



Dartmouth
GEISEL SCHOOL OF
MEDICINE

Office of
MEDICAL STUDENT
RESEARCH

Weekly Newsletter

Aug 21, 2025

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



Recent News

A Warm Welcome for Geisel's MD Class of 2029 :

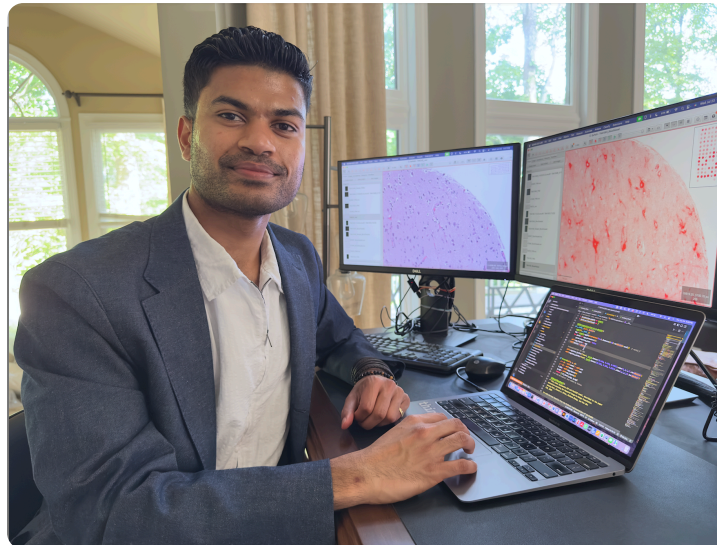
<https://geiselmed.dartmouth.edu/news/2025/a-warm-welcome-for-geisels-md-class-of-2029/>

Geisel Launches Learning Collaboratives for Flourishing in Medical Education

<https://geiselmed.dartmouth.edu/news/2025/geisel-launches-learning-collaboratives-for-flourishing-in-medical-education/>

Geisel Medical Student Awarded National Fellowship for AI Tool Advancing Brain Tumor Research

<https://geiselmed.dartmouth.edu/news/2025/geisel-medical-student-awarded-national-fellowship-for-ai-tool-advancing-brain-tumor-research/>



Vishva Natarajan, MED '28, a second-year at Dartmouth's Geisel School of Medicine, is one of 11 students nationwide awarded the 2025 Jack & Fay Netchin Medical Student Summer Fellowship from the American Brain Tumor Association (ABTA).

Supported by the ABTA, **VirtualPNN** is an AI-powered platform that enables scalable, high-throughput study of perineuronal nets (PNNs) in human brain tissue. By optimizing analysis pipelines, it preserves precious surgical specimens while making PNN research more accessible as an open resource for the neuro-oncology community. This work lays the foundation for accelerating discovery in tumor-associated epilepsy and beyond, while advancing a future where computational pathology and neurosurgery converge to improve patient care.



DARTMOUTH HITCHCOCK MEDICAL CENTER

Medical Student Research Fair 2025

Join us for the 1st Annual Medical Student Research Fair, featuring representatives from departments across Geisel, including both foundational and clinical sciences.

DATE: THURSDAY, SEPTEMBER 4, 2025
TIME: 5 PM - 7 PM
LOCATION: DHMC, AUDITORIUMS E & F

Refreshments and foods will be provided.

Featured Opportunities



Emergency Medicine

Emergency Medicine at DH offers a wide range of research and scholarly opportunities, including wilderness and



Quantitative Biomedical Sciences

Programming / Neurocognitive Lab Projects , Dr. Chris Niemczak, PhD

rural medicine, EMS, critical care transport, and system-based QI projects. Additional areas may include ultrasound-guided procedures, substance use, telehealth, narrative medicine, and global health initiatives.

Students can also engage in publication writing, curriculum development, and innovative clinical research alongside EM faculty.

Interested students can reach out to Dr. Zachary Soucy, DO and Melissa

Auditory and Neurocognitive Function in MCI – NIH- and Hitchcock Foundation–funded study investigating behavioral and electrophysiological auditory assessments in mild cognitive impairment, with links to Alzheimer’s disease pathophysiology. Involves coding (preferably MATLAB) and offers authorship and collaboration opportunities with Dartmouth and McGill Neurological Institute researchers.



