a cross between a scientist and an artist. “When I see an

BY TANUJA SURPURIYA

Gopal Murti has dedicated his life to helping St. Jude fight catastrophic childhood diseases, and when his daughter needed help, St. Jude was there.
image, I can see beyond the science,” he explains. “I can imagine how it will be displayed and how it will make a lasting impression. But at the same time, I understand the cell structure. I have the scientific background to back it up.”

He has the awards to back it up, too. Gopal earned sixth place at the 2001 Nikon International Scientific Photography Competition and first place in the cell culture category at the Sigma 2000 International Life Science Photo Contest. His images have graced the covers of numerous publications, including Time magazine and Europe’s EMBO Journal.

Robert Webster, PhD, of the St. Jude Infectious Diseases department, says Gopal’s contribution to the hospital has been invaluable. “He has kept St. Jude on the cutting edge,” Webster says. “He does outstanding work. When you can see the enemy, you are better off, and his work allows us to visualize the cancer cell and see how it interacts with everything else.”

Gopal credits his staff, Donna Davis and Ken Barnes, with keeping the standard of excellence in his department high. “Whenever researchers have something really strange going on, they come to us for visual help,” Gopal explains. “Then they can look at it and go back to the lab to find out what is happening. This gives them the impetus to do more work.”

After nearly three decades, Gopal is still amazed at the level of research and treatment St. Jude offers. “I don’t know where you will find better expertise from all areas of medicine than right here,” he says. It’s not just workplace pride that inspires those words. It was that expertise that saved his daughter’s life 20 years ago.

A new perspective

The Murti family began a personal fight with cancer in 1982, when Aruna Murti, PhD, noticed red spots on her daughter’s body. The next morning, they took Surekha to see a friend who was doing a fellowship at St. Jude. The duo began visiting the After Completion of Therapy Clinic—visits that she initially detested—that she began dealing with what had happened to her body. One person made all the difference: pediatric nurse practitioner Debbie Crom, RN, PhD. “I love her so much. I don’t know what I would have done without her,” Surekha says.

Crom challenged Surekha to start learning about leukemia and made the teen excited about coming to the hospital. The duo began a research project to determine the effects of radiation therapy on intelligence. Surekha turned the study into a science fair project and won top awards on local, national and international levels. The team conducted a follow-up project the next year, studying the effects of chemotherapy on intelligence. Surekha won top honors for that project, as well. “Debbie was incredible,” says Gopal, who likens Crom to a “female Mahatma Gandhi.” “There is nothing in my lifetime that I could do to repay what she did for my daughter and my family,” he says. “To take that kind of time to ease the fears of one little girl takes a truly amazing individual.”

Special gifts

Surekha says she wouldn’t be the person she is today if not for the excellent doctors and caring staff at St. Jude. She also credits her parents, who still fuss over her for even minor ailments. Her father calls her his “special gift from heaven.”

Because of her father’s work and her experience, Surekha is considering a career as a pediatric oncologist. “I think that I could help kids since I’ve gone through it,” she says. “They can see me and know that they can get over it and be anything they want to be.”

Surekha and her father aren’t the only ones in the family interested in cancer research. Her mother, Savarana, a high school student who recently won an international science fair competition for research she conducted at St. Jude. Murti never pushed his daughters toward science. “I only say to do what makes you happy and strive for perfection,” he says. “If you want to be a window washer, then do the best window washing in the whole world. I don’t want you to settle for mediocre; always strive for excellence.”

Murti follows his own advice. “For my part, I will get more money for the hospital, more exposure, anything it takes to help out the children,” he says. “For St. Jude, anything I can do, I will. I love my work. Even now I can say there is not one moment in the past 26 years that I did not enjoy being here. And we seem to be getting better all the time.”

For more information about specific research projects, contact St. Jude’s Office of Research Editor, Seth Dixon, at 901-595-1780 or sseth.dixon@stjude.org.
By Elizabeth Jane Walker

“It’s amazing taking care of a child with rhabdomyosarcoma from a primitive culture,” says Sheri Spunt, MD, of hematology- oncology about St. Jude patient Luisa Mbyvangui. “At first, you think that these people are different from us. But then you realize that they get the same diseases and the same problems and that they cry about the same things we cry about. It really is a lesson in humanity.”

Luisa's trek to St. Jude might not be out of the ordinary in the Andersonville neighborhood of Chicago, but to the Ache people of eastern Paraguay, it was one more thing they couldn’t have imagined with their own traditions and beliefs.

One such custom revolves around the names Ache parents give their babies. They choose names from animals that hunters give the mother to cook during her pregnancy. Luisa’s Ache name, Mbyvangui, means “essence of paca.” Angel’s Ache name, Tatunambia, means “spirit of one eared armadillo.” Luisa’s sisters were named after a monkey, armadillo, and a type of bird. Her brother was named after a bat. “We caught the bat and cooked it,” explains Angel, through an interpreter. “But grandfather ate it.”

