



Outlook

Research Weekly Updates - Jan/1/2026

From Medical Student Research <Medical.Student.Research@dartmouth.edu>

Date Thu 1/1/2026 10:00 AM

To GEISEL_2029_MD@LISTSERV.DARTMOUTH.EDU
 <geisel_2029_mdlistserv.dartmouth.edu@groups.dartmouth.edu>;
 geisel_2028_md@listserv.dartmouth.edu <geisel_2028_md@listserv.dartmouth.edu>;
 GEISEL_2027@LISTSERV.DARTMOUTH.EDU <GEISEL_2027@LISTSERV.DARTMOUTH.EDU>;
 GEISEL_2026@LISTSERV.DARTMOUTH.EDU <GEISEL_2026@LISTSERV.DARTMOUTH.EDU>;
 GEISEL_MDPHD_STUDENTS@listserv.dartmouth.edu
 <GEISEL_MDPHD_STUDENTS@listserv.dartmouth.edu>

Cc timothy.b.gardner@hitchcock.org <timothy.b.gardner@hitchcock.org>; Han Naung Tun
 <Han.Naung.Tun@dartmouth.edu>



Dartmouth
 GEISEL SCHOOL OF
 MEDICINE

**Office of
 MEDICAL STUDENT
 RESEARCH**

Weekly Newsletter

Jan 01, 2026

Happy New Year 2026 !



**Wishing you a year filled with growth, learning, resilience, and
 meaningful accomplishments** 

The Student Research Office is actively supporting medical students throughout their research journey, serving as a central resource to help navigate onboarding requirements and connect with opportunities across departments. The office regularly shares active research projects and offers guidance on how to get involved.

Students are strongly encouraged to visit the office at **Remsen 230** for any research-related information and to begin their research journey.

Contact: Medical.Student.Research@dartmouth.edu



Upcoming event

Co-curricular interdisciplinary seminars

When: Feb 5th | 7:00 AM – 8:00 AM

Where: Chilcott

Topic – How to Design a Poster and How to Present It

Career Advising Pulse Check - Planning for M1 Summer & Summer Research Session

When : Feb/9/2026 - 12 pm - 1:30 pm

Where : Kellogg 200



2026 APPLICATIONS OPEN

**EMERGING PHYSICIAN LEADER AWARD
AND SCHOLARSHIP**

**BLAIR AND GEORGIA SADLER
FELLOWSHIP**

**STEPHANIE DAVIS WASTE REDUCTION AND
POLLUTION PREVENTION AWARD AND
SCHOLARSHIP**

APPLY BY JAN. 21

This year, the Emerging Physician Leader Award is offered by Health Care Without Harm in collaboration with the Association of American Medical Colleges.

Health Care Without Harm

AAMC

If you're a medical student, resident, or fellow passionate about sustainable, climate-smart health care, this is your chance to get support, visibility, and community around your work.

🏆 Emerging Physician Leader Award and Scholarship

🏆 Blair and Georgia Sadler Fellowship at

<https://www.linkedin.com/company/health-care-without-harm/>

🔗 Learn more and apply: <https://cleanmed.org/epl-award-and-sadler-fellowship/>

🕒 Applications close Jan. 23 at 11:59 p.m. PT.

The Emerging Physician Leader Award is offered by Health Care Without Harm in collaboration with AAMC.



Dermatology Research at Northwestern University

The Division of Dermatologic Surgery, Department of Dermatology at Northwestern University has an opening for a gap year research fellow from June 2026 through May 2027. During this mentored research year, students learn to apply the methods of clinical research in order to complete several individual research projects pertaining to skin cancer and skin surgery. While the position is unpaid, gap year students are supported to attend national meetings to present their work, and are also provided appropriate training. All gap year students completing this program during the past 10 years have been successful in matching in dermatology residency.