Emergency Medicine : Community-Engaged Descriptive Study – Ski Patrol Response Times

Evadne Marcolini, MD (Evadne.G.Marcolini@Hitchcock.org)

Medical students can participate in a study examining trends in ski-patrol transport and patient extrication times at ski resorts in Vermont, New Hampshire, and Maine. The study considers both environmental factors (weather, snow quality) and human factors (dispatch delays, staffing, training) to identify ways to reduce extrication time and improve patient outcomes.

Students interested in these research opportunities are encouraged to contact Medical.Student.Research@dartmouth.edu for more information and guidance.

NIH Medical Research Scholars Program (MRSP)

The NIH Medical Research Scholars Program (MRSP) is a comprehensive, year-long research enrichment opportunity for creative, research-focused

medical, dental, and veterinary students. The program takes place at the NIH intramural campus in Bethesda, MD.

Applications open on **September 1st, 2024**, and the deadline to apply is **December 2nd, 2024**. This is an externally reviewed program.
For more information and to apply, please visit the NIH MRSP website.

More information can be found at: [NIH Medical Research Scholars Program \[cc.nih.gov\]](https://cc.nih.gov).

National Institutes of Health
Medical Research Scholars Program
The premier pre-doctoral training program, shaping the future of health by inspiring careers in biomedical research as clinician-scientists

World Class Research
Access to the technical and clinical resources of over 300 NIH laboratories

Mentorship
Close supervision of research project by senior NIH investigator

Career Development
Curriculum of lectures, rounds, journal clubs, and leadership forums

Networking
Connect with leading national experts across varied career fields

Eligibility
For U.S. citizens and permanent residents currently enrolled in an LCME accredited medical, AOA accredited osteopathic, CODA accredited dental, or AVMA accredited veterinary programs, and in their 2nd, 3rd, or 4th year. Interested students should have strong interest in conducting basic, clinical, or translational research.

Application Opens September 1st
Application Deadline is December 1, 2025

NIH Office of Clinical Research Training and Medical Education
Contact: MRSP@mail.nih.gov

Follow us! @NIHClinicalCntr

Research Opportunity Highlight: Neurology

1. HOBSCOTCH Program

Investigator: Dr. Elaine Kiriakopoulos, Neurology

HOBSCOTCH (HOMe-Based Self-Management and Cognitive Training

CHanges Lives) supports patients with neurodegenerative conditions. Dr. Kiriakopoulos is expanding the model to new populations.

Student Responsibilities: Serving as a memory coach or assisting with home-based memory training for patients.

2. ALS Retrospective Chart Review

Investigator: Dr. Mark A. Garret, Neurology

Participate in a chart review study focusing on ALS patients to identify trends in disease progression and treatment outcomes.

Student Responsibilities: Conducting retrospective chart reviews.



Angelo Volandes, MD, MPH
Anna Gundlach Huber
Professor of Medicine
Geisel School of Medicine at
Dartmouth
Vice Chair for Research
Department of Medicine

Medicine Grand Rounds

Friday, September 12, 2025
8:00 - 9:00 AM
Auditorium H

“Finding the Meaning of Life and Death in Healthcare”

Step into Grand Rounds reimagined. See how cinematic artistry and cutting-edge healthcare research can ignite a sense of purpose. We travel beyond medicine's daily routines and ask deeper questions: What calls you to heal? Where do you find meaning in life and death? Powerful patient stories and breakthrough discoveries will rekindle the ideals that set you on this path—no matter your discipline. Experience how storytelling and shared decision-making empower families and care partners to navigate life's most meaningful choices with clarity and compassion.

This session is more than a lecture. It will be a film festival, research showcase, and philosophical salon all in one. We call on every member of our community to remember: healing is not just a profession—it's a sacred trust. Arrive ready to be moved. Expect to be challenged. Leave renewed.

All Dartmouth faculty, residents, students, and staff are invited to rediscover hope, deepen empathy, and unite around the enduring mission of our healing professions and the humanities that inspire them.

Please note: In-person attendance is strongly recommended given the highly visual nature of the presentation. This lecture will not be recorded.

Interested in Global Health?

The **Center for Global Health Equity (CGHE)** is accepting applications for the **2025–26 Co-designed Community-based Internship (CCI)** from **Aug 15–Sept 15, 2025**.