Although Luisa’s lifestyle, background and language may be difficult for many Americans to understand, her reason for coming to Memphis was simple: Luisa had cancer, and St. Jude could offer her hope.

Lessons in humanity

Imagine flying to Mars and living in a St. Jude Children’s Research Hospital waiting room. As she concentrates on the screen’s digital images, the 8-year-old girl is a reflection of American popular culture. Her backpack is a jaunty hot pink. Her preferred dessert is Jell-O. A child in metallic Barbie shoes and a stylish T-shirt, Luisa Mbyvangui plays a computer game in a St. Jude Children’s Research Hospital waiting room. But these are newly acquired tastes. A year ago, Luisa had neither heard of Barbie, tasted Jell-O nor glimpsed a TV. She lived in an environment that, while rich in tradition, is one of the planet’s most primitive cultures. Then a life-threatening illness became her passport to an alien world.

Luisa’s trek to St. Jude might more accurately be measured in centuries than in miles. In her village of Puerto Barra, hunters wield enormous bows and arrows to hunt monkeys, which are then grilled over open fires. This diet is supplemented by such delicacies as deer, armadillo, paca (boar), wild honey and grubs. Luisa’s father, Angel Tatunambia, is chief of a 36-family community. Until missionaries arrived in the region in the 1970s, Angel’s people, the Ache (pronounced ah-chay), had lived as hunters and gatherers for millennia. Although most of their hunting grounds have been deforested, the Ache now raise manioc, soy, corn and poultry. These native inhabitants of eastern Paraguay have a colorful history that once included such gruesome customs as infanticide. Although the Ache no longer practice these activities, they retain many of their other traditions and beliefs.

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Although Luisa’s lifestyle, background and language may be difficult for many Americans to understand, her reason for coming to Memphis was simple: Luisa had cancer, and St. Jude could offer her hope.
Ache in the world, few people know much about them. So Luisa’s caregivers turned to Wickman for help. One afternoon last fall, doctors, social workers, nurses, practitioners, dietitians and other employees crowded into a conference room to learn more about their patient and her lifestyle. They quickly discovered the answers to many of their questions. “The biggest problem we had was that Luisa was losing a substantial amount of weight,” recalls Sheri Spunt, MD, of Hematology-Oncology. “It turns out that she wasn’t eating because most of the foods here have salt or other spices. She was used to eating monkey, chicken or other meat right off the bone. We would bring her chicken fingers, but she wanted the bone. We would bring her about 40 chickens and three geese for a homecoming celebration: “I have returned to their village. Angel says his wife is planning a massive feast. “Land is the main problem,” says Angel. “And electricity. We also do not have running water in our village.” They do have a school, though, and Luisa looks forward to returning to her studies. “I like school,” she says, with a grin.

Home again
After spending nearly a year in the United States, Luisa has acquired a host of new habits, interests and experiences. She has learned to understand many English words and has mastered the American card game “Uno.” She has tasted snow. And she has mourned for America. “She loves the United States, so she’s sad that something bad happened here,” explained Angel, following the terrorist attacks on America in September.

Most importantly, Luisa has forged deep friendships that transcend language or culture. As she walks down a St. Jude corridor with her social worker, Judy Hicks, Luisa reaches up to hold the woman’s hand. “I love Judy!” she says. Luisa has plastered Hicks’ office walls with whimsical drawings that reflect the child’s sunny personality and artistic talent. Luisa’s father speaks for both of them when he says, “All of the people here are very kind and nice. They show lots of love to us.”

By the time this magazine is printed, Luisa and Angel will have returned to their village. Angel says their father speaks for both of them when he says, “All of the people here are very kind and nice. They show lots of love to us.”

In her little village school, Luisa will study hard. She has to, because of one more item she acquired in the United States—a career goal. “I’m going to be a doctor,” Luisa promises. “And I’m going to work at St. Jude.”

Many thanks go to Magdalena Hurtado, PhD, co-author of Ache Life History: The Ecology and Demography of a Foraging People and author of Anthropologist: Scientist of the People, for providing background information on the Ache for this article.
Meet two of the world’s best reasons for stem cell research—Cody Bigos (at left), and his buddy, Jacob Menzel.

There’s a new celebrity in town. Like any famous star, this one is alternately praised and maligned in the popular press. Open a newspaper, flip on a television or peruse a magazine and you’ll likely be inundated with news and views about this latest luminary—the mighty but microscopic stem cell. What is a stem cell? Why all the hubbub about a cell, and why should researchers from St. Jude Children’s Research Hospital study it? Mary Jo Menzel knows exactly why stem cells are important—because these lowly cells may have the ability to transform her son’s life.

An accomplished swimmer and enthusiastic soccer player, 7-year-old Jacob Menzel is gifted with a nimble mind and incisive analytical skills. He excels at mathematics, puzzles and computer games. Like other boys his age, Jacob spends hours in imaginary play, adroitly fashioning Lego creations and pondering the nuances of Pokemon and Harry Potter. But this bright first-grader is far from typical. He is one of a handful of children on the planet to undergo stem cell infusions for osteogenesis imperfecta (OI), a cruel genetic disorder also called “brittle bone disease.”