Interested students should email **Dr.AlamLab@gmail.com** with their CV, Step 1 and 2 score reports (if available), and at least two letters of recommendation from prior clinical or research mentors who know them well. All documents should be combined into one PDF titled the applicant's first and last name. The application deadline is January 31st, 2026, and interviews will be offered on a rolling basis.

Pressman Summer Research Fellowship and the Radiology Summer Internship Program

The due date for applications for both is: January 16, 2026.

Below are links for additional information about both opportunities:

Pressman Fellowship

<https://geiselmed.dartmouth.edu/radiology/medical-students/pressman-fellowship/>

<https://c-phai.org/fellowship-2026#apply>

Radiology Summer Research Internship

<https://geiselmed.dartmouth.edu/radiology/wp-content/uploads/sites/47/2025/10/Summer-Radiology-Research-Call-2026-1.pdf>

Spine Research Position at Stanford University

The Adult Spine Orthopaedic Research Program at Stanford University accepts one clinical research position during the academic year to work closely with Dr. Grace Xiong. This position is expected to engage in all facets of research, including abstract/manuscript writing, designing and implementing their own projects under faculty mentorship, grant writing, and study recruitment. An interest in spine or orthopaedic surgery, translational research, and artificial intelligence is encouraged.

If you are taking a gap year during your medical school training and are interested in Orthopaedics research, please apply at the link below. There is limited availability, and typically, terms begin and end each summer for approx. 1-2 years. This is a full-time, paid position with benefits.

Link for application: <https://careersearch.stanford.edu/jobs/spine-assistant-research-coordinator-%E2%80%93-dr-grace-xiong-fixed-term-29653?et=46vp4sNxt>

Interested in doing research in summer 2026?

Explore the **2026 Geisel/DHMC Summer Research Project**

Opportunities here: <https://geiselmed.dartmouth.edu/student-research/2026-geisel-dhmc-summer-research-project-opportunities/>

Career Advising Pulse Check - Planning for M1 Summer & Summer Research Session

When : Feb/9/2026 - 12 pm - 1:30 pm

Where : Kellogg 200

Summer Research Opportunities at Harvard (SROH)
Harvard Griffin GSAS administers the **Summer Research Opportunities at Harvard (SROH) program**, but you may be interested in other programs at Harvard's many schools and affiliated hospitals.

<https://gsas.harvard.edu/programs/recruitment-and-engagement/summer-research-programs>



Harvard–Longwood Short-Term Research Training in Vascular Surgery (NIH-T35)

Formerly the William J. von Liebig Summer Research Fellowship
Student Summer Research Fellowships at Beth Israel Deaconess Medical Center

Program Dates: Beginning May 1, 2026

Application Deadline: January 31, 2026

This NIH-sponsored medical student fellowship provides 8–12 weeks of summer research training in vascular surgery, offering hands-on experience in areas such as molecular and cell biology, biomechanics, coagulation and thrombosis, and angiogenesis. Projects focus on clinically relevant topics including atherogenesis, intimal hyperplasia, prosthetic/host interactions, and thrombosis. Students will work under the mentorship of faculty at Beth Israel Deaconess Medical Center, Brigham and Women's Hospital, Boston Children's Hospital, or the Harvard School of Engineering and Applied Sciences.

Eligibility:

- Medical students who have completed at least one year of study at an LCME- or DO-accredited program
- Students in accelerated BA/MD or BA/DO programs must have completed their bachelor's degree and be in their first year of medical school
- Commitment of 9–13 total weeks (including one week for orientation)
- Must be a U.S. citizen or permanent resident

Eight positions are available. Selection is merit-based and inclusive, with no bias related to gender, gender identity, sexual orientation, race, color, or ethnicity.

SUPPORT: Stipend is based on NIH guidelines for undergraduate students dependent on the length of the fellowship.

