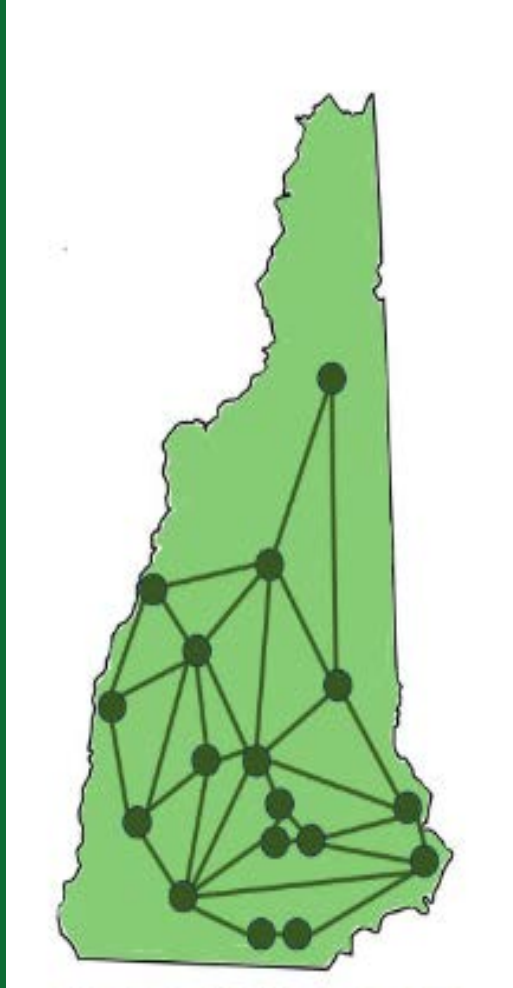




NH-INBRE

2024 Annual Meeting

**Experience the Art of Biomedical
Scientific Discovery**



Tell us about your experience

Complete a survey for a chance to win a
\$10 gift card (raffle includes 30 Amazon gift cards)

At the end of the conference on Tuesday, please use one of these options to access the feedback survey.

1. Scan this QR code:



2. Type this link into your web browser:

<https://dartgo.org/NH-INBRE-Meeting-2024>

Thank you for sharing your feedback,

~ The Evaluation Team

Danielle Vaclavik & Jennifer Wenner





»»»»»»»» Turn Over »»»»»»»»»

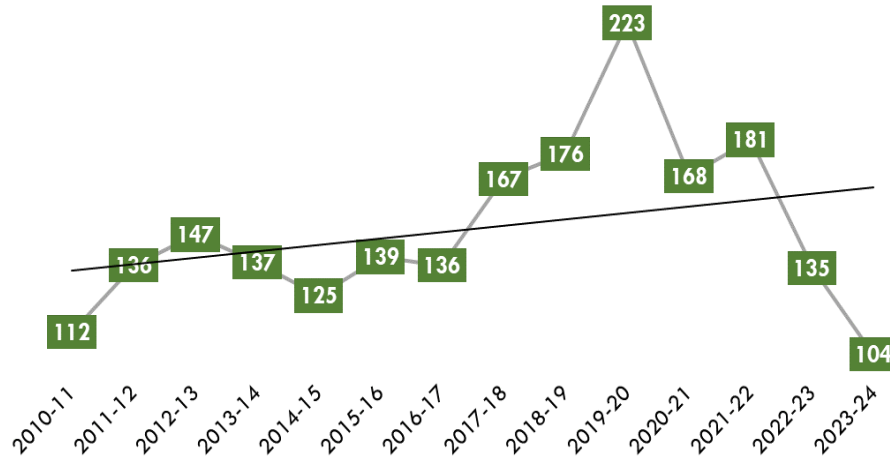


Center for Program Design & Evaluation

CPDE at Dartmouth College

Tracking Student Participation in NH-INBRE...

