

Pediatric Hematology-Oncology Fellowship Program

Some of the greatest resources we “export” are the scientists and healthcare professionals who come to our campus to train and develop the foundations for their careers.



262 Danny Thomas Place
Memphis, Tennessee 38105-3678
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A Message from the President and CEO

James R. Downing, MD



It gives me great pleasure to welcome you to St. Jude Children's Research Hospital and to encourage you to join us in our mission to advance cures and means of prevention of pediatric catastrophic diseases through research and treatment.

Since its inception a little more than 50 years ago, St. Jude Children's Research Hospital has been the recognized global leader of research and treatment of pediatric catastrophic diseases. Our goal has been to continually advance the cure rates for pediatric cancer and other serious childhood diseases by pursuing fundamental laboratory-based research and applying our discoveries to the clinic through sophisticated translational research efforts.

The research laboratories at St. Jude, ably supported by state-of-the-art shared resources, provide a rich environment for performing cutting-edge basic and translational research. Postdoctoral fellows form the backbone of our research efforts and lend their scientific expertise to projects in a variety of disciplines, including structural

biology, biochemistry, tumor cell biology, genetics, immunology, developmental neurobiology, chemical biology and therapeutics, oncology, hematology, bone marrow transplantation and cellular therapy, surgery, pathology, infectious diseases, pediatric medicine, radiological sciences, biostatistics, pharmaceutical sciences, psychology, and epidemiology and cancer control. The interdisciplinary nature of our research programs provides postdoctoral fellows with an environment in which they can develop their scientific expertise while seeing firsthand the implications of their work on the care of pediatric patients.

In addition to providing an unparalleled environment for laboratory-based scientific training, we also offer postdoctoral fellows a wealth of other opportunities to help balance their training for a career in either the academic or private sector. An active St. Jude Postdoctoral Association provides a professional community in which fellows can gain experience in teaching and mentoring young scientists and volunteer to participate in non-laboratory-based activities both within St. Jude and outside of the institution.

It is my strong belief that the invaluable contribution of postdoctoral fellows is critical to upholding the highest quality of research that is the hallmark of St. Jude. I hope that you will consider the postdoctoral opportunities offered by

St. Jude and share with us your research experience and expertise to further our mission to advance cures and means of prevention for pediatric catastrophic diseases through research and treatment.

A handwritten signature in black ink that reads "James R. Downing". The signature is written in a cursive, flowing style.

Sincerely,
James R. Downing, M.D.
President and Chief Executive Officer



Dear Future Colleague:

Thank you for your interest in our Pediatric Hematology/Oncology Fellowship Training Program at St. Jude Children's Research Hospital. We believe that our program offers a world class environment. Clinically, we have more than 500 new oncology patients per year and treat more than 750 sickle cell patients and many other benign hematologic conditions. We have an exceptional faculty of national and international leaders in the field who are committed to your success. In addition, we offer basic laboratory research, translational research, or clinical research of almost any area you wish to pursue.

Our fellowship will help you fully maximize your potential as a clinician and researcher through expert mentorship; structured educational opportunity; unmatched opportunities to conduct cutting-edge research and an abundance of available resources. We offer a very flexible experience and individualize the fellowship to meet

each of our fellow's unique needs. Our fellows leave our program well-positioned to be future leaders in the field of pediatric hematology-oncology.

Furthermore, Memphis is a great place to live. During the fall, the azaleas and cherry trees are beautiful. We have professional basketball and baseball teams, family-friendly activities such as the parks, zoo, museums and live music. We enjoy a warm climate, yet still enjoy the changing of the seasons. Memphis offers an easy and affordable lifestyle while providing opportunities to pursue your personal goals, hobbies and diversions.

Sincerely,

Program Director
Pediatric Hematology/Oncology Fellowship Department of Oncology
St. Jude Children's Research Hospital

The History of St. Jude



Danny Thomas and the Founding of St. Jude Children's Research Hospital

More than 50 years ago, Danny Thomas, the son of Lebanese immigrants and a struggling young entertainer with seven dollars in his pocket, got down on his knees in a Detroit church before a statue of

St. Jude Thaddeus, the patron saint of hopeless causes. Danny Thomas asked the saint to “show me my way in life,” and pledged to someday build a shrine to the saint.

His prayer was answered. Within a few years, Danny Thomas' career prospered through films and television, and he became a nationally known entertainer. And he remembered his pledge to build a shrine to St. Jude.

In the early 1950s Danny Thomas began discussing with friends what concrete form his vow might take. Gradually, the idea of a children's hospital, took shape. In 1955, Danny and a group of Memphis businessmen seized on the idea of creating a unique research hospital devoted to curing catastrophic diseases in children.