Additional program information is available at:

<http://www.longwoodvascularsurgery.com/t35/>

Interested applicants are required to email the following to Leena Pradhan-Nabzdyk, PhD, MBA (lpadhan@bidmc.harvard.edu) by Jan 31, 2026; 11:59PM:

Ob/Gyn point-of-care ultrasound (POCUS) curriculum

The Ob/Gyn team recently received an APGO grant to develop a nationally adoptable Ob/Gyn point-of-care ultrasound (POCUS) curriculum. They are seeking 2–3 motivated students who may be interested in contributing to this project.

The project will involve creating an open-access ultrasound image repository, conducting a literature review, researching/trialing low-cost US simulation models, and producing short instructional videos. This is a great opportunity for students interested in Ob/Gyn, ultrasound, or medical education.

Project Details

1. **Timeframe:** Begins January 2026 and continues through the summer (ideal way to spend your MS1→MS2 summer; a stipend is planned!)
2. **Mentorship:** Drs. Gallagher & Hanissian, with support from ultrasound, anatomy, and Maternal–Fetal Medicine faculty
3. **Goal:** Complete the project in 2026 and present at a national conference in February 2027
4. **Bonus:** Experience with video creation, websites, or tech skills is helpful but not required .

If you're interested, please email Dr. Gallagher

(Patience.J.Gallagher@hitchcock.org) with a brief explanation of your interest, any relevant experience, and a copy of your CV.


HARVARD CATALYST
 Harvard Clinical & Translational Science Center



**visiting research
internship program**

Sponsored by Harvard Catalyst and the Office for Culture and Community Engagement at Harvard Medical School, the Visiting Research Internship Program is an eight-week paid, mentored, summer research program designed to enrich medical and dental students' interest in research and health-related careers, particularly careers in clinical/translational research.

Program Dates

Monday, June 1—Friday, July 24, 2026 (*tentative*)

Benefits

- ◆ Paid Internship
- ◆ Mentored Clinical Research on a topic of interest proposed by the student
- ◆ Weekly Seminars with Harvard faculty on topics ranging from research methodology, health equity, to career development
- ◆ Travel Compensation of up to \$400 toward the cost of travelling to and from Boston
- ◆ Housing

Eligibility

- ◆ First and second year medical and dental students in good standing at an LCME, COCA, or CODA accredited school
- ◆ US citizen, National, or Permanent Resident

Application

Access the online VRIP application at occe.hms.harvard.edu/paths-opportunity/visiting-research-internship-program. A completed application is comprised of the following:

- ◆ Statement of Purpose
- ◆ Short Answer Questions
- ◆ Resume/Curriculum Vitae
- ◆ Official electronic transcripts from all undergraduate and graduate/professional institutions attended, including your current medical/dental school sent to VRIP_OCCE@HMS.harvard.edu
- ◆ Two letters of recommendation from a current or past faculty member, instructor, research advisor, or supervisor who is familiar with your work.
- ◆ Copy of medical insurance card and proof of immunizations

Dates and Deadlines

- ◆ **October 15, 2025:** VRIP Application opens
- ◆ **January 5, 2026:** Deadline for delivery of the completed application and all supporting documents
- ◆ **February, 2026:** Notification of 2026 VRIP Recipients
- ◆ **June 1—July 24, 2026:** Program (*tentative*)

Harvard Catalyst

Founded in May, 2008, Harvard Catalyst—the Harvard Clinical and Translational Science Center—is dedicated to improving human health by enabling collaboration and providing tools, training, and technologies to clinical and translational investigations. Harvard Catalyst is supported by a grant from the National Center for Research Resources, which is part of the National Institutes of Health, and commitments from several of its partner organizations.

The Office for Culture and Community Engagement (OCCE)

The OCCE at Harvard Medical School (HMS) serves to advance education in the health, biomedical, behavioral, and STEM fields that builds individual and institutional capacity to achieve excellence and foster innovation in health locally, nationally, and globally. We are committed to academic freedom and creating a thriving community that is pluralistic, inclusive, and promotes excellence in teaching, learning, discovery, scholarship, service, and leadership.