NH-INBRE Academic Year & Summer Student Positions

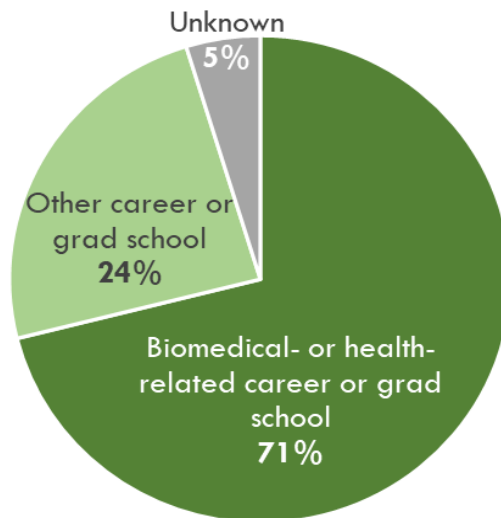


Averaging nearly 150 students per year, NH-INBRE has had over 1,400 student participants since inception.

In recent student surveys, **students report an increased** understanding of how “real” research works, and see improvements in their abilities to conduct experiments, problem solve, and collect and analyze data.

What NH-INBRE Alumni are up to after graduation...

Outcomes of all graduated NH-INBRE students



Annual surveys show that **over 70%** of NH-INBRE alums are working in Biomedical or Health-related careers, or have pursued higher degrees in biomedical disciplines and beyond.

Over 50% of alumni¹ report that NH-INBRE helped them decide what they wanted to do after graduating college.

Looking into the future: Efforts continue to build a NH-INBRE alumni community with opportunities to network with each other and mentor current students. Our surveys facilitate this by keeping tabs on NH-INBRE students after they complete their degrees.

¹ Only includes alumni who responded to the “What’s up survey” in 2024; n=595

Conference Information

Lanyard Color Distinction:

Green Lanyards – Research Students

Red Lanyards – Faculty

Blue Lanyards – Administration

Black Lanyards – INBRE Alumni

Conference Meals:

Please remember to wear your conference badge to all conference supported meals. If you do not have your badge, you may be turned away by hotel staff.

Recording and Photography:

Photographs and recordings of other individual's presentations without consent is prohibited. A contracted photographer will be photographing and editing photos of their scientific content. These photos will be made available upon request post meeting.

Wi-fi access:

Free Wi-fi access is available in the guest rooms and common rooms of the hotel with the exception of the immediate conference center.

Business Center:

Computer terminals and printers are located in the Business Center which is located directly across the Great Hall from the NH-INBRE Registration Desk.

Lost and Found:

A lost and found is located at the Hotel's main registration desk in the lobby

Concierge:

The Concierge Desk is located in the Grand Lobby. Open daily, 8:00am – 7:00pm, ext. 8989
Stop by for recommendations on local hikes, walks and points of interest!

Do you have questions? NH-INBRE leaders are here to help. Locate one of us wearing the green "NH-INBRE Leadership" shirt.



New Hampshire Network of Biomedical Research Excellence (NH-INBRE)