Jacob’s journey began October 20, 1994, when the obstetrician heard bones breaking as she pulled him from the womb. “In the first few years of his life, Jacob broke a bone, on average, every month,” says his mother. OI affects the production of collagen in Jacob’s body. In addition to frequent bone fractures, the disorder leads to excessive fragility, short stature and deformities, and in its severe form, death. Until recently, children like Jacob faced a grim future.

But in 1996, a glimmer of hope appeared when Ed Horwitz, MD, PhD, of the St. Jude Hematology-Oncology department performed the world’s first bone marrow transplant for osteogenesis imperfecta. Since then, Horwitz’s use of stem cells has made headlines as the public clamors for information about the controversial cells.

What are stem cells?

In the past couple of years, stem cells have generated great excitement among researchers, physicians, patients, the media and the general public. These rare and powerfully therapeutic cells are immature “master” cells that can renew themselves and develop into a variety of cell types. Most stem cells occur in the bone marrow, although they have been identified in other organs, as well.

Marrow stem cells produce all of the body’s oxygen-carrying red blood cells, infection-fighting white cells and the platelets necessary for clotting.

For many years, doctors at St. Jude have been performing bone marrow transplants. When the “sick” bone marrow is replaced with donor marrow, patients’ bodies begin to produce new, healthy cells. Only in the past decade have scientists been able to isolate individual
Stem cells from the blood and bone marrow for use in transplants. Bone marrow contains stem cells, but it also contains other kinds of cells that may not benefit patients. As stem cell purification methods have become more accurate, the number of bone marrow transplants has declined, and the number of stem cell transplants has increased. At St. Jude, about 150 stem cell infusions are performed each year.

**Stem cell use at St. Jude**

Some scientists at other institutions have obtained stem cells from human embryos. This highly controversial source of cells has not been used at St. Jude. Stem cells used for transplantation at the hospital are harvested solely from the blood or bone marrow of children or adults.

Malignant diseases treated with stem cell transplantation at St. Jude include leukemias, brain tumors, Hodgkin disease, non-Hodgkin lymphoma, neuroblastoma, Ewing sarcoma and other relapsed solid tumors. Non-malignant disorders include sickle cell disease, severe combined immunodeficiency syndrome, Fanconi anemia, Wiskott-Aldrich syndrome, thalassemia, aplastic anemia and metabolic storage disorders. Stem cell transplantation offers many patients their last and only chance for a cure.

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An allogeneic transplant occurs when another individual donates stem cells for the patient. This process is extremely complex, because the patient's immune system is replaced by that of another person.

St. Jude clinicians attempt to find a donor whose tissue type, or human leucocyte antigen (HLA) type, matches the patient's. The closer the match, the lower the risk to the patient. If a patient has four siblings, the odds are that one of them would be a perfect match, possessing all six of the antigens necessary for successful engraftment. If the patient does not have an HLA-identical sibling, then St. Jude staff members search for a matched unrelated donor.

Because a parent only shares three of the six antigens with his or her children, a parent is a good match for one of each of a child's four siblings. If a sibling of a child has a stem cell disease, the parents may be considered as donors, even though they match only three of the six antigens. In an allogeneic transplant, clinicians must ensure that the patient's immune system does not perceive the donor's stem cells as foreign and destroy them. Another serious complication is graft-versus-host disease. If the donor's stem cells are purged of infection-fighting T-cells before the transplant, those cells will mount an attack against the patient or the host.

**Parental donors**

In St. Jude laboratories, researchers and clinicians are working feverishly to harness the power of stem cells. One St. Jude project has the potential to revolutionize transplantation of these cells. About half of the children who need transplants do not have matched sibling or unrelated donors. That number is much higher for ethnic minorities, who are underrepresented in the marrow registry. Until recently, those children had no chance for a cure. But in January of 2000, a team led by Rupert Handgretinger, MD, director of Stem Cell Transplantation at St. Jude, began transplanting stem cells from some parental donors. A protocol, or scientific treatment plan, for this procedure is in development, pending approval by the Food and Drug Administration. Evaluating each patient's need on a case-by-case basis, the FDA has already granted permission for St. Jude clinicians to perform several of these transplants. "In cooperation with the FDA, we have been able to treat patients who cannot wait for treatment until we have the protocol approved," explains Handgretinger. "One of those transplant patients is a 15-year-old with leukemia. She is doing well. She would not be alive now if she had not had the transplant."

Because a parent only shares half of the antigens necessary for a child's transplant, Handgretinger and his staff must take extraordinary measures to prepare both patient and donor cells for transplantation. By using a new procedure called magnetic activated cell sorting, St. Jude staff can magnetize and isolate donor stem cells, reducing the chance that donor T-cells will attack the patient, or host, and cause graft-versus-host disease. "We developed a method whereby we can process billions and billions of cells and pick out only the stem cells, leaving the rest behind," says Handgretinger. Staff members closely monitor chemotherapy and/or radiotherapy usage to eradicate cancer cells with the fewest possible side effects. Handgretinger is excited that St. Jude staff may soon be able to use parental donors on a regular basis for stem cell transplantation. "You'll never find a more motivated donor than the mom or dad of the patient," he says. "And you have the donor sitting at the patient bedside every day. If you need a second transplantation, you don't have to do a donor search, because it's easy to find that donor."