FAER
Foundation for Anesthesia
Education and Research

**SPRING 2026
GRANT CYCLE**

Applications Open through February 15, 2026

FAER Grants

Mentored Research Training Grant: FAER.org/MRTG

Research in Education Grant: FAER.org/REG

Research Fellowship Grant: FAER.org/RFG

Transition to Independence Grant: FAER.org/TIG

Co-Sponsored Grant

APSF-FAER Mentored Research Training Grant: FAER.org/APSF

APSF-FAER MRTG Letter of Intent

Submissions Open through: January 1, 2026



AAOS 2026 Medical Student Program



Your Guide to Orthopaedic Surgery as a Career Choice

Tuesday, March 3
10 a.m. – 5 p.m.

Morial Convention Center
New Orleans, LA

Discover how your unique leadership skills can benefit your career in orthopaedic surgery.

The registration fee for the entire AAOS Annual Meeting is only \$75 for AAOS Medical Student Members*!

1

Apply for
Medical Student
Membership.

2

Register for the
Annual Meeting.

3

Add the Medical
Student Program
to your registration
(first-come, first-
served).

*Must be a Medical Student Member to register for the AAOS 2026 Annual Meeting. It is free to join. Visit aaos.org/membership to learn more and join.



Medical Student Training in Aging Research (MSTAR) Program Johns Hopkins University School of Medicine



The MSTAR Program at Johns Hopkins provides medical students early in their training with an enriching experience in aging-related research and geriatrics, under the mentorship of top experts in the field.

Enjoy:

- 60 continuous days of summer research program in Baltimore, Maryland with flexible start/end dates, (starting on or after June 2, 2026)
- Approximate monthly stipend of \$2,352 (housing not included)

Terrific opportunities:

- Conduct aging research with excellent faculty
- Exposure to geriatric medicine in various clinical settings
- Enhance epidemiology, biostatistics and other research related skills
- Attend didactics on geriatric medicine and other health related topics
- Meet with leaders at Johns Hopkins Medicine and Johns Hopkins Bayview

The 2026 MSTAR Program application process is now open!

Deadline to apply is January 9, 2026 at 11:59p.m. EST

To obtain guidelines and download the application, please go to link:

[2026 JHU MSTAR Application & Instructions](#)

MSTAR

For additional information, please contact:

Lindia Holmes (lholtme10@jhmi.edu) or visit the Johns Hopkins Geriatrics Medical Education and Training website: <https://www.hopkinsmedicine.org/geriatric-medicine-gerontology/education/medical-students/mstar>

FAER 
*Foundation for Anesthesia
Education and Research*

Medical Student Anesthesia Research Fellowship
(MSARF) Summer Program

FAER's AMSRF Program is for those who have completed the MSARF program and would like to spend up to a year focusing on anesthesiology research and receive additional training. The fellowship must be completed on or before the time of graduation from an accredited undergraduate medical school.

Student applications for the 2026 MSARF Program are open December 15, 2025 - January 31, 2026.

More information and application

<https://www.asahq.org/faer/programs/medical-student-fellowships/msarf-summer-program>



USC Caruso Department
of Otolaryngology
Head and Neck Surgery
Keck School of Medicine of USC

PROGRAM ANNOUNCEMENT!

Clinician-Scientist Training Program for Medical Students



The USC Caruso Department of Otolaryngology-Head and Neck Surgery clinician-scientist training program (CSTP)

is a 9-12-month research track offering medical students the opportunity to be involved in meaningful research experiences with close mentorship by world-class faculty researchers. This program is funded by an NIH R25 grant.

- Spearhead your own research project that will help patients by discovering cures for disease
- Gain experience in working with cutting-edge experimental techniques
- Develop close mentoring relationships with research faculty
- Participate in structured didactics, seminars, conferences, and journal clubs
- Jumpstart your career in academic medicine by having a dedicated research experience

We are committed to training future generations of clinician-scientists from underrepresented backgrounds. Our CSTP will provide the scientific resources, mentorship, educational environment, and institutional support required to execute this charge. Students from underrepresented groups as defined by the [NIH](#) are strongly encouraged to apply.