Steven N. Fiering, Ph.D.
Project Director

Experience the Art of Biomedical Scientific Discovery

geiselmed.dartmouth.edu/nhinbre

2024 NH-INBRE ANNUAL MEETING August 5, 2024 – August 6, 2024 Omni Mount Washington Resort

Monday, August 5, 2024		Location
8:00 am – 9:30 am	Registration Desk Hours of Operation	Webster/Franklin Foyer
	<i>Poster set up for Monday morning presenters</i>	Grand Ballroom
8:00 am – 9:30 am	Continental Breakfast	Presidential Foyer
9:30 am – 9:40 am	State of the INBRE Steve Fiering, Ph.D. <i>NH-INBRE PI, Geisel School of Medicine at Dartmouth</i>	Presidential Ballroom
9:40 am – 9:50 am	NH-INBRE Alumni Advisory Board <i>What we are and what we offer</i> Haley Zanga <i>NH-INBRE Alumni Advisory Board Chair</i>	Presidential Ballroom
9:50 am – 10:20 am	Faculty Presentation I <u>Determining glucocorticoid receptor mediated cell stress pathway activation in triple negative breast cancer.</u> Sarah Tarullo, Assistant Professor of Biology, Plymouth State University	Presidential Ballroom
10:20 am – 10:30 am	BREAK	
10:30 am – 11:30 am	Breakout Session I	
<i>Student Track</i>	10:30 – 10:45 – Networking Bingo 10:45 – 11:30 – Career Networking w/ Alumni	Presidential Ballroom
<i>Faculty Track</i>	10:30 – 10:40 – NH-CREATES 10:45 – 11:30 – NH-LIFT	Reagan Room
11:30 am – 12:45 pm	Poster Session I	Grand Ballroom
12:45 pm – 1:30 pm	Bag Lunch <i>Poster set up for Monday afternoon presenters</i>	Grand Ballroom Foyer
12:45 pm – 1:30 pm	<i>NH-INBRE Student Representative Meeting</i>	<i>Washington Boardroom</i>
1:30 pm – 2:30 pm	Student Presentations I <u>CB1 Receptor Expression in the Embryonic Cortex.</u> Erin Plummer, Yeh Lab, Geisel School of Medicine at Dartmouth	Presidential Ballroom

Geisel School of Medicine North College Street Vail Building Room 805 Hanover, NH 03755

Colby Sawyer College • Community College System of New Hampshire • Dartmouth College

Franklin Pierce University • Keene State College • New England College • Plymouth State University

Rivier University • Saint Anselm College • University of New Hampshire

	<u>The nervous system is important for cell division during regeneration of rhinophores in the nudibranch <i>Berghia stephanieae</i>.</u> William Scala, Newcomb Lab, New England College <u>Characterization of new genetically modified yeast strains in the biofuels industry.</u> Karson Barclay, Mascoma LLC <u>Screening Library of Small Molecules Elucidates Potential Inhibitors of the NEMO and IKKβ Interaction.</u> Maria Beatriz Hidalgo, Mierke Lab, Dartmouth College	
2:30 pm – 3:45 pm	Poster Session II	Grand Ballroom
3:45 pm – 5:00 pm	Hotel Check-in and Break	
4:00 pm – 5:00 pm	Head Shots	Washington Boardroom
5:00 pm – 6:30 pm	Breakout Session II	
<i>Student Track</i>	<i>What are the Alumni up to now?</i> <i>Journey of their careers after undergrad</i> <u>Speakers:</u> Erin Bryant Hall, Cambridge Health Alliance, Cambridge MA Bobby Madden, Stryker Corporation Padmina Shrestha, University of California, Los Angeles Olivia McAnirlin, Virtual Reality and Nature Lab, Clemson University	Presidential Ballroom
<i>Faculty Track</i>	CIMER Training <u>Speakers:</u> Steve Fiering, NH-INBRE PI, Professor, Microbiology and Immunology, Geisel School of Medicine at Dartmouth Yina Huang, NH-INBRE DRPP Director, Professor, Microbiology and Immunology, Geisel School of Medicine at Dartmouth	Reagan Room
6:30 pm – 7:30 pm	Break Head shots <i>Poster breakdown for Monday presenters</i>	Washington Boardroom
7:30 pm – 8:30 pm	Dinner Buffet and Networking Special Topic Tables Medical/Healthcare Careers Graduate / Medical Schools Biotech/Industry Careers	Presidential Garden
8:30 pm – 10:30 pm	Student Networking <i>Pub Trivia and Snacks!</i>	Reagan Room, Jefferson Room
8:30 pm – 10:30 pm	Faculty Networking	Jewell Terrace

