



Dartmouth
GEISEL SCHOOL OF
MEDICINE

Office of
MEDICAL STUDENT
RESEARCH

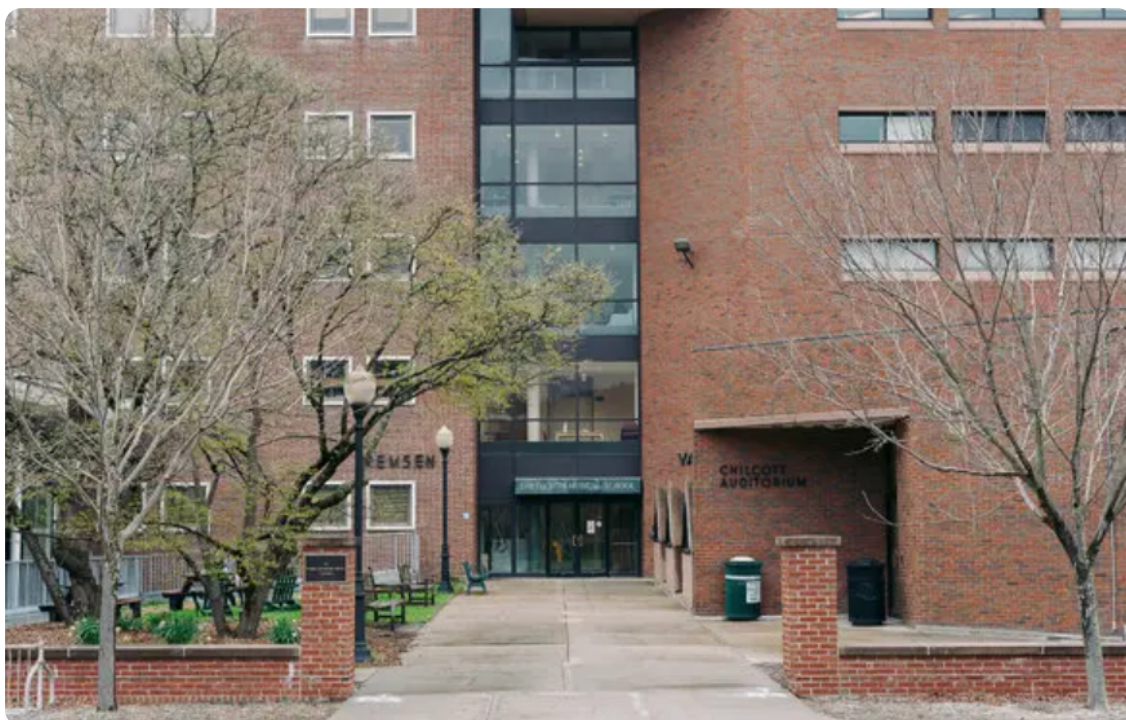
Weekly Newsletter

Jul 9, 2026

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



IDEA Lab: Innovation, Development, and Entrepreneurship in Anesthesia



IDEA Lab develops solutions for problems in anesthesia and healthcare – locally, nationally, and globally.

Research Projects <https://dartmouthidea.org/news-projects/>

Northern New England CO-OP Practice & Community Based Research Network

Department of Community and Family Medicine at Dartmouth Health and Geisel School of Medicine at Dartmouth, in collaboration with Larner College of Medicine at the University of Vermont and MaineHealth

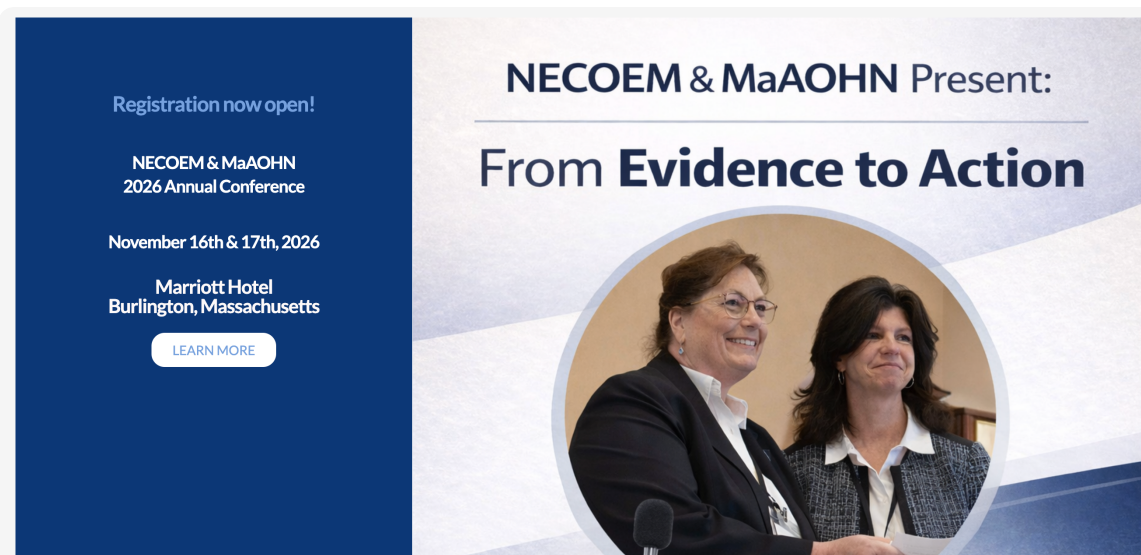
Seeking a Geisel medical student to join the NNE CO-OP PCBRN's Annual Meeting Planning Committee!