**Keck School of
Medicine of USC**

PROGRAM AT A GLANCE

PROGRAM LENGTH 9-12 Months

START DATE July 1st, 2026
**with some flexibility*

FINANCIAL SUPPORT Stipend provided

APPLICATION DETAILS + MORE INFO
Please visit our site or contact the program administrator (listed below)

The program is available to 2 medical students per year, at any point during training, and will extend graduation date by one year.

CONTACT

Karen Yang
Academic Program Specialist USC
Caruso Department of
Otolaryngology-Head and Neck
Surgery
(323) 865-6135
karen.yang@med.usc.edu

PROGRAM SITE: [Click Here](#)





HARVARD
MEDICAL SCHOOL

OFFICE FOR
Culture and Community
Engagement

HMS Visiting Research Internship Program

the Visiting Research Internship Program (VRIP) is an eight-week mentored, summer research program designed to enrich medical and dental students'

interest in research and health-related careers, particularly clinical/translational research careers. VRIP is sponsored by Harvard Catalyst and OCCE.

Dates and Deadlines

January 5, 2026: Deadline for submission of the completed application and all supporting documents

Program Date : Monday, June 1 - Friday, July 24, 2026 (tentative)

More Information : <https://occe.hms.harvard.edu/paths-opportunity/visiting-research-internship-program>

Apply to Visiting Research Internship Program (VRIP)
https://hms.az1.qualtrics.com/jfe/form/SV_e9VJT4s20UCUkzs

THE UNIVERSITY OF TEXAS

MDAnderson
Cancer Center

Med Students SOAR Program

*Medical Students Summer in Oncology at
Anderson Research*

Program starts on June 01, 2026 (8-10 weeks)

Application deadline: January 14, 2026

This NCI-funded program supports first-year medical students participating in rigorous hands-on research experience to promote broader physician participation in all aspects of cancer research.

PROGRAM ACTIVITIES

- Hands-on scientific research with a faculty mentor
- Clinical observations
- Lectures and career conversations
- Interprofessional clinical simulation trainings
- Communication skills workshops/seminars
- End-of-program presentations of research

ELIGIBILITY

- Must be US citizen or permanent resident
- Must have completed first year at LCME- or COCA-accredited U.S. medical school
- Must have interest in cancer research
- Must start on June 1 and commit to full 8-10 week program

SUPPORT

- Stipend and research funds will be provided.

For more information, contact:
SOAR@mdanderson.org
www.MDAnderson.org/SOAR

Program Directors:
Marites P. Melancon, Ph.D.
 Professor, Interventional Radiology Department, Diagnostic Radiology Division
Jillian R. Gunther, M.D., Ph.D.
 Associate Professor, Radiation Oncology Department, Radiation Oncology Division
 SOAR @ MD Anderson Cancer Center | 2026

Med Students SOAR Program

The Medical Students Summer in Oncology at Anderson Research (Med Students SOAR) program, funded by the National Cancer Institute, offers first-year medical students an 8–10 week hands-on research experience. Students work with renowned faculty on individualized projects, gaining laboratory skills and insights into multidisciplinary, research-driven oncology care through lectures, workshops, clinical observations, and simulations. The program aims to inspire long-term careers in basic, translational, and clinical cancer research.



Rising Stars in Science and Medicine Program – Summer 2026

Mass General Brigham is offering its prestigious *Rising Stars in Science and Medicine Program*, an eight-week mentored summer research opportunity for undergraduate rising seniors, seniors, pre-med students, and first-year medical students. Participants will engage in hands-on research in labs across Mass General Brigham and Harvard Medical School, attend professional development workshops, and join networking events with faculty and peers.

Application Deadline: February 1, 2026 (end of day ET).

Students interested in academic medicine, biomedical research, and advancing health equity are encouraged to apply.