Handgretinger and his colleagues are continually conducting research to better understand the biology of stem cell transplantation, to improve the processes and to make the procedures safer. "We can never stop doing this kind of research until we improve the survival rates to 100 percent," Handgretinger asserts.

**Another St. Jude “first”**

In another St. Jude laboratory, researchers led by Brian Sorrentino, MD, director of Experimental Hematology, have discovered what they believe to be the world’s first “universal” stem cell marker. The team found that expression of a gene called ABCG2/Bcrp1 allows scientists to identify stem cells from a variety of sources. The gene pro-
Physician-scientist. A battle with leukemia. Until 1948, the cure rate was zero. By 1962, it was 4 percent. By 2001, it's up to about 80 percent. But that didn't happen in a year. It happened in 40 years. In the past five years, we've had extremely positive outcomes. We've proven that this can work, it's safe, and it seems to be beneficial. We're going to build on that.

While Horwitz works on ways to help Jacob and Cody, the boys concentrate on making friends, attending classes and pursuing busy social lives. A student at Woodside Elementary School in Sussex, Wisconsin, Jacob enjoys a popularity that astounds his mother. “I’m famous at school,” he says, matter-of-factly, when strangers recognize and greet him in public places. His friend, Cody, is just as outgoing. “He knows everybody in town,” says his mother. “I’m pretty positive that Jacob or Cody could be mayor of Forked River [New Jersey].” Although the two boys still use wheelchairs, they make the most of it. Jacob plays wheelchair soccer and Cody—thanks to instruction from Jacob—has learned to pop a wheelie in his wheelchair, to the exasperation of his mother. “I gave birth to Cody,” says Beth. “But St. Jude really gave him a life. And he lives every day to the fullest.”

In 1996, Ed Horwitz, MD, PhD, of the St. Jude Hematology-Oncology department performed the world’s first bone marrow transplant for osteogenesis imperfecta. Since then, his innovative use of mesenchymal stem cells has given hope to patients like 4-year-old Morgan Thomas.

In May of 1997, Beth carried her tiny son into St. Jude on a pillow, taking exquisite care lest she break his fragile bones. That summer, Cody received the world’s fourth bone marrow transplant for osteogenesis imperfecta, only a few hours after Jacob Menzel underwent his transplant. During these procedures, Horwitz infused the boys with whole bone marrow, which contains mesenchymal stem cells that are capable of making bone and connective tissue. Sure enough, the boys’ bones began to grow. A year earlier, Horwitz had performed the world’s first stem cell transplant for osteogenesis imperfecta. The mesenchymal stem cells had engrafted and differentiated into bone cells. The cells actually altered the structure of the bone and helped the bones grow more normally, but eventually the growth began to slow down. Horwitz then established a new protocol, in which mesenchymal stem cells were removed from donor bone marrow and infused into patients. Again, the cells began to produce new, healthy bone cells, which strengthened the bones and made them grow. Jacob and Cody each received stem cell infusions during this study.

“The stem cell infusions most definitely helped,” says Mary Jo Menzel. “The science just makes sense: you introduce cells into somebody’s body, and the body accepts those cells.”

Beth saw a startling difference in her son after the stem cell infusion. “Within a week after receiving stem cells, Cody started crawling,” she says. “It was the most amazing thing I’ve ever seen in my whole life.” But eventually the benefits again began to taper. Soon, Horwitz, Jacob and Cody will embark on a third stem cell protocol aimed at further reducing the effects of the disease. “We’d love to be able to give them one treatment and have them cured,” says Horwitz. “But we’re not there yet. Rarely in medicine do you hit a home run. Most advances are made in incremental fashion, a little bit at a time. Think about leukemia. Until 1948, the cure rate was zero. By 1962, it was 4 percent. By 2001, it’s up to about 80 percent. But that didn’t happen in a year. It happened in 40 years. In the past five years, we’ve had extremely positive outcomes. We’ve proven that this can work, it’s safe, and it seems to be beneficial. We’re going to build on that.

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New life for brittle bones
Cody Bigos’ mother, Beth, says that St. Jude is also a great place to come for a healthy dose of hope. In 2002, Horwitz and his team are currently working on a new protocol that will allow stem cells to be used as gene therapy vehicles. Some diseases are caused by defective genes. If a stem cell containing a normal copy of a gene is put into a patient, that cell could theoretically produce billions of normal cells for the rest of the patient’s life.