Tuesday August 6, 2024		Location
7:00 am – 8:30 am	Check out – Luggage storage behind INBRE registration desk	Webster/Franklin Rooms
7:00 am – 8:30 am	<i>Poster set up for Tuesday Presenters</i>	Grand Ballroom
7:15 am – 8:00 am	Head Shots	Washington Boardroom
7:30 am – 8:30 am	Breakfast Topic Tables Career Choices in Healthcare Graduate Schools Medical Schools Biotech/Industry Working with Cores	Presidential Ballroom
8:30 am – 9:00 am	Faculty Presentation II <u>The combined role of reduced physical activity and added carbohydrate consumption on metabolic flexibility and glucose control.</u> Michael Brian , Assistant Professor of Kinesiology, University of New Hampshire, Durham	Presidential Ballroom
9:00 am – 10:15 am	Poster Session III	Grand Ballroom
10:15 am – 10:30 am	Break	
10:30 am – 11:30 am	Breakout Session III	
<i>Student Track</i>	10:30 – 11:00 – Professional Mentorship <i>Why it is so important and how to find a mentor</i> <i>Speaker: Christina Parkinson, Head of Operations, Americas at Millipore</i> 11:00 – 11:30 – NH-INBRE Mentoring Program <i>Why it matters, how to use it, and anecdotal experiences</i> <i>Speaker: Julia Pinette, PhD Candidate, Vanderbilt University</i>	Presidential Ballroom
<i>Faculty/Admin Track</i>	Funding Opportunities <i>Speakers:</i> <i>NH-INBRE Leadership</i> <i>PUI faculty who have recently submitted R15s</i>	Reagan Room
11:30 am – 11:45 am	Break	
11:45 am – 12:45 pm	Student Presentation II <u>Progression of Neonatal Ocular HSV Infection in Mice.</u> Braden Brassard , Leib Lab, Geisel School of Medicine at Dartmouth <u>Multi-Classification Analysis of Volumetric, Protocol, and Application Layer DDoS Attacks on Networked Medical Devices.</u> Eric Brown , Lu Lab, Keene State College <u>Unveiling the role of tRNA dysregulation in cancer: inhibiting tRNA-Arg-TCT-4-1 suppresses cell growth in liposarcoma cells.</u> Anais Torres Arroyo , Orellana Lab, Geisel School of Medicine at Dartmouth	Presidential Ballroom

<u>Cannabis Habits and Perceptions Among GI Oncology Patients at Dartmouth Cancer Center. Rachel Symmes, Gastrointestinal Oncology Program, Dartmouth Cancer Center</u>		
12:45 pm – 1:00 pm	Farewell <i>Poster Awards</i>	Presidential Ballroom
1:00 pm	Boxed Lunch to go	Presidential Foyer
CONFERENCE CONCLUDES		
1:00 pm – 2:00 pm	2024 Dartmouth iSURF Focus Group	Jefferson Room
1:00 pm – 2:00 pm	Steering Committee Meeting	Reagan Room

Getting the Most Out of the NH-INBRE Annual Meeting

The “N” in INBRE is for “NETWORKING”



This year, more than 250 attendees will gather for a one-and-a-half-day event at the beautiful Omni Mt. Washington Resort. Attending a scientific meeting is an excellent opportunity for career building. You'll have the chance to introduce yourself and your work to other scientists, network with researchers, and you may even meet your future employer.

Ask yourself, "How can I get the most out of this experience?"

Before the Meeting:

The agenda is on the NH-INBRE [homepage](#) under the “2024 NH-INBRE ANNUAL MEETING” tab. Don't arrive unprepared so please check out the schedule of events on the meeting website.

At the Meeting:

Upon arrival, you will receive a nametag and a meeting program containing the following items: the agenda, the agenda for the poster sessions, abstracts of the student and faculty oral presentations, a list of attendees with their contact information, a map of the hotel, and a QR code for the meeting evaluation survey.

Please take a moment to complete the evaluation survey while the meeting is still fresh in your memory. Your feedback, whether positive or negative, is valuable as we plan for the 2025 Annual Meeting.

Do you know how to network at a conference?