More than just a treatment facility, this would be a research center for the children of the world.

Danny Thomas started raising money for his vision of St. Jude in the early 1950s. Often accompanied by

his wife, Rose Marie, Thomas crisscrossed the United States by car, talking about his dream and raising funds at meetings and benefits. The pace was so hectic that Danny and his wife once visited 28 cities in 32 days.

Although Danny and his friends raised the money to build the hospital, they now faced the daunting task of funding its annual operation.

To solve this problem, Danny turned to his fellow Americans of Lebanese-Syrian heritage. Danny's request struck a responsive chord. In 1957, 100 representatives of the Arab-American community met in Chicago to form ALSAC—The American Lebanese Syrian Associated Charities—with the sole purpose of raising funds for the support of St. Jude Children's

Research Hospital. They envisioned the organization as a way to thank America for the opportunities afforded them in this country.

Since that time, this group has assumed full responsibility for all the hospital's fundraising efforts, raising millions annually through benefits and solicitation drives among Americans of all ethnic, religious and racial backgrounds. Today, ALSAC is the second largest health care charity in America. Each year, millions of Americans from all backgrounds participate in activities benefitting the hospital, with more than 5 million people making contributions to St. Jude.

Danny's dream—St. Jude Children's Research Hospital—opened its doors in 1962 and is now recognized as one of the world's premier centers for the study and treatment of catastrophic diseases of children. Since its inception, St. Jude has devoted significant effort to basic and clinical research with the goal of rapidly translating basic science results to the treatment of children in the clinic. During its first decade of existence, the hospital's curative therapies and research successes, dramatically improved the survival rates for patients with acute lymphoblastic leukemia (ALL), helping to make St. Jude internationally recognized.

Today, St. Jude's basic and clinical research includes work on the molecular basis of cancer; bone marrow transplantation; radiation therapy; blood diseases; infectious diseases; hereditary diseases; and the psychological effects of catastrophic illnesses.

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Fellowship Program Goals and Objectives

St. Jude Children's Research Hospital provides a comprehensive program for training subspecialty fellows in Pediatric Hematology-Oncology. The program is certified by the Accreditation Council for Graduate Medical Education (ACGME) and leads to subspecialty certification. The training program is an integrated part of the University of Tennessee Health Sciences Center's Pediatric Residency Program (Program 3274731034). The goal of the program is to train the best future leaders in academic pediatric hematology-oncology in the United States. Upon successful completion of our training program, fellows will have:

- a comprehensive understanding of the pathophysiology of pediatric hematologic and oncologic disorders;
- be competent in the clinical diagnosis and management of these disorders;
- understand clinical trials methodology and
- acquire competence in a selected research interest.

Our program seeks to nurture and develop excellent clinician scientists trained and well-positioned to be the future leaders in the field.

The Subspecialty Training Experience



The ACGME accredited subspecialty training in pediatric hematology-oncology requires a minimum of three years. The first year of training provides comprehensive clinical training in hematology, oncology, and stem cell transplantation, with initial exposure to ongoing clinical investigations and research methods. All inpatient rotations involve teams that include an attending faculty member, one first-year fellow, one or two pediatrics or medicine-pediatrics residents, medical students, one or more nurse practitioners or physician assistants, a social worker, a pharmacist, and a nutritionist. All admitted patients are treated by these care teams. The fellow learns to function as a member of this multidisciplinary team and to call on the skills and experience of team members

Scope of the Inpatient Experience



The fellows have direct supervisory responsibility for care provided by residents, nurse practitioners, and physician assistants on all inpatient rotations. They review patient assessments and management plans and are responsible for assuring that protocol requirements are completed. The inpatient attending physician directly supervises the fellow on each rotation.

Inpatient Leukemia-Lymphoma Service (2 months):

Each year, approximately 150 new patients with leukemia or lymphoma are seen at St. Jude. The fellow on service is responsible for the supervision of all inpatients on the Leukemia-Lymphoma service and becomes proficient at diagnosing leukemia and lymphoma, enrolling patients on treatment protocols, ordering chemotherapy, and providing supportive care. The fellow learns how to manage complications of therapy, including infectious complications in the immunocompromised host and complications of chemotherapy. The fellow also develops expertise at performing bone marrow aspirates and administering intrathecal chemotherapy.