A childhood cancer survivor himself, Sorrentino says he always knew he wanted to become a physician-scientist. A battle with Hodgkin disease at the age of 17 cemented that goal. Sorrentino’s work with stem cells may help untold thousands of children with immune system disorders, genetic diseases, Hodgkin disease and other kinds of cancer. “St. Jude is a great environment for doing research and working on blood,” says Sorrentino, who came to Memphis from the National Institutes of Health in 1993. “We’ve got the world’s leading experts in blood here. I’ve heard it said that the only thing that will limit you at St. Jude is your ideas, and that’s the way I feel. It’s a great place to do science and to do medicine.”

Experimental Hematology Director Brian Sorrentino, MD, discusses a research project with Sheng Zhou, PhD. These St. Jude researchers were members of a team that discovered a new protocol that might be the world’s first “universal” stem cell marker. The research, published in the September 2001 issue of Nature Medicine, may provide scientists with a much more accurate way of identifying true stem cells than has been available in the past.

ABCG2/Bcrp1: Our work suggests that ABCG2/Bcrp1 could be that type of marker,” says Sorrentino. Expression of the ABCG2/Bcrp1 gene may also ensure that stem cells remain in a primitive state—i.e., they do not differentiate into red blood cells, white blood cells or other kinds of cells. This discovery might help scientists control stem cell differentiation. The St. Jude research involved laboratory animal stem cells. Sorrentino and his team are currently working on a way to use the marker to identify stem cells from human bone marrow. The scientists are also involved in research that will allow stem cells to be used as gene therapy vehicles. Some diseases are caused by defective genes. If a stem cell containing a normal copy of a gene is put into a patient, that cell could theoretically produce billions of normal cells for the rest of the patient’s life.

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New life for brittle bones
Cody Bigos’ mother, Beth, says that St. Jude is also a great place to come for a healthy dose of hope. In 1996, Ed Horwitz, MD, PhD, of the St. Jude Hematology-Oncology department performed the world’s first bone marrow transplant for osteogenesis imperfecta. Since then, his innovative use of mesenchymal stem cells has given hope to patients like 4-year-old Morgan Thomas.

In May of 1997, Beth carried her tiny son into St. Jude on a pillow, taking exquisite care lest she break his fragile bones. That summer, Cody received the world’s fourth bone marrow transplant for osteogenesis imperfecta, only a few hours after Jacob Menzel underwent his transplant. During these procedures, Horwitz infused the boys with whole bone marrow, which contains mesenchymal stem cells that are capable of making bone and connective tissue. Sure enough, the boys’ bones began to grow. A year earlier, Horwitz had performed the world’s first stem cell transplant for osteogenesis imperfecta. The mesenchymal stem cells had engrafted and differentiated into bone cells. The cells actually altered the structure of the bone and helped the bones grow more normally, but eventually the growth began to slow down. Horwitz then established a new protocol, in which mesenchymal stem cells were removed from donor bone marrow and infused into patients. Again, the cells began to produce new, healthy bone cells, which strengthened the bones and made them grow. Jacob and Cody each received stem cell infusions during this study.

“The stem cell infusions most definitely helped,” says Mary Jo Menzel. “The science just makes sense: you introduce cells into somebody’s body, and the body accepts those cells.”

Beth saw a startling difference in her son after the stem cell infusion. “Within a week after receiving stem cells, Cody started crawling,” she says. “It was the most amazing thing I’ve ever seen in my whole life.” But eventually the benefits again began to taper. Soon, Horwitz, Jacob and Cody will embark on a third stem cell protocol aimed at further reducing the effects of the disease. “We’d love to be able to give them one treatment and have them cured,” says Horwitz. “But we’re not there yet. Rarely in medicine do you hit a home run. Most advances are made in incremental fashion, a little bit at a time. Think about leukemia. Until 1948, the cure rate was zero. By 1962, it was 4 percent. By 2001, it’s up to about 80 percent. But that didn’t happen in a year. It happened in 40 years. In the past five years, we’ve had extremely positive outcomes. We’ve proven that this can work, it’s safe, and it seems to be beneficial. We’re going to build on that.

While Horwitz works on ways to help Jacob and Cody, the boys concentrate on making friends, attending classes and pursuing busy social lives. A student at Woodside Elementary School in Sussex, Wisconsin, Jacob enjoys a popularity that astounds his mother. “I’m famous at school,” he says, matter-of-factly, when strangers recognize and greet him in public places. His friend, Cody, is just as outgoing. “He knows everybody in town,” says his mother. “I’m pretty positive that Jacob or Cody could be mayor of Forked River [New Jersey].” Although the two boys still use wheelchairs, they make the most of it. Jacob plays wheelchair soccer and Cody—thanks to instruction from Jacob—has learned to pop a wheelie in his wheelchair, to the exasperation and amusement of his mother. “Beth knows that these boys’ antics are possible because of the stem cell therapy her son has received at St. Jude. “I gave birth to Cody,” says Beth. “But St. Jude really gave him a life. And he lives every day to the fullest.”

In 1996, Ed Horwitz, MD, PhD, of the St. Jude Hematology-Oncology department performed the world’s first bone marrow transplant for osteogenesis imperfecta. Since then, his innovative use of mesenchymal stem cells has given hope to patients like 4-year-old Morgan Thomas.

