The Lillehei Heart Institute is proud to announce its annual summer research scholarships in cardiovascular medicine. These highly competitive, prestigious scholarships are designed to expose highly qualified students to several disciplines within cardiovascular medicine. The major focus will be intensive basic or clinical research as each scholar will be assigned a laboratory and a faculty mentor. In addition, scholars will be introduced to clinical, industrial, and academic medicine through a variety of field trips, seminars and hands on experiences. Weekly seminars by faculty and industry leaders will be given to offer the scholar a window into career opportunities in cardiovascular science and medicine. The goal of these scholarships is to encourage medical and scientific careers in Cardiovascular Medicine.
2 PROGRAM MENTORS & LECTURERS

7 ACTIVITIES

11 PROGRAM & APPLICATION INFORMATION
The summer research program at the Lillehei Heart Institute completely opened my eyes to the vast world of cardiac research. Specific to my experience, I had a full and meaningful experience in clinical research; from choosing my project, creating a plan, constructing the tools to measure my data, and working in the clinic to see my patient population first hand. My internship has inspired and motivated me to continue the meaningful work LHI has prepared me to do.

- Siri Freeh, Scholar 2013
Michael Kyba, PhD
Director, Lillehei Heart Institute Summer Research Scholars Program
Professor, Division of Pediatric Blood & Marrow Transplantation
Carrie Ramey/Children’s Cancer Research Fund Endowed Professor
Lillehei Heart Institute

Samuel C. Dudley, MD, PhD
Professor of Medicine
Cardiovascular Division
Lillehei Heart Institute

Daniel J. Garry, MD, PhD
Professor of Medicine
Cardiovascular Division
Lillehei Heart Institute
Rita Perlingeiro, PhD
Professor of Medicine
Lillehei Professor in Stem Cell & Regenerative Cardiovascular Medicine
Lillehei Heart Institute

DeWayne Townsend, DVM, PhD
Associate Professor
Department of Integrative Biology & Physiology (IBP)

Kurt Prins, MD, PhD
Assistant Professor of Medicine
Cardiovascular Division
Lillehei Heart Institute

Jop van Berlo, MD, PhD
Lois and Richard King Assistant Professor
Lillehei Endowed Scholar
Lillehei Heart Institute
The Lillehei Heart Institute Summer Research Scholars program was a truly rewarding experience that immersed me in the process of scientific discovery and inspired me to pursue a future in cardiovascular medicine. The program presented invaluable opportunities for me to perform research on muscular dystrophy under the guidance of an experienced mentor and also interact with medical professionals to learn about various career paths. By the end of the summer, I had not only strengthened my independent critical thinking skills and professionally presented my work at a poster session but also made great connections and friends that I hope will persist for a long time.

- Courtney Connolly, Scholar 2013
The Advanced Preclinical Imaging Center (APIC) is a state-of-the-art innovative research facility within the Lillehei Heart Institute (LHI) of the University of Minnesota. It serves as a core translational laboratory and training facility to stimulate discovery and advancement in the fields of cardiovascular and neurological science, interventional radiology, and biomedical engineering. The APIC inspires and facilitates interdepartmental relationships and novel scientific achievements that fully advance LHI’s mission to serve as the world’s premiere campus for education and research dedicated to cardiovascular health.
The Visible Heart® allows for visualization of the inner workings and anatomical features of a beating heart through the use of a clear blood-like solution and an isolated heart apparatus. The creation of internal images is only one facet of this multidisciplinary project. The Visible Heart® lab has published in peer-reviewed scientific journals on the merits of using an isolated large mammalian heart maintained with a clear perfusate. The preparation can function in modes appropriate for research in cardiac anesthesiology, cardiology, electrophysiology, and cardiac surgery. Additionally, this large mammalian isolated working heart also serves as a model for evaluating therapies targeted at improving cardiac performance following acute myocardial infarction, bypass and/or transplant procedures.
**Program Lecturers**

**Cliff Steer, MD**
Professor of Medicine, Division of Gastroenterology, Hepatology and Nutrition

**Ranjit John, PhD**
Assistant Professor, Division of Cardiothoracic Surgery
Surgical Co-Director, Ventricular Assist Device Program

---

**Lunch and Learn**

A weekly lunchtime lecture series, Lunch & Learn, provides an opportunity to learn about career options in the fields of Medicine and Research. The series cover a wide range of topics including the History of the Lillehei Heart Institute, tips on how to function in a lab, advice for getting into medical school, and talks from Lillehei Heart Institute faculty about personal experiences within a chosen field.
Guided Dissection

A guided heart dissection provides each scholar with an up-close and personal view of the heart. St. Jude Medical provides each scholar with a porcine heart and individual work stations. St. Jude staff discuss each step of the dissection, providing an integral, hands-on view of the anatomy of the heart and differences between the porcine and human heart.
Cardiopalooza is an annual research conference held in mid-summer. The retreat includes a poster session and talks by U of M researchers. It is a great opportunity for collaboration and networking in a relaxed environment. The purpose is to inspire new ideas and promote crossdisciplinary collaboration. The Cardiopalooza poster session is a judged presentation; scholars compete against their peers and other undergraduates in biomedical research.