Please keep in mind the following text:

"This is a great opportunity for you to meet colleagues from other institutions. Take some time to think about what you want in a career. It's important to be passionate about your career. You should look forward to going to school or work every day. Ideally, you should be excited to start your day in the morning. This meeting is an opportunity to explore your passion.

Imagine this: you might find yourself sitting next to a faculty member from another institution at dinner - what would you talk about? Do you have any questions about their career, graduate or nursing programs that you're ready to ask? There will be breakout sessions on Monday led by INBRE Alumni leaders who will also be available for most of the meeting if you have any questions.

Consider how you will present your poster. It might be helpful to practice presenting it to others beforehand. This is a great opportunity to gain professional interactions and advice. How will you introduce yourself and your research? Have your 60-second elevator pitch ready!"

What To Wear: Good clothes, the name badge & your cell phone

Dress for success! If you want to be seen and treated as a fellow professional, always be mindful of your appearance. Business casual attire is appropriate for the poster session and for giving an oral presentation. Make sure to keep your name badge visible at all times. This encourages people to read it, pronounce your name, learn about your home institution, and ask about your work.

When it comes to cell phone use, remember that it's your responsibility to use your phone in a considerate manner. It's not up to others to deal with any distractions caused by your phone.

Sit with People You Don't Know

Meeting new people is important for expanding your network. This time, we request that you do not sit with people from your own institution. If you forget to mingle, the “INBRE-Network Police” will be there to remind you. You could start by asking "May I join you?" as a good way to start a conversation.

Ask More, Listen More

The objective of networking is to make people familiar with you. Doesn't it feel great when others show interest in you and want to learn more about you? It makes you feel valued and important, right? Well, the same goes for others. The key is to genuinely show interest in the other person. This involves letting the other person do most of the talking and keeping the conversation going by asking questions when they stop.

Have your Elevator Pitch Ready

Sure, here is the revised text:

"Most people will reciprocate and ask things about you. One of the first things they will ask is, "What do you do and what is your research about?" An elevator pitch is a 30 to 60-second description of your research. It should include what you do, why you do it, and how you do it."

Thank you and have a great 2024 Annual Meeting!



One-Page Networking/Conversation Starters For Attendees

Created by The NH-INBRE Alumni Advisory Board

- "Hi there! Are you enjoying the conference so far?"
- "Have you attended this conference before, or is it your first time?"
- "What industry or field do you work in?" or "What school are you from?"
- "What's been the highlight of the conference for you?"
- "Are there any speakers or presentations you found particularly insightful?"
- "What is your research in?"
- "What challenges are you currently facing in your work?"
- "How did you know you wanted to go into the career you did?"
- "Are there any networking events or meetups at the conference you're planning to attend?"
- "What motivated you to get into [specific field or industry]?"
- "How do you typically approach networking at conferences like this?"
- "What does your day-to-day look like at your current job?"
- "Are there any skills or knowledge that are important to have before applying to [X] job?"
- "Are there any books or articles you've read recently that have had an impact on your work?"
- "Do you know anyone who works in this field or at this company?"
- "Man, these networking events can be so crazy. Mind if I join you over here where it's a little quieter?"
- "I see you work at [X] company. How is work going?"
- "This venue is incredible. Have you been here before?"
- "This is my first time at this type of networking event. Have you participated previously?"
- "What are some of your hobbies?"
- "Where did everyone grow up?"
- "Could you tell me a little more about your role?"
- "What did you think of the conference speaker/presentation?"
- "Any big projects on the horizon?"
- "What are you doing this weekend?"
- "What are you hoping to get out of this conference?"
- "I'm looking to get into a field similar to yours. Any advice?"
- "Share some helpful career advice you've received in the past. Why was it helpful to you?"

The NH-INBRE Career Mentoring Program



The NH-INBRE Career Mentoring Program was created by the [NH-INBRE Alumni Advisory Board](#). One of the fundamental goals of establishing this community and program is to provide career planning and professional development for undergraduates across New Hampshire.