Inpatient Solid Tumor/Neuro-Oncology Service (2 months): Approximately 150 patients with solid tumors are seen at St. Jude each year. Over 175 patients with newly diagnosed brain tumors are also seen each year. The fellow on service is responsible for the supervision of all inpatients on the Solid Tumor/Neuro-Oncology

service and becomes proficient at diagnosing malignant solid tumors, including neuroblastoma, Wilms tumor, Ewing sarcoma, osteosarcoma, rhabdomyosarcoma and other soft tissue sarcomas, hepatic tumors, retinoblastoma, germ cell tumors, colon cancer, melanoma, and brain tumors, enrolling patients on treatment protocols, ordering chemotherapy, and providing supportive care. A major thrust of the clinical research is the development of new agents. Fellows are thus exposed to the details of Phase I protocols, methodologies and ethical considerations.

Inpatient Stem Cell Transplant Service (2 months):

Approximately 150 to 200 stem cell transplants are performed each year. Patients are admitted to a state of the art specialized 16-bed BMT unit. During this rotation, the fellow cares for children who are undergoing transplantation and gains experience with hematopoietic and solid malignancies, bone marrow failure syndromes, immunodeficiency disorders, inherited metabolic disorders, and complications of stem cell transplantation, including graft failure, infectious complications, and graft-versus-host disease.

Inpatient Hematology (2 months):

Care for children and adolescents with nonmalignant hematologic disorders are provided at both St. Jude and Le Bonheur. St. Jude cares for more than 750 sickle cell patients as well as many other patients with benign hematologic conditions. During this rotation the fellow learns to care for many of the

complications of these hematologic conditions including splenic sequestration, pain crisis, pulmonary, hypertension, stroke, acute chest syndrome, coagulopathies and many other issues. The fellow also participates in active Hematology Consultation service at Le Bonheur and occasionally in the Newborn Nursery.

Scope of the Outpatient Experience

Care for children and adolescents with nonmalignant hematologic disorders are provided at both St. Jude and LeBonheur.

Hematology Clinic (1 month):

Each fellow spends one month in the Hematology Clinics at St. Jude. These clinics include the general hematology, sickle cell, bone marrow failure, hemophilia, and thrombosis clinics. Through these clinical experiences, the fellow participates in the diagnosis and treatment of the entire range of common and rare hematologic disorders in children, including bone marrow failure syndromes, hemoglobinopathies, red cell membrane and metabolism disorders, hemolytic and nutritional anemias, white cell disorders, platelet and coagulation disorders, and immunodeficiencies.

After Completion of Therapy Clinic (1 month):

During this rotation, the fellow gains experience with the long-term effects of treatment.

Fellows participate in ongoing studies of late effects of therapy on the skeleton; in evaluations of neurotoxic and cardiotoxic effects of therapy; and in investigations of risk factors for second malignancies. The fellow will also gain exposure to the aging childhood cancer survivor through interactions with research participants on the St. Jude LIFE protocol.

Neuro-oncology (1 month): Each year, over 175 patients with newly diagnosed brain tumors are seen at



St. Jude. This rotation provides education in the diagnosis and management of CNS tumors. Fellows also attend the weekly multidisciplinary brain tumor clinical conference where new patients and consults are presented and discussed.

During this month the rotating fellow will have the opportunity to become the primary physician for many children with brain tumors.

Hematopathology (1 month): During this rotation, the fellow develops expertise in reading peripheral blood and bone marrow smears, and becomes familiar with modern ancillary diagnostic techniques such as cytogenetics, flow cytometry, and molecular diagnostics. In addition, the rotation offers exposure to essential aspects of specimen handling in Surgical Pathology and in Microbiology (the latter including conventional and molecular methodology).

Electives: Available electives include blood banking, radiation oncology, palliative care, infectious diseases, pediatric oncologic surgery, and intensive care.

Continuity clinic (weekly): During the first year, fellows are assigned 25-30 new patients for whom they become the primary caregivers. For one-half day per week throughout the fellowship experience, fellows attend a continuity clinic at which they provide direct patient care to these patients under the supervision of the primary attending or clinic attending.

Service Duties

The first year fellow is required to run daily inpatient rounds during each inpatient rotation and provide weekend coverage for rounds on an every other weekend schedule. Thus, every other weekend (two of each 14 day block) is free of all clinical care responsibilities. During outpatient and elective rotations, the first year fellow provides coverage for weekend rounds on the alternate weekend not covered by the inpatient fellow. Weekend coverage is provided primarily by the first year fellows, although fellows in subsequent years are asked to provide weekend coverage for four to eight weekends per year.

Although we do not require fellows to do in-house call, fellows at all levels of training may choose to take optional paid in-hospital night call. This in-hospital night call (three physicians assigned each night) provides complete coverage for all inpatient care, walk-ins, emergency admissions, and telephone coverage for the hospital.