Are you a medical student with an interest in primary care research? The **Northern New England CO-OP Practice and Community Based Research** based within the Department of Community and Family Medicine, is seeking an enthusiastic student to join the conference planning committee for our 47th Annual Meeting, taking place January 22–24, 2027, at the Equinox Resort in Manchester, VT. Virtual meetings are held on the first Wednesday of each month.

<https://geiselmed.dartmouth.edu/nnecooppcbrn/>

This is a great opportunity to connect with primary care researchers and clinicians from across the region while playing a hands-on role in shaping a premier primary care research conference.

Interested? Contact NNECO-OPPCBRN@hitchcock.org



Call for Posters at NECOEM/MaAOHN Annual Conference

The 2026 Annual Conference of the New England College of Occupational & Environmental Medicine (NECOEM) and the Massachusetts Association of Occupational Health Nurses (MaAOHN), "**From Evidence to Action, Practical Solutions for Health Workforces**," is on November 16th and 17th at the Marriott Hotel in Burlington, MA.

Eligible posters will compete for a Medlock Scholarship to pay for attendance at a future conference or educational activity relevant to occupational and environmental health. First, second, and third prizes will be awarded in the amounts of \$750, \$500, and \$250, respectively.

For questions, feel free to contact (david.s.cockrum@hitchcock.org) or Michela Capobianco, NECOEM Executive Director, at executive.director@necoem.org.

<https://necoem.org/upcoming-events/annual-conference-2026/poster-session-call-for-abstracts/>

Rusyniak Memorial Medical Student Research Year-Long Fellowships (2027 Year-Long Fellowship)

Students are eligible for the Rusyniak Summer Fellowship if they are actively enrolled medical students in years 1-3 at accredited North American medical

schools in the United States or Canada. To inquire about eligibility or express interest in applying, students are encouraged to contact Rusyniak_Fellowship@URMC.rochester.edu.

Medical students with a strong research background in neurosurgery may apply for a year-long fellowship offering up to **\$30,000** to support a dedicated research year with a University of Rochester Neurosurgery faculty mentor. Students interested in applying should first express their interest by contacting Rusyniak_Fellowship@URMC.Rochester.edu.

NIH's Medical Research Scholars Program

NIH's Medical Research Scholars Program is a year long research immersion program for future clinician-scientists that advances health by inspiring careers in biomedical research. The in person 10.5-12 month program is designed for students who are U.S. citizens or permanent residents, have a strong interest in conducting basic, translational, clinical or epidemiological research and are currently enrolled in their 2nd, 3rd, or 4th year at an [accredited medical, dental, or veterinary program](#).

The application for the 2027-2028 class will open September 1, 2026. <https://www.cc.nih.gov/training/mrsp>

NIH Medical Research Scholars Program



AAMC Research and Training Opportunities

Looking for ways to enrich your medical school experience? Check out our directories of clinical, research, and public health opportunities.

<https://students-residents.aamc.org/research-and-training-opportunities/research-and-training-opportunities>



Dartmouth
GEISEL SCHOOL OF
MEDICINE

DEPARTMENT OF BIOMEDICAL
DATA SCIENCE
GEISEL SCHOOL OF MEDICINE

Seminar



Joshua Levy, PhD
Assistant Professor
Pathology and Laboratory Medicine &
Computational Biomedicine
Cedars-Sinai

"2.5D and Beyond: From Three-Dimensional Analysis of Tumor Specimens to the Next Generation of Cancer AI Researchers"