This program offers students the chance to collaborate with international partners on research, education, advocacy, or clinical projects that advance health equity in underserved communities.

Key Details:

Internships: Dec 15, 2025–Jun 15, 2026

Minimum In-Country Time:

- o **Summer break:** At least 6 weeks
- o **M3 or M4 electives:** At least 4 weeks
- o **MPH students:** 4–6 weeks

Funding: \$3,200–\$4,000 (based on duration)

Applications require faculty and host sponsor statements. Only currently enrolled students are eligible.



Photo courtesy of Kelly Burgess

Rheumatology Research Opportunities Highlight

Use of corticosteroids and immunosuppression in cardiac sarcoidosis –

Dr. Vivekanand Tiwari

Steroid use in giant cell arteritis with and without IL-6 inhibitor – Dr.

Vivekanand Tiwari

Osteoporosis screening in PMR/GCA patients (retrospective and potential prospective study) – *Vivekanand Tiwari*

DNA methylation as a marker of corticosteroid response in PMR – *Vivekanand Tiwari, Skopelja-Gardner, Brock Christensen*

The role of inflammation in knee osteoarthritis – *Lindsey MacFarlane*

Using urine DNA methylation to predict kidney disease in rheumatic patients – *Skopelja-Gardner, Christopher Burns, Lucas Salas*

For More : <https://geiselmed.dartmouth.edu/student-research/active-medical-student-research-opportunities/>

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

Medical Student Research Fair –

When: Thursday, September 4, 2025 at 5:00 PM

Where: DHMC Auditoriums E & F

Dartmouth Health Biomedical Research Day

When: Wednesday, October 8, 2025 | 8:00 AM – 5:00 PM

Where: Dartmouth Hitchcock

A full-day event highlighting innovative biomedical research across departments.

Open to all faculty, staff, trainees, and students.

Annual Medical Student Research Poster Night

When: Thursday, October 23, 2025 | 11:00 AM – 8:00 PM

Where: DHMC

Celebrate the research achievements of your peers and share your own work at this key Geisel tradition.

Research Education Series

Co-curricular interdisciplinary seminars

When: September 4th– | 7:00 AM – 8:00 AM

Where: Chilcott

Topic - **How to Start Clinical Research**

Learn about research design, grant writing, IRB processes, and more from experienced faculty.

Call for Student Poster Presentations – Northern New England MedTech Collaborative Conference

Are you working on an innovative project in medical science or technology? Interested in sharing your work with experts and peers while receiving valuable feedback?

Students are invited to present their research at the **Northern New England MedTech Collaborative Conference** on **November 12, 2025, at the Roux Institute in Portland, ME**. This is a great opportunity to showcase your work, gain feedback from experts, and connect with peers and professionals in medical innovation.

Deadline to submit: October 6, 2025.

Submit here: [Poster Submission Link](#).

Questions? Contact Alessandra.C.Bryan.MED@dartmouth.edu.



Student Spotlight



Matin Bikaran, MD Candidate Class of 2027

Matin Bikaran is a third-year medical student at the Geisel School of Medicine at Dartmouth with a strong background in translational and clinical research. He is Co-Founder and Co-Editor-in-Chief of the *Graduate Medical Scholars Journal (GMSJ)*, a peer-reviewed, student-led publication dedicated to showcasing medical student scholarship. His research includes work in interventional oncology investigating radiofrequency ablation for hepatocellular carcinoma and the use of 3D reconstruction software to improve procedural outcomes, as well as a study on infrasound and low-frequency sound in wound healing, recently published in the *International Wound Journal*. Prior to medical school, Matin contributed to NIH-funded immunogenetics research at UCSF, co-authoring a *Nature* paper on viral immunity and the evolution of immune genes. He is passionate about advancing minimally invasive therapies and fostering collaborative, interdisciplinary research.

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.