The NH-INBRE Career Mentoring Program has many facets. These diverse programs were designed to aid students in focusing on their career planning, developing skills needed for applying to jobs beyond undergrad, as well as providing unique networking opportunities. This program uses NH-INBRE alumni as mentors to help students achieve their long-term goals.

The goal is to have the Career Mentoring Program become part of the NH-INBRE culture, promoted alongside the professional research skills that NH-INBRE helps develop in students. We hope to continue to grow our network and develop new programs each year to make sure we can fit every student's career goals and aspirations.

The following contains descriptions of the resources available to the students of NH-INBRE! Please take advantage of all that we have to offer.

Programs Offered:

1:1 Mentoring Program:

Some of the most successful people, no matter what their profession may be, can attribute some of their accomplishments to others – mentors, advisors, counselors, etc. We are fortunate at NH-INBRE to have a large and rich pool of alumni engaged in various biomedical careers who can work as mentors with students ("mentees") in the NH-INBRE program. The NH-INBRE Alumni Board will pair mentors and mentees based on both parties' interests, education, and experience.

The mentor and mentee will work together to help develop a plan and foster a relationship to help guide the mentee into finding the right career path or job fit after college. Things our mentors can help with include but are not limited to: resume or CV preparation and/or editing, mock interviews, interview preparation, helping with graduate school applications, editing personal statements, and much more!

If you are interested in signing up either as a mentor or mentee please go to: <https://geiselmed.dartmouth.edu/nhinbre/inbre-101-resources/mentoring-with-nh-inbre-alumni/>

Medical School Mentoring Program:

The average medical school acceptance rate is 5.5%. Our program is aimed at providing resources, support, and networking opportunities to college students at NH INBRE schools to help them navigate the challenging pre-med path. Each session is hosted by [current medical students who are alumni of INBRE](#). These 1.5-hour live Zoom sessions are dedicated to addressing a certain topic each month. Students will have the opportunity to ask questions and get feedback on their application process.

The NH-INBRE Career Mentoring Program



To see our past achieved mentoring sessions and PDF resources please visit:

<https://geiselmed.dartmouth.edu/nhinbre/inbre-101-resources/medical-school-mentoring-program/>

Last year's topics included: All about the MCAT, Q&A with Geisel School of Medicine Admissions, Gap Year Ideas, Primary Applications, and the different types of medical school.

*The next session will resume in the Fall of 2024

Graduate School Mentoring Program:

The graduate school mentoring program aims to provide resources, support, and networking opportunities to college students at NH-INBRE to help them navigate the graduate school admissions process and choosing the right graduate school/program. Each session is hosted by current graduate students who are alumni of NH-INBRE. These 1.5 hour live zoom sessions are dedicated to addressing a certain topic each month.

Last year's topics included: Why go to graduate school, Selecting where to apply, Personal Statement and CV Prep, Interview Prep, and What does the first semester of grad school look like.

*The next session will resume in the Fall of 2024

Career Speaker Series:

- The NH-INBRE Alumni Advisory Board puts on 4 career speaker panels per academic school year dedicated to a specific career theme
- These are 1.5-hour-long Zoom sessions which we invite alumni to come to talk about their career journey
- Last year our career topics were: Industry, Graduate School, Healthcare Careers and Medical School

To stay updated with the latest news and sessions, please join the [NH INBRE Alumni and Student Network](#) LinkedIn. You can find the LinkedIn group here:

<https://www.linkedin.com/groups/9075423/>

We sincerely hope that you take advantage of all the things we have to offer. If you have any questions or concerns, please reach out to NH-INBRE@Dartmouth.edu or to Haley Zanga (NH-INBRE Alumni Advisory Board Chair) at haley.zanga@gmail.com.