Consequently, once the inpatient fellow has signed

out to the on call team, his inpatient clinical care responsibilities are suspended until the following morning, but he is required to be on call from home to provide backup to the in-house physicians. All phone consultation from Le Bonheur for Hematology patients is handled by the hematology inpatient fellow.

Psychosocial aspects of subspecialty care

Inpatient rounds on all services include members of the multidisciplinary team. Therefore, patient care decisions that affect the allocation of resources or that have social, cultural, and economic impact are routinely discussed and planned in the context of appropriate psychosocial input. End-of-life decisions and allocation of limited resources are reviewed with the primary physician and the inpatient attending physician. St. Jude's commitment to International Outreach assures the presence of a significant population of patients from other countries. This clinical exposure provides a very wide spectrum of social, cultural, and economic considerations, which is not available in many training programs.

Basic/Translational Training Track



We have devoted special resources to a training program for physicians interested in pursuing a laboratory-based academic pediatric hematology- oncology career. As an internationally recognized research center, St. Jude Children's Research Hospital is in an ideal position to provide training in molecular medicine, particularly as it relates to cancer and blood disorders. Our ultimate goal is to enable qualified physicians to become independent investigators at major academic institutions.

After completing a one-year clinical training period in hematology and oncology, successful applicants for the laboratory research track will receive support for three or more years of laboratory research training at St. Jude.

St. Jude is in a unique position to offer special resources for laboratory training for the entire fellowship period and for extended periods of laboratory research time if required. Because the training period may exceed the two-year requirement for subspecialty board certification in pediatric hematology-oncology, St. Jude provides generous stipends to qualified applicants, depending on their prior training and experience. This program therefore provides the financial security and protected time needed to develop superior research skills and a comprehensive conceptual background in the molecular aspects of hematology-oncology.

Clinical Investigator Training Track

We offer a clinical research track for fellows interested in careers as clinical investigators. Formal training in clinical research can be obtained through early involvement in ongoing clinical trials within the institution. Fellows may participate in the development of new institutional protocols and may conduct retrospective hypothesis-driven studies. In addition, we strongly encourage and financially support fellows in the clinical research track to pursue advanced degrees in clinical research or epidemiology.

Educational Meetings



The education and training programs at St. Jude Children's Research Hospital reflect the institution's commitment to excellence. Fellows are encouraged to attend regularly scheduled seminars, workshops, journal clubs, and lectures given by faculty and internationally known invited speakers.

The training program offers fellows a comprehensive series of didactic sessions and teaching rounds, including:

Fellows Rounds: This weekly meeting is organized by the fellows and attended by fellows and faculty. Lectures include general hematology-oncology topics in a review format. The Fellows Rounds curriculum is based on the American Board of Pediatrics outline recommendations for hem/onc board study.

Leukemia/Lymphoma/Hematology/Transplant Conference: This is a formal conference held each week at St. Jude. Fellows are expected to present the case each week and may also be asked to present the discussion. This conference is attended by faculty from the Hematology, Oncology, Pathology, Diagnostic

Imaging, and Infectious Diseases Departments.

Solid Tumor, Leukemia, and BMT Division Rounds:

In addition to daily ward rounds, each division holds weekly rounds at which the inpatient team presents the current inpatients to the entire division. The inpatient fellow leads these discussions and ensures follow-up of the plan.

St. Jude Grand Rounds: This is a weekly formal presentation of a clinical or basic science topic related to pediatric hematology-oncology. St. Jude frequently brings in national and international experts in the field.

Clinical Translational Research in Solid Tumors

Conference (CTRSTC): This is a formal bi-weekly conference in which solid tumor or brain tumor cases are presented and pertinent literature discussed.

Danny Thomas Lecture Series: This series consists of weekly lectures presented to the entire St. Jude community by distinguished visiting scientists and clinical researchers.

Hematology/Oncology/ID/Biostatistics Journal

Club: At this monthly meeting, fellows present recent articles focusing cutting-edge findings and the biostatistical background of the study.

Pediatric Grand Rounds: This weekly conference on diverse topics in General Pediatrics is organized by the Department of Pediatrics and is held at Le Bonheur Children's Medical Center. Attendance is optional.

Solid tumor staging conference: At this weekly conference, management of specific solid tumor patients is discussed by the Hematology, Oncology, Surgery, Diagnostic Imaging, and Radiation Oncology faculty. Fellows are encouraged to attend when their patients are discussed.