Herpes Simplex Virus Neurovirulence Across the Human Lifespan

Abigail J. Dutton,^{1,2,3,4} Cooper K. Hayes,² David A. Leib,¹ and Lisa N. Akhtar^{4,5,6}

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The ability of herpes simplex virus (HSV) to establish lifelong latency in sensory neurons makes it one of the most pervasive viruses worldwide. Although most HSV infections are asymptomatic or cause limited cutaneous symptoms, some give rise to serious central nervous system (CNS) manifestations. Both primary HSV infection and subsequent reactivation events can cause viral replication and spread within the brain, ultimately leading to pathologic inflammation and direct CNS damage. In addition to fulminant presentations of HSV encephalitis, subclinical HSV CNS infections have been implicated in neurodevelopmental, cognitive, and neurodegenerative impairment. Here, we review the pathogenesis of HSV infection and resulting CNS manifestations across the human lifespan. Identifying the mechanisms of HSV-induced CNS damage, and therefore the populations at highest risk for neurological morbidity, may provide a better understanding of the role viruses play in neurological diseases and inform novel approaches to treatment.

Keywords. herpes simplex virus; HSV-1; HSV-2; neurovirulence; encephalitis.

Herpes simplex viruses (HSVs) are neurotropic, double-stranded DNA viruses infecting more than two-thirds of the global population [1]. In general, HSV type 1 (HSV-1) infections are more prevalent than HSV type 2 (HSV-2) infections, and the rate of seropositivity for any HSV infection increases by age [2]. The World Health Organization estimates that >3.8 billion people aged <50 years are infected with HSV-1 and 519.5 million people between the ages of 15 and 49 years are infected with HSV-2 [3]. Together, high rates of viral transmission and the ability of the virus to establish lifelong infection make HSV one of the most common viral infections worldwide.

Primary infection with HSV is acquired at mucosal sites such as the lips and genitals, through contact with infected hosts (Figure 1). Classically, oral lesions are caused by HSV-1, and genital lesions by HSV-2. However, HSV-1 has recently become a more common cause of incident genital infection than HSV-2 in certain populations [4–6]. Genital infection with either virus can result in mother-to-child transmission

at birth. Lytic replication at sites of infection followed by retrograde viral transport along innervating sensory nerves results in viral spread from mucosal surfaces to peripheral nervous system ganglia [7]. At sensory neuron nuclei, HSV establishes lifelong latency through repression of viral gene expression by histone modification [8]. Periodically, fever or other stressors may cause HSV to reactivate and spread back to peripheral mucosal sites through anterograde transport along sensory neuron axons, resulting in skin lesions [9]. Less commonly, HSV may access the central nervous system (CNS) following primary infection or reactivation via the same axonal pathways [10, 11]. Antiviral drugs halt viral replication and reduce reactivation events but do not eradicate HSV from the host [12].

The most serious symptoms associated with HSV infection occur following viral invasion of the CNS. Herpes simplex encephalitis (HSE) remains the most detrimental consequence of HSV CNS invasion, resulting in high rates of mortality without treatment, and the potential for lifelong neurological morbidity [13, 14]. However, data are now accumulating to suggest that even low-level, subclinical HSV CNS infections may contribute to lasting neurodevelopmental, neurocognitive, and neurodegenerative impairment [15, 16]. Here, we review the virus–host interactions that contribute to HSV neurovirulence, as well as the expanding set of possible neurological consequences of HSV infection throughout the human lifespan.

PATHOGENESIS OF HSV CNS INFECTION

HSV typically enters the CNS via sensory nerve pathways following primary infection, or reactivation of latent viral

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<https://doi.org/10.1093/infdis/jia1275>

GMSJ Coming Soon!

We are excited to share that Graduate Medical Scholars Journal (GMSJ) is pending launch in September, 2025 !

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.

GMSJ welcomes submissions from all fields of research relevant to medicine and healthcare, including but not limited to:

- Clinical Medicine and Practice
- Public Health and Epidemiology
- Biomedical and Basic Science Research
- Medical Education and Training
- Health Policy and Ethics

- Nutrition and Lifestyle Medicine
- Medical Technology and Device Development

 **Learn more and explore the journal:**

<https://gmscholars.com/index.php/gmsj/index>



**The Geisel School of
Medicine *Community of
Scholars* Program Structured
Support for Medical Student
Research & MD Research
Scholars Program**

Thank you for submitting your application to the Geisel MD Research Scholars Program. The application period is now closed, and selections will be announced by email soon.

We wish the best of luck to all applicants!

For more information, please visit:

<https://geiselmed.dartmouth.edu/student-research/medical-student-compton-research-scholars/>

Questions? Reach out to the Medical Student Research Office.



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