For more info and Apply here :

<https://www.massgeneralbrigham.org/en/education-and-training/academic-development-and-enrichment/rising-stars-science-medicine-program>

Stephen Marsh Tenney, M.D., Medical Student Fellowship

The Department of Molecular and Systems Biology at Geisel School of Medicine invites applications for the Stephen Marsh Tenney, M.D., Medical Student Fellowship. This annual award supports one year of full-time research for an M.D. student, preferably with a faculty mentor in the Department of Molecular and Systems Biology, though research in any Geisel department is eligible.

The fellowship provides a \$43,000 grant (\$40,000 stipend and \$3,000 for research expenses). Interested students for the 2026–2027 academic year (April 2026– March 2027) should discuss their plans with a potential mentor and submit a CV, a two-page research summary, and a mentor letter to Cheryl Bush (Cheryl.A.Bush@Dartmouth.edu)

For more details and faculty mentors, visit
<https://geiselmed.dartmouth.edu/msb/faculty/>

Pediatric Oncology Education (POE) Program

The Pediatric Oncology Education (POE) Program at St. Jude Children's Research Hospital, funded by the National Institutes of Health / National Cancer Institute, offers a unique opportunity for students preparing for careers in biomedical sciences, medicine, nursing, pharmacy, psychology, or public health. Participants gain hands-on experience in biomedical and oncology research through a short-term summer internship, with placements available in laboratory research or clinical research.

This program is an a good way for students to develop research skills, explore career paths in pediatric oncology, and contribute to advancing scientific knowledge.

The 2026 program deadline for receipt of applications and all credentials is February 1, 2026.

More info : <https://www.stjude.org/education-training/predoctoral-training/internships/pediatric-oncology-education-poe-program.html>

Radiation Onc Medical Student Research Fellowship

Geisel medical students interested in pursuing a dedicated research year in Radiation Oncology are invited to apply for the Radiation Oncology Medical Student Research Fellowship. The fellowship provides a \$35,000 grant (including a \$32,000 stipend) and offers structured mentorship, research experience, and career development under the guidance of Dr. Charles R. Thomas, Jr., Chair of the Department of Radiation Oncology and Applied Sciences.

- Duration: 12 months maximum (10 minimum)
- Offered: medical student

- Faculty: Charles R. Thomas, Jr., MD

For more : Learn from <https://geiselmed.dartmouth.edu/student-research/hospital-specialty-specific-research-opportunities/>

MSTAR – Medical Student Training in Aging Research

The UNC-Chapel Hill Medical Students Training in Aging Research ([MSTAR](#)) summer program is now accepting applications for Summer 2026. The UNC-CH MSTAR program provides medical students with an enriching experience in aging-related research and geriatrics. As a nationally-recognized NIH training center for aging research, this program has an outstanding track record, with many of our students publishing first author manuscripts and winning awards at national meetings

Application Deadline is January 19, 2026, at 8:00 a.m. EST:

More Info <https://www.med.unc.edu/aging/mstar/>

University of North Carolina at Chapel Hill

MSTAR

Medical Students Training in Aging Research

Providing medical students with enriching experiences in basic science, clinical or health science research that contribute directly to advancements in age-related treatments and clinical practices.



University of North Carolina at Chapel Hill
School of Medicine

Division of Geriatric Medicine
Center for Aging and Health

MSTAR@med.unc.edu
(919) 455-6770



NEW ENGLAND STUDENT UROLOGY SYMPOSIUM

At The UConn School of Medicine

MARCH 7 8:00AM - 5:00PM

Join us for a unique opportunity for medical students interested in urology to connect with peers and faculty, explore the specialty, and showcase their research. The day will feature state-of-the-art lectures, interactive faculty panels, hands-on urology surgical skills fair, and both poster and oral presentations.