Coagulation conference: This is a combined conference for pediatric and adult hematologists at the University of Tennessee. At each meeting, one pediatric

and one adult hematology case is presented. The St. Jude fellow on the Hematology service is expected to give the case presentation and discussion.

Brain Tumor conference: At this weekly conference, evaluations and management of specific brain tumor patients are discussed by the neuro-oncology, neuro-surgery, diagnostic imaging and radiology-oncology faculty. Fellows are encouraged to attend when their patients are discussed.



Application and Fellows Selection Process

St. Jude participates in the Electronic Residency Application Service (ERAS) and the National Residency Matching Program (NRMP) and accepts six fellows each year for training in Pediatric Hematology-Oncology. The Fellowship Director with the aid of the Fellowship Committee selects the applicants who will be offered interviews.

The following criteria must be met for acceptance into the training program:

1. Successful completion of an ACGME accredited pediatric residency program.
2. A commitment to pursue a career in academic pediatric hematology-oncology.
3. Excellence in the clinical care of children.
4. Proven research ability or the strong potential for success in clinical or laboratory research.
5. Acceptance is granted on the basis of the applicant's potential to become a successful academic subspecialist.

For more information, contact:

Pediatric Hematology/Oncology Fellowship Program

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Program Coordinator

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Comprehensive Cancer Center

Charles Roberts, MD, PhD, Scientific and Comprehensive Cancer Center Director

The Comprehensive Cancer Center at St. Jude comprises several cross-disciplinary, multi-departmental programs oriented to specific diseases (Hematological Malignancies and Neurobiology & Brain Tumor), conceptual themes (Signal Transduction and Molecular Oncology) or novel therapeutic approaches (Developmental Biology and Solid Tumor). The Cancer Center also includes a new Cancer Prevention & Control Program, which builds on the institution's commitment to long-term follow-up of patients in the After Completion of Therapy Clinic.

Cancer Genetics Biochemistry and Cell Biology Program

Co-leaders:

Martine Roussel, PhD; Brenda A. Schulman, PhD

This program is the newest of our five programs. It is organized into three highly interactive focus groups that provide thematic, complementary basic science expertise to the other center programs, enhancing the translation of laboratory discoveries to the clinic. The three focus groups are as follows: Cell Stress & Metabolism, Genome Structure & Function, and Signaling Networks & Therapeutics.

Cancer Prevention & Control Program

Co-leaders:

Melissa M. Hudson, MD; Leslie L. Robison, PhD

As the survival rates of childhood cancers increase, the population of childhood cancer survivors grows. This multidisciplinary program strives to improve the quality of life of patients by increasing survival rates, reducing treatment sequelae, and promoting health-protective behaviors through the conduct of observational, clinical, and interventional research. With the establishment of large national and institutional cohorts of cancer survivors, program members are conducting research on a wide range of health-related and quality-of-life outcomes.

Developmental Therapeutics for Solid Malignancies

Program

Co-leaders:

Michael A. Dyer, PhD; Alberto S. Pappo, MD

This program focuses on improving understanding of and developing new therapies for pediatric solid tumors, including neuroblastoma, soft-tissue sarcomas, bone sarcomas, and retinoblastoma. Research in this program extends from basic mechanistic studies of drug action and cell biology, to therapeutically oriented studies in

preclinical models of childhood cancers, and ultimately to testing new anticancer agents in clinical trials.

Hematologic Malignancies Program

Co-leaders:

Charles Mullighan, MD; Ching-Hon Pui, MD

The overall goal of this program is to improve the cure rates for childhood leukemias and lymphomas while minimizing treatment-related adverse effects. Recent milestones of investigators in this program include improving the 5-year survival rate of acute lymphoblastic leukemia (ALL) to over 90% and that of acute myeloid leukemia (AML) to approximately 70% without the use of prophylactic cranial irradiation in any patient; identifying novel genetic subtypes and cooperative oncogenic lesions as well as host-susceptibility genes in ALL by using genome-wide analysis; developing methods that precisely quantify minimal residual disease levels for risk-directed therapy in virtually all patients with ALL, AML, or lymphoblastic lymphoma; and using cellular therapy with natural killer cells to improve outcome.

Neurobiology & Brain Tumor Program

Co-leaders:

Amar J. Gajjar, MD; Suzanne J. Baker, Ph.D

By linking studies of neurodevelopment and clinical investigations of brain tumors, investigators in the Neurobiology & Brain Tumor Program are efficiently translating laboratory findings into opportunities for new treatments. Recent efforts include integrating genome-wide gene expression and genetic microarray profiling with prospective clinical characterization of patients to better classify and treat brain tumors and the using advanced mouse modeling technologies to understand the cellular and molecular origins of brain tumors.