“I gave birth to Cody, but St. Jude really gave him a life. And he lives every day to the fullest.”
The National Auctioneers Association has given more than $2 million for the children of St. Jude. And once a year, the NAA lets kids at the hospital participate in an action-packed auction of their very own.

This is no ordinary Monday morning in the cafeteria at St. Jude Children’s Research Hospital. Absent are the clink of silverware and the scrape of chairs on linoleum. Instead, the room resounds with an undulating chant that rises and falls like ocean waves. Children bounce and bob like buoys on the sea, popping out of their chairs to wave white placards. But this is more than child’s play. It’s an auction where savvy bidders plot their strategy with a seriousness that belies their years.

“I’m not going to bid on just anything,” says an 8-year-old auction-goer, as she nervously counts her cash for the third time. “I’m going to wait for a certain watch.” She runs to a table piled high with toys and points out a colorful timepiece. “That is the one I really, really want.”

This is the sixth year that the National Auctioneers Association (NAA) has held a toy auction at St. Jude. Each pint-sized participant receives $30 in “play money” and a card emblazoned with a bid number. Tables are piled with treasures ranging from race cars and jewelry boxes to cell phones, collectible dolls and baseball cards. At precisely 10:15 a.m., two world-champion auctioneers take the podium.

JillMarie Wiles begins auctioning off the first item—a princess dress-up set. As the words spill forth in a melodious, high speed chant, the children gawk in amazement, their excitement building apace. “How can she talk that fast?” marvels one youngster. Within seconds the children have overcome their awe and have jumped into the fray, bidding feverishly as spotters cry “Yep” and point to bidders. “Sold!” proclaims Wiles, as a patient hands over $5 in play money to claim the first purchase of the day.

For the next hour, Wiles and her colleague, Scott Musser, conduct a rollicking auction while ensuring that each child “purchases” at least one item. Wiles and Musser have come to Memphis as part of their duties as the 2001 International Auctioneer Competition champions. As title winners, the two auctioneers traverse the country on behalf of the National Auctioneers Association and its charity, St. Jude Children’s Research Hospital. The NAA has raised more than $2 million for St. Jude, but Musser hopes the organization can increase that amount exponentially. “We are encouraging each of our 6,000 members to raise money for St. Jude,” says Musser, who hails from Kennewick, Washington, and comes from a family of auctioneers. “It shows how powerful a group can be if you do something together.”

In 1995, Memphis auctioneer and past NAA president John Roebuck played a vital role in convincing the National Auctioneers Association to support St. Jude. Roebuck presided over his first St. Jude fund-raising auction in 1962, and has been an avid supporter of the hospital ever since.

Auctioneer JillMarie Wiles celebrates a successful bid with St. Jude patient Tony Davis.
Serious bidding is the order of the day for (from left) St. Jude patient Taylor McCain of Louisiana and her mother, Rachael; Jessica Gonzalez-Vargas, sibling of patient Jose Gonzalez-Vargas; and 4-year-old patient Nicholas Sanchez of Chile.

The action is hot and heavy as Scott Musser recognizes a young bidder. Musser and Jill Marie Wiles conducted the high-energy event as part of their official duties as the 2001 International Auctioneer Competition champions.

Louisiana holds his bidding num-

bers on top of his head, in a ploy that earns him a truck and car combo. Delaney Barnes, age 4, successfully bids on a truck and a set of interlocking building blocks. “He got exactly what he wanted,” says his mother, Teresa Barnes. Seven-year-old Molly Burns of West Tennessee arrived at the auction early to obtain a front-row seat for the proceedings. As she exits the cafeteria for her chemotherapy treatment, Molly carries the electronic cash register she had eyed earlier in the day.

St. Jude patient LaToya Harp, 10, of Mississippi is attending her first auction. Her disease in remission, LaToya has returned to the hospital for a checkup and is attending the auction between appointments. With a shy smile, LaToya displays the commemorative baseball jersey she purchased. “I got this for my brother,” she says. A videotape LaToya obtained at the auction will also be given to a sibling. “She’s always been selfless,” says her father, Roy Harp, who is quick to express his gratitude to the hospital and to the donors who saved his daughter’s life. “The people who donated and did this are just wonderful,” he says, gazing around the room. “The first day we came to St. Jude, it seemed like LaToya’s whole life was gone, but the doctors and nurses brought her through it. She’s doing really good now. I never dreamed of a place like this before we came here. But it has been a blessing to me, and I thank God for it.”

Tonight, LaToya will return home to her other family members and distribute the gifts she “purchased” at the auction. But the NAA’s 6,000 members have given LaToya something far more precious than toys. Thanks to the auctioneers’ selflessness and support, LaToya and thousands of other children like her have been given the gift of hope.

it’s a time when logistics and money are the last things on a parent’s mind.

“You just go. You don’t think about money,” says Sheila Chavis of the trip that brought her and her son, Reggie, to Memphis for treatment. “Our pediatrician said that St. Jude would accept our son, that we would be flown to Memphis and asked if we could leave that afternoon.”