REGISTER:

Due Feb 16 at 11 pm



SUBMIT AN ABSTRACT:

Due Feb 6 at 11 pm



<https://medicine.uconn.edu/urology-symposium/>



2026 Summer Clinical Otolaryngology Research (SCORE-Oto) Program

2026 Summer Clinical Ob/Gyn Research (SCORE-Ob) Program

2026 Summer Clinical Thoracic Research (SCORE-ThOr) Program

2026 Summer Clinical Emergency Research (SCORE-Em) Program

SCORE Program

An 8+ week intensive summer opportunity to pursue clinical research and observe clinical care in either Otolaryngology – Head & Neck surgery, Obstetrics & Gynecology, Thoracic Surgery, or Emergency Medicine.

More information & application can be found here:

<https://residency-ncal.kaiserpermanente.org/med-students/educational-tracks/score/>

Applications available via above link, and due no later than **January 25, 2026**

Looking for something else?

To learn about additional ongoing research projects, **visit our website** or **reach out to our office**. <https://geiselmed.dartmouth.edu/student-research/>

We're here to help you find opportunities that match your interests and goals.

Upcoming Events

The Geisel School of Medicine Events Calendar

Students are encouraged to check the Events Calendar to stay updated on upcoming research talks and Grand Rounds sessions.

<https://geiselmed.dartmouth.edu/calendar/index.php?m=13&y=2025&v=m>

Student Spotlight



Quynh-Lam Tran , MD Class of 2026

Quynh-Lam Tran is a fourth-year medical student at the Geisel School of Medicine at Dartmouth. She completed her undergraduate studies at Brown University, where she studied Immunobiology and English. In college, she conducted primarily wet lab and translational immunology research. During her gap year prior to medical school, she pivoted into clinical research and worked in the infectious disease department at Rhode Island Hospital,

contributing to clinical trials and observational studies focused on COVID-19 therapeutics, clinical trial enrollment, and infectious complications in hospitalized patients.

Earlier in medical school, her research included projects in otolaryngology focused on imaging and surgical decision-making, and the quality and readability of patient education materials. She is currently co-leading an ongoing, community-partnered research study with her classmate, Suchi Jain, focused on food insecurity and navigational barriers among refugee populations in New Hampshire. Her current research interests center on health equity, community-engaged research, and clinical outcomes.

Scholarly Manuscripts by Geisel Students

Geisel students continue to drive innovation through research, contributing to peer-reviewed publications across clinical medicine, global health, and more. Their scholarly work reflects a deep commitment to scientific inquiry and advancing patient care. Each year, our students co-author numerous manuscripts, showcasing their passion for discovery and academic excellence. <https://geiselmed.dartmouth.edu/student-research/research-papers-by-geisel-students/>

Students are requested to submit their published manuscripts to be archived in the Student Manuscript section of the website.

REVIEW

Open Access

Pharmacological and cell-based treatments to increase local skin flap viability in animal models

Charlotte E. Berry¹, Thalia Le¹, Nicholas An¹, Michelle Griffin¹, Micheal Januszyk¹, Carter B. Kendig¹, Alexander Z. Fazilat¹, Andrew A. Churukian¹, Phoebe M. Pan¹ and Derrick C. Wan^{1*}**Abstract**

Local skin flaps are frequently employed for wound closure to address surgical, traumatic, congenital, or oncologic defects. (1) Despite their clinical utility, skin flaps may fail due to inadequate perfusion, ischemia/reperfusion injury (IRI), excessive cell death, and associated inflammatory response. (2) All of these factors contribute to skin flap necrosis in 10–15% of cases and represent a significant surgical challenge. (3, 4) Once flap necrosis occurs, it may require additional surgeries to remove the entire flap or repair the damage and secondary treatments for infection and disfigurement, which can be costly and painful. (5) In addition to employing appropriate surgical techniques and identifying healthy, well-vascularized tissue to mitigate the occurrence of these complications, there is growing interest in exploring cell-based and pharmacologic augmentation options. (6) These agents typically focus on preventing thrombosis and increasing vasodilation and angiogenesis while reducing inflammation and oxidative stress. Agents that modulate cell death pathways such as apoptosis and autophagy have also been investigated. (7) Implementation of drugs and cell lines with potentially beneficial properties have been proposed through various delivery techniques including systemic treatment, direct wound bed or flap injection, and topical application. This review summarizes pharmacologic- and cell-based interventions to augment skin flap viability in animal models, and discusses both translatability challenges facing these therapies and future directions in the field of skin flap augmentation.