International Outreach Program

The International Outreach Program (IOP) collaborates with partners around the globe to improve the survival of children with cancer and other catastrophic illnesses. Annually, there are an estimated 176,000 newly diagnosed cases of childhood cancer worldwide in children 0-14 years of age. Approximately 84% of new cases occur in low- and middle income countries. Despite dramatic improvements in overall survival rates for children with cancer, an estimated 60% do not have access to adequate diagnosis and care worldwide. More than 50% of children diagnosed with cancer die, and the majority of those deaths occur in resource-poor settings. To address this gap, St. Jude partners with institutions in low- and middle-income countries to promote sustainable improvements in pediatric cancer care.

Select Success Stories

- **El Salvador:** Increased survival rate for children with acute lymphoblastic leukemia (ALL), the most common childhood cancer, from about 5% in 1993 to 48% in 2000
- **Brazil (Recife):** Increased survival rate for children with ALL from 32% in the 1980s to 63% in 2002
- **China:** Demonstrated success in outcomes using low-cost treatment for children with ALL supported policy changes at the governmental level to incorporate increased funding of treatment for children with cancer where there had been little before
- **Honduras (Tegucigalpa):** Early detection campaigns for retinoblastoma led to a reduction in late diagnoses of the disease from 73% to 35%
- **Lebanon:** Development of a regional pediatric hematology-oncology network to enhance cancer care for all children in the Middle East
- **Morocco (Rabat):** Increased survival rate for children with Hodgkin lymphoma from 43% in 2000 to 70% in 2013

Affiliate Program

The six clinics that comprise the Domestic Affiliate Program contribute to the institution's mission by enrolling patients on St. Jude protocols and participating in St. Jude treatment and research programs. The clinics also provide patients the opportunity to receive part of their care at a facility near their home community.

- **Baton Rouge, LA** Our Lady of the Lake Children's Hospital – Our Lady of the Lake Regional Medical Center
- **Peoria, IL** Children's Hospital of Illinois – OSF Healthcare System University of Illinois College of Medicine at Peoria
- **Huntsville, AL** Huntsville Hospital for Women & Children – Huntsville Hospital
- **Shreveport, LA** Feist-Weiller Cancer Center – LSU Health Sciences Center – Shreveport
- **Johnson City, TN** Niswonger Children's Hospital – Johnson City Medical Center East Tennessee State University
- **Springfield, MO** St. John's Children's Hospital – St. John's Health System



Life in Memphis

- Enjoy professional sporting events including the Memphis Grizzlies NBA team and the Memphis Redbirds AAA baseball team.
- Ride the trolley to Beale Street, one of the most famous music districts in the world.
- Mountain bike through Shelby Farms, one of the nation's largest urban parks.
- Catch an impressionist exhibit or picnic on the lawn with the Memphis Symphony at the Dixon Gallery and Gardens.
- Enjoy Broadway shows at the Orpheum Theatre or concerts at the FedEx Forum, Cannon Center for the Performing Arts, the open-air amphitheatre on Mud Island, Germantown Performing Arts Center or Levitt Shell.
- Enjoy wine and cheese while you take in the art the last Friday of every month during the South Main Art Trolley Tour.
- Feed the koi or enjoy some tunes at summer concerts in the Memphis Botanic Garden.
- Kayak on the Wolf River.
- Whatever your interests, Memphis has something for you!



Location

Memphis is centrally located within the US, and air travel to most major cities is convenient. Visit these websites for more information about Memphis:

- cityofmemphis.org
- memphistravel.com
- commercialappeal.com
- memphisflyer.com
- downtownmemphis.com
- memphisrestaurants.com
- shelbyfarmspark.org

- Memphis city government
- Memphis Travel Bureau
- Commercial Appeal newspaper
- Memphis Flyer newspaper
- Downtown Memphis Commission
- Memphis Restaurant Association
- Shelby Farms Park

Housing and Cost of Living

Memphis offers all the charm and hospitality of a Southern city, but also provides the cultural diversity and entertainment opportunities of a large metropolis. With a metropolitan population of more than 1 million people, Memphis retains much of the allure of a small town, yet features world-class museums, parks, music, dining and entertainment.

The cost of living in Memphis is reasonable. Affordable housing in the form of apartments, lofts and single-family homes can easily be found within a few miles of St. Jude.