Though the poster session is also open to undergraduate college students outside the program, students from the LHI Scholars Program - including high school seniors - have consistently won the event.

WINNERS

2012: Monica Knaack
mentor: Dave Thomas

2013: Courtney Connolly
mentor: James Ervasti

2014: Jared Matzke
mentor: Dave Thomas

2015: Pa Nhia Moua
mentor: Joe Metzger

2016: Hyun Cho
mentor: David Thomas

2017: Karena Lin
mentor: Rita Perlingeiro

2018: Meghan Iyer
mentor: DeWayne Townsend

2019: Stephanie Deng
mentor: Kurt Prins
Elizabeth Ener
mentor: Michael Kyba

2021: Stephanie Deng
mentor: Kurt Prins

2022: Stephanie Deng
mentor: Kurt Prins

2022 Winner - Sydney Peng
**Fun in the Twin Cities!**

**Team Building through R&R**

We recognize that our scholars sometimes need a break from their busy schedules to relax and have fun as a group. There are lots of opportunities on and off-campus for a little recreation.

Besides providing some much-needed stress relief, these fun group activities also teach valuable networking skills needed for success in the sciences. Sometimes the best solutions come from collaboration with new colleagues who lend a fresh perspective. These collaborations happen more often in a social context, rather than while holed up in the lab. Positive social interactions also foster trust and cooperation within a team, important components of efficient and effective lab research.
The LHI Summer Research Program is a wonderful, holistic program that gave us not only the opportunity to carry out meaningful research, but also to interact with some of the best scientists and doctors in cardiovascular research. We gained practical lab experience and valuable connections in the field. I experienced things as diverse as preparing and presenting my research in poster form, visiting the Visible Heart Lab to see a heart reanimation and watching an open heart surgery. The Summer Scholars Program convinced me that a career in medicine is what I want to do.

- Emily Anne Kvasnicka, Scholar 2013

Application Information
Applying to the Summer Research Scholars Program

Applications are accepted from December 1 through February 1 each calendar year.
The program normally begins on the first Monday in June.

Application
Applicants should submit the following list of items:

- Curriculum Vitae
- Copy of school transcript (official or unofficial)
- 2 letters of faculty recommendation
- Statement of interest in the LHI SRSP (paragraph)
- Brief statement of short term and long term goals

Eligibility

- Scholarships are open to high school students and undergraduate students.
  
  **High school students** must be 16 years of age or older, must be current Junior or Senior at time of application, and must be a U.S. citizen.

  **Undergraduate students** must be enrolled in an accredited degree program in a health care related field.

Housing & Meals

- The SRSP does not provide meals or housing for participants.
- For applicants 18 years of age and older, accommodations in University of Minnesota residence halls are available at an extra cost. Contact the U of M Office of Housing and Residential Life for more info: University of Minnesota Housing and Residential Life website.

- Scholarships last 10 weeks in duration and are full time (40 hr/week, unless special arrangements have been requested and approved by the Director).

Compensation/Benefits

- Scholars will receive a stipend; undergraduates receive a higher stipend than high school students.

  The LHI Summer Research Scholars Program provided me with great opportunities to learn advanced research techniques and share cutting-edge discoveries with my mentors.

  - Yu Zhang, Scholar 2013

- For applicants under the age of 18, an adult chaperone is required for accommodation in University housing. The adult chaperone must live with the applicant and pay an additional cost. Alternatively, minor age applicants may make off-campus housing arrangements with family or friends in the area.
Instructions for Online Application

z.umn.edu/lhischolarsapply

Before you start the online application, you must have ALL of the following materials and information prepared:

• Your resumé (in MS Word or Adobe .pdf format)
• Your statement of purpose (in MS Word or Adobe .pdf format)
• Your statement of short- and long-term goals (in MS Word or Adobe .pdf format)
• Contact info for instructors submitting letters of reference

These required items may be submitted online:

• Your high school or university/college transcript (see section I, below)
• One or both letters of reference (see section II, below) in MS Word or Adobe .pdf format

Additional Instructions

I. If your school prefers to send transcripts directly, one may be sent:

• by email: lhi@umn.edu
• by fax: 612.301.8298
• by snail or express mail:
  LHI - SRSP
  2231 6th St SE, 4-165 CCRB
  Minneapolis, MN 55455

II. If one or both of your instructors prefer to submit a letter of reference directly, letters may be submitted:

• online: z.umn.edu/lhischolarsletters (instructors only)
• by email: lhi@umn.edu
• by fax: 612.301.8298
• by snail or express mail:
  LHI - SRSP
  2231 6th St SE, 4-165 CCRB
  Minneapolis, MN 55455

“The Lillehei Summer Scholars program took all the science I had learned in textbooks and lectures and put it into my hands. The knowledge and experience I acquired with my summer at Lillehei has given me appropriate and often essential background understanding for every science lecture and laboratory I have been in since the summer I spent there.”