The Chavises live in Louisiana. When the doctor told Sheila that her son had Ewing sarcoma, he mentioned St. Jude Children’s Research Hospital in the same breath. “Just hours later, there we were in Memphis, and a car was waiting for us at the airport,” Sheila says. “We were in a daze.”

Eleven-year-old Britton Roberts washes his dishes after eating lunch at the Ronald McDonald House. “It’s awesome here,” says his mother, Leisa Burke, of their latest stint at Ronald McDonald House. “It’s like being on vacation while having all the amenities of home at the same time. Britton actually looks forward to coming to Memphis and playing in the game room with his friends. It’s just like a home here.”

PHOTOS BY SETH DIXON

THANKS TO THE ST. JUDE DOMICILIARY CARE DEPARTMENT, FAMILIES CAN CONCENTRATE ON THE HEALING PROCESS INSTEAD OF WORRYING ABOUT THE COSTS OF TRANSPORTATION, LODGING OR FOOD.

By Michael Cody

Getting there

Cathy Hall of the St. Jude Travel Office says airfare is just the beginning of the assistance St. Jude provides to patients and their families. St. Jude will pay all the costs of transportation, housing and meals for the patient and one parent. The journey begins with the child’s diagnosis.

Travel arrangements depend on patients’ medical conditions. Sometimes, patients can spare a few days to drive. St. Jude pays 16 cents per mile for those journeys. When time is of the essence, the Travel Office books air travel. The accepting physician at St. Jude calls the Travel Office and sets the criteria. “We have contracted rates with Northwest and Delta Airlines,” Hall explains. “They offer St. Jude really good rates that
help keep our costs down.” Of course, St. Jude treats patients from 60 different countries. “Once these patients are doing well, we send them home and check up,” Hall says.

More than a bed
St. Jude patients are welcomed into a new community of healing. When the parent and child arrive, they are assigned to short- or long-term housing based on the patients’ medical needs and the length of time they are expected to be in Memphis. Target House is an extended-stay facility located in the middle of St. Peter Village, a Catholic Diocese complex (see related story, page 3). Target House and their vendors donated to ALSAC all the funds necessary to build the facility, and Target House was heavily involved in its construction. Target House offers 48 two-bedroom apartments plus two apartments for immuno-suppressed patients. St. Jude recently broke ground for “Target House II,” an expansion that will offer 46 more apartments and many family and large-gathering areas. Target House II is set for completion in November 2002. The 51-room Ronald McDonald House is a shorter-term stay facility operated by the Ronald McDonald House board and St. Jude. The facility in Memphis is one of only a few in the nation dedicated to a single medical institution. St. Jude also has a standing contract with the Marriott Downtown Hotel, located within two blocks of the hospital. St. Jude provides ground transportation for patients who were whisked to Memphis by air. Two shuttles run throughout the day and into the evening; one rotates among the Marriott Downtown Hotel, the hospital and the Ronald McDonald House; the other connects Target House families to the hospital. At scheduled times, a van also takes Target House families to the grocery, bank or drug store.

Of burgers and pizza
The Ronald McDonald House has kitchen facilities that are shared by the families staying there. The facility has rooms stocked with basic food items provided by the community. “Parents who are using the kitchen just go in and get what they need,” says Brent Adams, St. Jude Domiciliary Care director. “Plus, St. Jude provides each family with an $80 Kroger grocery store certificate each week.” Target House has a kitchen in each apartment. St. Jude provides Target House families with $100 Kroger certificates each week.

Thanks to a weekly $80 grocery store certificate, patients like Georgina Radu and her mom, Ludy Frances-Radu, can buy and prepare the foods that they enjoy. Georgina, from Syria, loads groceries onto the Target House van, which provides regular transportation from Target House to the hospital, bank, grocery and drug store. If they prefer, patients can opt for cafeteria vouchers instead of grocery store certificates; these vouchers can be used at some Memphis-area restaurants in addition to the hospital cafeteria. “We are really thankful for everything that St. Jude has done for us,” says Ludy, who has lived with her daughter at Target House for a year-and-a-half. “You can’t find this kind of treatment anywhere else.”

Habib Affara, 13, of Lebanon, plays an electronic game in his bedroom at Target House, where he will live for the next year during his treatment at St. Jude. Habib’s older brother, Adham, says the support system among families at Target House has helped the brothers cope with the stress of treatment and adjust to a new language and culture. “All the families at Target House know one another and talk to each other,” says Adham. “They share everything with each other.”

Target House families often participate in an open door night, where they leave their doors open and walk from room to room sampling each other’s cooking. “It gets really interesting,” Adams says.

Of course, families can also eat in the St. Jude cafeteria. Outpatient families may choose to receive either grocery store certificates or cafeteria vouchers, which can also be used at some Memphis-area restaurants. If they opt for the vouchers, the patient and a parent each receive a meal ticket for breakfast, lunch and dinner. The parent of an inpatient also receives three cafeteria vouchers per day. Nutritionists at St. Jude work with staff members in Domiciliary Care to ensure that patients have the best possible nutrition. For example, Ruth Williams, RN, EdD, director of Clinical Nutrition Services, has a protocol where participating parents may eat in the hospital room with the patients. Williams is evaluating whether or not patients eat more food when their meals are shared rather than eaten alone.