One of the most popular places to live in Memphis is on Mud Island. Located on the Mississippi River, but only 1.5 miles from the St. Jude campus, Mud Island provides

a central location with a true community feel. A lighted walking and jogging path borders a green park along the riverfront. With six apartment complexes and hundreds of single-family homes, a small retail district and striking views of the river, it is no wonder that so many St. Jude postdoctoral fellows, faculty and staff have chosen to call Mud Island home.

Other popular housing areas include the historic neighborhoods of Midtown Memphis. Whether you prefer an older, established, family neighborhood or an artsy area with proximity to exciting restaurants and nightlife, Midtown's diverse neighborhoods have much to offer and are only a short distance from the St. Jude campus.



Fellowship Faculty

Bone Marrow Transplantation and Cellular Therapy Faculty

Wing H. Leung, MD, PhD, Chair NK cell & stem cell transplantation, late effects
Lea C. Cunningham, MD Development of novel immunomodulatory therapies
Mari H. Dallas, MD Cord blood transplantation and immune reconstitution
William E. Janssen, PhD Therapeutic use of intact cell products
Ewelina K. Mamcarz, MD Transplantation for patients with non-malignant disease
Asha B. Pillai, MD Immunobiology of alloregulation, engraftment, & GVHD
Ashok Srinivasan, MD Infections in the immune-compromised host
Brandon Triplett, MD Hematopoietic cell transplantation

Cancer Survivorship Faculty

Melissa M. Hudson, MD, Director Health outcomes after childhood cancer
Gregory T. Armstrong, MD, MSCE Pediatric neuro-oncology and cancer survivorship
Daniel M. Green, MD Adverse cardiac & reproductive effects of therapy
Daniel A. Mulrooney, MD, MS Cardiovascular outcomes of cancer therapy

Hematology Faculty

Wilson K. Clements, PhD Vascular/hematopoietic development and leukemia
Jeremie H. Estep, MD Hemostasis and thrombosis; sickle cell
Jane S. Hankins, MD, MS Sickle cell disease, transfusional iron overload
Shannon McKinney-Freeman, PhD ESC differentiation and HSC development
Arthur W. Nienhuis, MD Genetic therapy of hematological diseases
Ulrike M. Reiss, MD Bleeding disorders, thrombosis, bone marrow failure
Brian P. Sorrentino, MD Gene therapy and hematopoietic stem cell biology
Winfred C. Wang, MD Sickle cell disease

Leukemia/Lymphoma Faculty

Tanja A. Gruber, MD, PhD Pathogenesis of infantile leukemia
Melissa M. Hudson, MD Health outcomes after childhood cancer
Hiroto Inaba, MD, PhD New therapeutic strategies for leukemia
Sima Jeha, MD Childhood leukemias, developmental therapeutics
Monika L. Metzger, MD Hodgkin & non-Hodgkin lymphomas, leukemias, IOP
Ching-Hon Pui, MD Biology and treatment of childhood leukemia
Raul C. Ribeiro, MD Hematological malignancies
Jeffrey E. Rubnitz, MD, PhD Treatment of acute myeloid leukemia
John T. Sandlund, MD Clinical and biologic investigation of NHL and ALL

Neuro-Oncology Faculty

Gregory T. Armstrong, MD, MSCE Pediatric neuro-oncology and cancer survivorship
Alberto Broniscer, MD Biology and treatment of high-grade gliomas
Amar Gajjar, MD Novel treatments for children with brain tumors
Ibrahim Qaddoumi, MD, MS Low-grade gliomas, retinoblastoma, telemedicine
Giles W. Robinson, MD Origin and genomics of medulloblastoma, translational studies
Zsila Sadighi, MD Neurological outcomes in childhood cancer survivors
Karen D. Wright, MD Ependymoma, atypical teratoid rhabdoid tumors, infant brain tumors

Palliative Care Faculty

Justin N. Baker, MD Pediatric palliative and end of life care

Deena R. Levine, MD Pediatric palliative and end of life care

Solid Tumor Faculty

Michael W. Bishop, MD Osteosarcoma, bone and soft tissue sarcomas, rhabdoid tumors

Rachel C. Brennan, MD Retinoblastoma, novel therapeutics, renal tumors

Sara M. Federico, MD Drug development, pediatric soft tissue sarcomas

Wayne L. Furman, MD New drug development, neuroblastoma, liver tumors

Catherine G. Lam, MD, MPH International outreach, solid tumors, improving adolescent outcomes