- Matthew Schreier, Scholar 2012
I was accepted into the summer scholars program for the summer of 2011, where I worked under Dr. James Ervasti studying Duchenne muscular dystrophy. My specific project worked with the protein dystrophin, looking at how to create smaller constructs that could improve the livelihood of patients with this disease. This summer program not only gave me hands on experience in a molecular biology lab where I was able to complete my own project, but also allowed me to increase my networking skills by meeting several professionals in research and medical fields. To any student who is interested in science, research or a future in the medical field, I highly recommend applying for the summer scholars program because there is just no other program quite like this one.

- Vanessa Adamson, Scholar 2011
Is the program available to students who are not U.S. citizens?

Yes, but to undergraduate college students only. A J-1 visa will be required (at a cost of $600-700 payable by the applicant). Requirements for the J-1 visa include:

1. that the individual be covered by health insurance (purchased at the applicant’s expense through the U of M Office of Student Health Benefits, www.shb.umn.edu)
2. that the individual make a minimum of $1,300 per month.
3. that a letter justifying why the individual is coming to the U.S. be provided.

Contact International Student & Scholar Services [www.isss.umn.edu] for additional information about obtaining a J-1 visa.

What are the program dates?

The program usually runs from the first Monday in June until the first week in August. An orientation is scheduled on the Friday prior to the first Monday in June.

Note: Scholars with an interest in continuing to work through the first half of August should indicate so on their applications, as laboratories frequently employ scholars for a few weeks after completion of the program.

How many applications do you receive?

Undergraduate applications (8 positions): approximately 50/year
High School applications (2 positions): approximately 70/year

How many positions are available?

There are 9 undergraduate and 3 high school positions available. Some exceptional applicants who do not make the initial cut will be notified of their placement on a waiting list, and may be offered a position at a later date should one become available.

Do you accept recent university graduates?

No, you must be currently enrolled as a junior or senior in high school or as a current undergraduate student (med students are not eligible).

Will I receive confirmation that you have received all of my application materials?

Yes, you will receive confirmation via email.

When can I expect to hear if I have been accepted?

Notifications of acceptance are sent the first week of March.

I have never before composed a curriculum vitae. Where can I find instructions and/or templates?

There are many examples available online; we do not require a specific format. Feel free to complete a search online for an example of a curriculum vitae. A standard résumé is also acceptable.

I will be taking classes this summer. May I attend the SRSP while enrolled in other classes?

No, the Summer Research Scholars Program is a full time endeavor.

What are my options for housing if I’m not from the Twin Cities metro area?

For applicants 18 years and older, accommodations in University of Minnesota residence halls are available at an extra cost. Contact the University of Minnesota Office of Housing and Residential Life for more info: housing.umn.edu.

For applicants under the age of 18, an adult chaperone is required for accommodation in University housing. The adult chaperone must live with the applicant and pay an additional cost. Alternatively, minor age applicants may make off-campus housing arrangements with family or friends in the area.
To whom (what name) should the letters of reference be addressed?

Letters of reference should be addressed to “Admission Committee.”

May I submit a letter of reference from a mentor in a research laboratory?

Letters of recommendations from a faculty mentor in a scientific laboratory are acceptable as long as the experience was recent and meaningful.

Can I submit letters of reference online?

Yes, you can either a) submit them with your other materials using the online application [z.umn.edu/lhischolarsapply], or b) have your instructor(s) upload letters via the letter submission form [z.umn.edu/lhischolarsletters].

Can letters of reference be emailed to lhi@umn.edu?

Yes; please attach the letter as a PDF document.

May I send letters of reference already used for other purposes, such as med school admission?

Yes, but keep in mind that these letters should contain pertinent information specific to the LHI Summer Research Scholars Program.

If I am currently an undergraduate, may my letters of reference be from my high school teachers?

No, letters of reference from current teachers are required.

The LHI Summer Research Scholars Program really helped me understand many of the career options available to students interested in science and medicine. Through the LHI Summer Research Scholars Program, I learned how to build professional relationships and present information in a clear and concise manner, both of which are important skills in every field.

- Keshav Mengalick, Scholar 2013