Monday, July 13, 2026

2:00-3:00pm

Auditorium H, DHMC

*****In-person attendance encouraged. No registration required.*****

URL: <https://dartmouth.zoom.us/j/5037795102>

Zoom meeting ID: 503 779 5102
Zoom passcode: 1984650

Presentation Summary

Common approaches for the study of pathologic specimens remain constrained to two-dimensional representations of inherently three-dimensional biological systems. This talk will explore emerging opportunities to move beyond conventional 2D analysis through the development of computational methods for the analysis of "2.5D" and 3D imaging and genomic data, with applications in pilot multicenter urine cytology studies and spatial transcriptomics. Dr. Levy will present ongoing pilot work spanning automated segmentation of urine cytology specimens in three dimensions, autofluorescence-guided registration of serial tissue sections for multimodal spatial analysis, and computational reconstruction of three-dimensional spatial transcriptomic landscapes from tumor specimens. Together, these efforts may improve our ability to characterize tissue architecture, cellular interactions, and tumorigenic processes at scales that are difficult to capture using conventional approaches. The opportunities, challenges, and limitations of these emerging methods will be discussed. In addition, Dr. Levy will discuss a national high school internship program designed to introduce students to the intersection of artificial intelligence and cancer medicine. Preliminary outcomes suggest that early exposure to research opportunities can foster meaningful engagement in spatial biology, computational pathology, and cancer research while helping cultivate the next generation of cancer AI researchers.

Biography

Joshua Levy, PhD, is an Assistant Professor in the Departments of Pathology and Laboratory Medicine and Computational Biomedicine at Cedars-Sinai, where he serves as Director of Digital Pathology Research and Associate Director of Cedars-Sinai AI Campus. Dr. Levy received his doctoral training in the Program in Quantitative Biomedical Sciences at the Geisel School of Medicine at Dartmouth. Prior to joining Cedars-Sinai, he served for several years as an Assistant Professor in the Departments of Pathology, Dermatology, and Epidemiology at Dartmouth, where he continues to hold an adjunct faculty appointment. Dr. Levy's research focuses on applying artificial intelligence, digital pathology, and computational methods to better understand disease, particularly cancer. He develops novel tools for the analysis of tumor biology, spatial omics, and diagnostic pathology with the goal of improving disease characterization, risk stratification, and precision medicine. He is also co-director of the national high school internship program Emerging Diagnostic and Investigative Technologies (EDIT) AI, jointly supported by Dartmouth Cancer Center and Cedars-Sinai Cancer, which provides students with early exposure to research at the intersection of artificial intelligence and cancer medicine.

Remote Plastic Surgery Research Opportunity

The Department of Plastic Surgery at University of Pittsburgh is seeking motivated medical students for remote clinical outcomes research. Projects include health disparities, leadership, and medical education. Students will collaborate with University of Pittsburgh faculty, residents, and student leaders. Experience with PubMed literature searches and statistical analysis is required. Preference will be given to students committed to plastic surgery who have limited research opportunities at their home institutions.

Online Submission Site Opens : September 1-October 1, 2026:

Learn More :

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=7&y=2026&v=m>

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.



OPEN ACCESS

EDITED BY
Dimitrios Skliros,
Agricultural University of Athens, Greece

REVIEWED BY
Panos G. Kalatzis,
University of Copenhagen, Denmark
Dicle Yalcin,
Louisiana State University, United States

*CORRESPONDENCE
Devdoot Majumdar
✉ dev.majumdar@uvm.edu

[†]These authors have contributed equally
to this work and share first authorship

RECEIVED 05 December 2025
REVISED 20 February 2026
ACCEPTED 23 February 2026
PUBLISHED 25 March 2026

CITATION
Kjendal L, Whelihan C, Garvin O, Will B,
Lee I, Miller ZD, Dowell W, Dearborn J,
Languon S, Kirch T, Miller ZR, Roy S,
Evans O and Majumdar D (2026) Iterative
immunoprecipitation and phage pre-
wash dramatically improve epitope-
resolved serology by VirScan.
Front. Virol. 6:1761741.
doi: 10.3389/fviro.2026.1761741

COPYRIGHT
© 2026 Kjendal, Whelihan, Garvin, Will,
Lee, Miller, Dowell, Dearborn, Languon,
Kirch, Miller, Roy, Evans and Majumdar.
This is an open-access article distributed
under the terms of the [Creative
Commons Attribution License \(CC BY\)](#).
The use, distribution or reproduction in
other forums is permitted, provided the
original author(s) and the copyright
owner(s) are credited and that the
original publication in this journal is
cited, in accordance with accepted
academic practice. No use, distribution
or reproduction is permitted which does
not comply with these terms.