Mark E. Hatley, MD, PhD Cellular and molecular origins of rhabdomyosarcoma

Fariba Navid, MD Treatment of pediatric sarcomas and melanoma

Alberto Pappo, MD New therapies for sarcomas and rare pediatric cancers

Victor M. Santana, MD Novel therapeutics, neuroblastoma, research ethics

International Outreach Faculty

Miguela Caniza, MD, Director, Infectious Diseases

Terrence Geiger, MD, PhD, Interim IOP Program Co-Director

Randall Hayden, MD, Director, Anatomic Pathology and Laboratory Medicine

Sima Jeha, MD, Medical Director, Middle East Programs

Matthew Krasin, MD, Interim IOP Program Co-Director

Catherine Lam, MD, MPH, Medical Director, Philippines

Ching-Hon Pui, MD, Medical Director, Asia Programs

Ibrahim Qaddoumi, MD, MS Director of Telemedicine

Fellowship Alumni Have Prominent Positions At:

Albany Medical Center	Maine Children's Cancer Program
All Children's Hospital	Memorial Sloan Kettering
Amgen	Nationwide Children's Hospital
Baylor College of Medicine	New York Medical College
Children's Hospital of Alabama	Niswonger Children's Hospital
Children's Hospital of Philadelphia	Penn State Hershey Children's Hospital
Children's Hospital of Pittsburgh	Queen Mary Hospital
Children's Hospital of The King's Daughters	Robert Wood Johnson University Hospital
Children's Hospital of Vanderbilt	St. Jude Children's Research Hospital
Cincinnati Children's Hospital	St. Vincent Children's Hospital
Cleveland Clinic	Scott and White Healthcare
Cook Children's Medical Center	Stanford University
Dana-Farber Cancer Institute Duke University	The Hospital for Sick Children (SickKids)
Emory University	University of North Carolina
Essentia Health Cancer Center	University of Oklahoma
Genentech	University of Texas MD Anderson Cancer Center
Helen Devos Children's Hospital	University of Wisconsin School of Medicine
Johns Hopkins Hospital	University of Utah Primary Children's Medical Center
Mahidol University	Warren Alpert Medical School of Brown University

St. Jude Honors and Awards

Award
Secretary of Defense Employer Support Freedom Award recipient, Employer Support of the Guard and Reserve of the Department of Defense (2014)
No. 1 on the list of places top students and young professionals want to work, 2013 and 2014 Millennial Career Survey, National Society of High School Scholars
One of the '100 Best Companies to Work For' by <i>FORTUNE</i> magazine (2011, 2012, 2013, 2014)
Omar N. Bradley Spirit of Independence Award (2010)
No. 1 children's cancer hospital in the U.S., 2010-11 Best Children's Hospital rankings, <i>U.S. News & World Report</i>
One of the top 10 Best Places to Work in Academia for seven consecutive years , <i>The Scientist</i>
One of the top children's cancer care hospitals in the U.S. by <i>Parents</i> magazine for two consecutive surveys
National Cancer Institute Comprehensive Cancer Center (May 2008)

BENEFITS

A summary of the benefits offered to clinical fellows are listed below:

Insurance Programs

- Health insurance: \$36/month—single; \$116/month—family
- Vision coverage: \$7/month—single; \$14/month—family
- Dental coverage: \$9/month—single; \$18/month—family
- Group life insurance: 1.5 times the annual salary (employer paid)
- Additional life insurance: up to 3.5 times the annual salary at group rates
- Group accidental death and dismemberment insurance (employer paid)
- Dependent life insurance (employer paid)
- Long-term disability insurance (employer paid)
- Worker's compensation

Paid Leave

- Three weeks of vacation per year
- Eight paid holidays per year
- Two paid personal holidays per year
- Ten days of sick leave per year
- Bereavement and jury leave

Other Benefits

- \$2,500 annual professional development allowance (for attending scientific meetings, journal subscriptions, etc.)
- Laptop computer
- 403(b) Retirement plan with institutional contributions
- Tuition reimbursement program
- Employee assistance program
- Onsite credit union
- Onsite fitness center
- Direct deposit
- Free parking

Please note that this summary does not contain all of the provisions or limitations that apply to St. Jude's benefit plans and programs. If there is a conflict between this summary and the terms of the documents that form a benefit plan or program, the terms of the benefit plan or program will control. St. Jude reserves the right to amend, change or terminate any benefit plan or program at any time in the sole discretion of St. Jude.

Does St. Jude provide relocation assistance?

Financial assistance is provided in the form of a \$2,500 taxable sign-on bonus to each new clinical fellow (included in first paycheck), which can be used to offset moving costs and deposits for new services.

Current as of October 2015. Please visit our website for more information:
<https://www.stjude.org/education-training/advanced-training/clinical-fellows/pediatric-hematology-oncology-fellowship-program.html>