Today, Danita Ealy from Louisiana enjoys lunch in the cafeteria while helping her active son, Jabari, clobber his sandwich—a process that seems to include just about everything but taking a bite. When they first arrived in Memphis and were staying in a hotel, the Ealys received meal tickets for the cafeteria. Occasionally, they ordered room service, a cost covered by St. Jude. Now the Ealys live at Ronald McDonald House, where they receive a grocery store gift certificate each week. Today, they’ve used some of their own money to buy a quick cafeteria snack. “It’s very reasonable,” Danita says of the cafeteria fare.

Looking forward
Domiciliary care is an integral part of the St. Jude healing process. Recently St. Jude began consolidating its patient housing. The ALSAC/St. Jude Boards of Directors and Governors are planning a short-term stay facility to be built on the St. Jude campus. This facility will reduce the number of patients who have to stay in area hotels when both the Ronald McDonald House and Target House are filled.

“As we all know, when a child has cancer or another catastrophic disease, the whole family suffers,” Adams says. “The ALSAC/St. Jude Boards set their sights on treating the entire family and all members know how important it is for the entire family to know that the child and a parent or caregiver are taken care of. Nobody is ever turned away from St. Jude because they can’t afford housing, transportation or food.”

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Promise

Winter 2002
The Catholic Diocese of Memphis and St. Jude embark on another project to help children.

By Bishop J. Terry Steib

The Catholic Diocese of Memphis and St. Jude share a common bond, which helps to solidify our partnership.

In 1996 Dick Hackett, then senior vice president of ALSAC, approached me about developing a working relationship between the Catholic Diocese of Memphis and St. Jude. This relationship would culminate in housing for St. Jude patients and their parents. The facility would be known as Target House and would be built on the grounds of St. Peter Village (see related story, page 21).

St. Peter Village involves five institutions: St. Peter Home for Children, Memphis Catholic High School, St. Peter Daycare, St. Peter Manor Retirement facility and St. Peter Villa Rehabilitation and Nursing Center. The addition of the new housing facility certainly continues the central mission of St. Peter Village, envisioned by Bishop Carroll T. Dozier, the first bishop of the Diocese of Memphis. Bishop Dozier had envisioned a “village” where the Catholic Church could minister to the physical, social and spiritual needs of children and others in need.

To me, this proposal would be the perfect marriage of two parties—each, whose mission is to serve others regardless of religion, ethnicity or financial means. St. Jude’s unwavering commitment to treating children who are stricken with cancer and other catastrophic illnesses sets a standard of excellence in the field of medical research that is second to none. The spirit of generosity, charity and caring that infuses the dedicated men and women of this facility is especially worthy of recognition.

Every day, the doctors at St. Jude strive to find cures to save and improve the quality of life for children all over the world.

The Catholic Diocese of Memphis began its partnership with St. Jude in 1997. The first Target House opened in the spring of 1999. This facility, which can accommodate 50 patients and their families, provides the feeling of home for long-term patients suffering from cancer and catastrophic illnesses. We are pleased to have Target House on the grounds of St. Peter Village. It is a testament to the strength and longevity of Bishop Dozier’s vision.

The Catholic Diocese of Memphis and St. Jude share a common bond, which helps to solidify our partnership. Each of us is committed to uplifting the dignity of the person with compassion, caring and love. I anxiously await the opening of the second Target House in the fall of 2002, which will further strengthen our partnership with St. Jude, as well as our shared commitment to serve others.

With great anticipation, I look toward the future with its many blessings and miracles from a good and gracious God.

Bishop J. Terry Steib, SVD, was installed as the fourth bishop of Memphis in 1993. Ordained to the priesthood in 1967, he has served the Catholic Church in many positions, including as auxiliary bishop for the Archdiocese of St. Louis, Missouri.

Home, Sweet Home

What a “groundbreaking” event it was! On November 15, 2001, Santa Claus arrived at Memphis’ Wolfchase Galleria to christen the world’s largest gingerbread house—a 5½-story edifice built to benefit St. Jude Children’s Research Hospital. During the holiday season, gingerbread donation packages ranging from $25 to $100 were sold to raise funds for St. Jude. Among the many patients and parents attending the grand opening of the Kroger St. Jude World Record Gingerbread House were Blair Mills (top), who participated in the ribbon-cutting ceremony and supervised the icing of one gingerbread “brick,” and Aldo Zuniga, who spent some quality time with St. Nick.

Standing more than 57 feet tall, the house was constructed of 3,000 sheets of gingerbread (each weighing four pounds), 4,500 pounds of icing, 3,600 pounds of chocolate, and hundreds of pounds of peanut brittle, candy and popcorn. Built by Roger Pelcher of Lakeland, Tennessee, the structure will be listed in the Guinness Book of World Records.