Keywords Skin flap, Cell-based therapy, Flap viability, Pharmacologic treatment

Introduction

Local skin flaps are frequently employed for wound closure to address surgical, traumatic, congenital, or oncologic defects [1]. Despite their clinical utility, skin flaps may fail due to inadequate perfusion, ischemia/reperfusion injury (IRI), excessive cell death, and associated inflammatory response [2]. All of these factors

contribute to skin flap necrosis in 10–15% of cases and represent a significant surgical challenge [3, 4]. Once flap necrosis occurs, it may require additional surgeries to remove the entire flap or repair the damage and secondary treatments for infection and disfigurement, which can be costly and painful [5]. In addition to employing appropriate surgical techniques and identifying healthy, well-vascularized tissue to mitigate the occurrence of these complications, there is growing interest in exploring cell-based and pharmacologic augmentation options [6]. These agents typically focus on preventing thrombosis and increasing vasodilation and angiogenesis while reducing inflammation and oxidative stress. Agents that modulate cell death pathways

*Correspondence:

Derrick C. Wan

dwan@stanford.edu

¹Happy Laboratory for Regenerative Medicine, Division of Plastic and Reconstructive Surgery, Department of Surgery, Stanford University School of Medicine, 257 Campus Drive West, Stanford, CA 94305, USA



© The Author(s) 2024 **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.

GMSJ

GMSJ is a student-led publication dedicated to showcasing the research, insights, and perspectives of medical students. It offers a hands-on opportunity to gain experience in academic publishing, including research dissemination, peer review, and scholarly writing—valuable skills for future careers in academic medicine.

We look forward to reviewing your work and celebrating your contributions to scholarship at Dartmouth!

Read GMSJ's first editorial publication :

Designing and Launching a Student-Led Medical Journal: Structure and Early Implementation of the Graduate Medical Scholars Journal (GMSJ)

<https://gmscholars.com/index.php/gmsj/article/view/inauguralissueNo1>

The Geisel Medical Student Journal (GMSJ) is pleased to announce the publication of **Vol. 1, No. S1 (2025): Special Issue — 2025 Geisel Research Poster Night**.

This special issue highlights outstanding student research presented at 2025 year's Poster Night, showcasing innovative projects, scholarly excellence, and the depth of scientific inquiry within our community.

https://gmscholars.com/index.php/gmsj/issue/view/1-s1_geisel-research-night-2025

 **Learn more and explore the journal:**
<https://gmscholars.com/index.php/gmsj/index>



Datasets for Research

Multiple datasets are available for use to perform clinical and population-based research. These datasets can be used by researchers to answer specific questions related to population.

<https://geiselmed.dartmouth.edu/student-research/datasets-for-research/>

Grant Funding for Research

GrantForward is a search engine that the Dartmouth College grants office has had a contract with for years.

Atom Grants is a grants database but uses DeepAI to auto-match grant opportunities to student/researcher interests and background.



DH Academic Scholar Year Opportunities

Some Geisel students choose to take an additional year to engage in scholarly work within a department or section at Dartmouth-Hitchcock (DH) or The Dartmouth Institute (TDI).

More information:

<https://geiselmed.dartmouth.edu/student-research/hospital-specialty-specific-research-opportunities/>



Geisel School of Medicine at Dartmouth
Office of Student Research

66 College St. , Remsen Medical Science Building , Room 230
Hanover, NH 03755-1404
603-646-5551