Iterative immunoprecipitation and phage pre-wash dramatically improve epitope-resolved serology by VirScan

Lily Kjendal^{1†}, Chase Whelihan^{1†}, Olivia Garvin¹, Benjamin Will¹,
Ian Lee¹, Zachary D. Miller^{1,2}, William Dowell^{1,2},
Jacob Dearborn^{1,2}, Sylvester Languon^{1,2}, Tylar Kirch^{1,2},
Zachary R. Miller¹, Sophie Roy¹, Olivia Evans¹
and Devdoot Majumdar^{1*}

¹Department of Surgery, Larner College of Medicine, University of Vermont, Burlington, VT, United
States, ²Cellular, Molecular, and Biomedical Sciences Program, Burlington, VT, United States

Accurate mapping of antibody epitope repertoires is essential for understanding infection, vaccination, and immune history. Phage immunoprecipitation sequencing (PhIP-seq), including the widely used VirScan platform, offers single - peptide resolution across the human virome; however, such measurements are sometimes beset with limitations stemming from weak signal-to-noise ratio, non-specific phage binding, and inconsistent peptide enrichment. With such methods, it is imperative to differentiate true antibody-antigen interactions from background noise. Here, we systematically evaluate the impact of key experimental variables on assay performance and identify two synergistic modifications that markedly improve epitope-level viral serology: (1) iterative rounds of immunoprecipitation and (2) serum pre-washing with wild-type phage. Across healthy donor sera, pooled HIV-seropositive sera, and influenza-vaccinated rabbit sera, the optimized workflow produces a substantial expansion of the enriched peptide population, significantly higher normalized peptide counts, and improved separation of viral epitopes from background noise while preserving global library representation. The protocol enables quantitative detection of HIV epitopes across a 100-fold dilution series, resolving immunodominant gp160 regions, and identifies strain-specific hemagglutinin epitopes elicited by influenza vaccination, including expected public stem-directed linear epitopes. These results provide a reproducible, generalizable workflow that enhances viral epitope discovery, serosurveillance sensitivity, and vaccine-response mapping. This optimized PhIP-seq framework strengthens the utility of VirScan in systems virology by enabling more accurate and quantitative inference of viral antibody repertoires.

KEYWORDS

antibody repertoire, epitope mapping, iterative immunoprecipitation, phage pre-wash, PhIP-seq, systems virology, viral serology, VirScan



Share Your *Scholarly Work*

Medical Student Grand Rounds is a monthly forum where Geisel students present original research and scholarly projects to the medical community.

WHO SHOULD APPLY	WHEN	PRESENTATION LENGTH
All Geisel Medical Students	Third Tuesday of Each Month	10, 20, or 30 Minutes

ABOUT THE FORUM

Medical Student Grand Rounds provides a dedicated space for Geisel students to share the depth and breadth of their scholarly pursuits — from bench to bedside and beyond. All class years and research students are encouraged to apply. Presentations are open to the full Geisel community.

AREAS OF SCHOLARLY WORK WELCOME

- Clinical and translational research
- Basic science and laboratory work
- Quality improvement initiatives
- Global and public health projects
- Medical education innovations
- Case reports and clinical observations

APPLY TO PRESENT

Sign up to be featured at an upcoming session

Scan the QR code or visit the link to submit your presentation title, a brief description, and your available months. Reach out to the organizers with any questions.



forms.gle/DEdpyGW9NeNcdmbM6

QUESTIONS? CONTACT THE CO-CHAIRS OF PROFESSIONAL DEVELOPMENT

Daniel Ryvkin
Daniel.Ryvkin.MED@dartmouth.edu

Alessandra Bryan
Alessandra.C.Bryan.MED@dartmouth.edu

Medical Student Grand Rounds Sign-Up Link

https://docs.google.com/forms/d/e/1FAIpQLSfaMYOglaA6gcJV-ANDj5_F2gA0djDO8v9FfPNiEMMXue4cQw/viewform



Dartmouth Library Curated Database and Citation Resources

A variety of research support services provided by the Dartmouth Medical and Health Sciences Libraries including information on

data searching and management, systematic reviews and analysis, and data sharing and visualization.

For more information :

<https://researchguides.dartmouth.edu/medlibresources/home>



Academic Scholar Year

The Academic Scholar Year (ASY) is a designated status for Geisel medical students who have been approved to pursue a structured program of rigorous academic, scholarly, or research activity. Students in ASY are classified as full-time, non-resident students in good academic standing.

Learn More :

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



Dartmouth
GEISEL SCHOOL OF
MEDICINE

Office of
MEDICAL STUDENT
RESEARCH

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