2024 Annual Meeting Attending Alumni Bios

Name: Erin Bryant Hall

Undergraduate: Saint Anselm College – 2011

Current Position: Commissioner of Laboratory Animals, City of Cambridge, MA

Bio: Dr. Erin Bryant Hall is a veterinarian and a Diplomate of the American College of Laboratory Animal Medicine (ACLAM) who currently works for the City of Cambridge, MA Public Health Department (CPHD) as the Commissioner of Laboratory Animals (CLA). She has a BA in biology from Saint Anselm College and a DVM degree from The Ohio State University College of Veterinary Medicine. Following veterinary school, she completed a postdoctoral fellowship and laboratory animal medicine residency at MIT in the Division of Comparative Medicine, after which she worked as a clinical veterinarian and principal scientist for Merck at one of their early discovery laboratories. During her employment at Merck, she acquired an MPH from UMass Amherst. Now, in her role as the CLA, she inspects facilities using animals for biomedical research in the city and supports CPHD as a zoonotic disease advisor and Ethics Committee co-chair, among other duties. In her free time, she enjoys outdoor activities such as hiking, kayaking, and skiing.

Dinner table: 1



Name: Jason Charbonneau

Undergraduate: Keene State College - 2019

Current Position: Active Duty United States Army, Fort Liberty North Carolina

Bio: Jason Charbonneau earned a Bachelors of Science in Biology with a minor in Chemistry from Keene State College in December of 2019. During the fall of 2019, he had the great privilege to work under PI Dr. Paul W Baures of the KSC Chemistry Department whose laboratory research was funded through NH-INBRE and the NIH. This work was a crucial accelerant to the early-completion of his undergraduate degree. Through an opportunity subsidized by the Massachusetts Life Sciences Center, Jason landed a paid internship working on active pharmaceutical ingredient research at Aphios Corp. of Woburn MA, in early 2020. Later that year, he began a two-year tenure with Perkin Elmer (now Revvity) in their R&D department on the Microfluidics Applications Team as an Associate Scientist. In June of 2022 Jason transitioned to a technical sales supporting role, as the Product Specialist for Fluigent Inc, the American branch of the French based microfluidics pressure and flow control device company. Though blessed with great opportunity, international exposure, travel, technical and business experience, Jason felt his calling was beyond the office desks and laboratory walls of the biotechnologies industry. He enlisted in the United States Armed Forces and is currently stationed at Fort Liberty, North Carolina."

Dinner table: 2



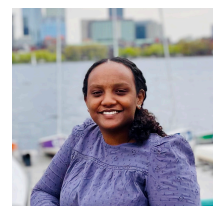
Name: Hanna Degefu

Undergraduate: Colby-Sawyer College – 2020

Current Position: Ph.D. candidate in Immunology at Dartmouth

Bio: Originally from Ethiopia, Hanna completed her undergraduate degree at Colby-Sawyer College with a B.S. in Biology and minors in Math & Chemistry. During her time at Colby-Sawyer, she worked with Dr. Chery Whipple investigating the role of antimicrobial peptides in cancer. Before joining MCB, she spent time as an NH-INBRE iSRUF fellow at Dartmouth studying the development of memory T cells in the Huang Lab. Her work in the Rosato Lab at Dartmouth seeks to understand the role of resident memory T cells in the human brain. Outside of lab, Hanna enjoys hiking, cooking and reading.

Dinner table: 3



Name: Adam Geddis

Undergraduate: Keene State College - 2018

Current Position: Human Services Leader, Families First

Bio: My mission is to empower individuals and groups to reach their full potential and achieve their goals through coaching, resourcing, and empathetic support. With over 8 years of experience in mental health and human services, I am a compassionate, collaborative, and resourceful servant leader. Specializing in providing, coordinating, and supervising high-quality direct care, improving the quality of life outcomes and social determinants of health improvements for those with disabilities. I am also an Eagle Scout and a Magna Cum Laude graduate with a BA in Psychology from Keene State College and hold a certification in SQL for Data Science.

Dinner table: 2



Name: Bobby Madden

Undergraduate: Colby-Sawyer College - 2018

Current Position: Trauma Sales Representative, Stryker

Bio: My name is Bobby Madden and I currently work as a Trauma Sales Representative for Stryker covering the Southern NH territory. I attended Colby-Sawyer College and conducted my INBRE research under Dr. Jeremy Baker before pursuing a graduate degree from the University of South Carolina. While at USC, I worked as a graduate assistant athletic trainer with the football program and conducted research pertaining to student-athlete mental health. I made the transition over to med tech after several years working in collegiate athletics at the Power 5 football and Division 3 levels.

Dinner table: 4



Name: Somer Matar

Undergraduate: Keene State College - 2015

Current Position: PhD Candidate at Dartmouth College

Bio: At Keene, Somer participated in two NH-INBRE projects in microbiology and chemical biology labs. After graduating in 2015, Somer obtained a job at a small biotech company where she researched blood biomarkers for various cancers. She went on to become the lab supervisor and became a board-certified technologist in molecular bio. After spending four years in the industry, Somer entered Dartmouth's MCB graduate program where she is now a PhD candidate studying Molecular Systems biology.

Dinner table: 5



Name: Olivia McAnirlin

Undergraduate: Colby-Sawyer College - 2017

Current Position: Virtual Reality and Nature Lab Co-Director and Adjunct Faculty, Clemson University

Bio: Dr. Olivia McAnirlin is the Co-Director of Clemson University's Virtual Reality and Nature Lab and an adjunct faculty in Clemson's Parks, Recreation and Tourism Management department. She holds her Ph.D. in Parks, Recreation, and Tourism from Clemson University, as well as a Master's in Kinesiology and Health from Miami University and a Bachelor's in Exercise Science from Colby-Sawyer College. Her research interests include studying the psychological and physiological impacts of nature and virtual reality, as well as using virtual reality as a form of storytelling. Olivia's latest research, Tandem VR™, focuses on co-creating personalized nature-based VR for people in hospice and palliative care. Personalized, co-created virtual reality experience allows people to re-experience outdoor memories and places they love but can no longer visit. Olivia's peer-reviewed publications and co-authored textbook chapters explore concepts such as nature and health, virtual reality, storytelling, gender, and leisure.

Dinner table: 1



Name: Fiona McEnany

Undergraduate: Plymouth State University - 2018

Current Position: PhD Candidate at Dartmouth College

Bio: Fiona is a microbiology and immunology PhD candidate at the Geisel School of Medicine at Dartmouth and a co-chair of the Dartmouth Science, Technology, and Engineering Policy Society. She graduated from The Dartmouth Institute for Health Policy and Clinical Practice with a Master of Public Health in 2019 and Plymouth State University with degrees in biology and political science in 2018. Prior to her current program, Fiona explored her interests in infectious diseases at the Centers for Disease Control and Prevention and in neonatology research at the Icahn School of Medicine at Mount Sinai. She is passionate about translational research and is developing a monoclonal antibody therapeutic for neonatal herpes in a novel murine ocular infection model.

Dinner table: 3



Name: Christina Parkinson

Undergraduate: Franklin Pierce University - 2001

Current Position: Head of Operations, Americas at Millipore

Bio: Christina is an experienced and results-driven VP of Operations with over 15 years of expertise in the pharmaceutical industry. She holds a Master of Business Administration from Northeastern University and a Bachelor of Science in Biology from Franklin Pierce University. Her career has seen her in various roles, including Head of Operations, Americas at Millipore Sigma, Vice President of Operations at Boston Analytical Inc, Director of Operations at Charles River Laboratories, and Associate Director Analytical and Mass Spectrometry at Charles River Laboratories. Christina has a proven track record of consistently exceeding operational targets and driving overall business growth. She is skilled in strategic planning, process optimization, team leadership, and ensuring streamlined operations and maximum efficiency. Her achievements include generating record-breaking revenue, improving on-time delivery rates, successful organizational regulatory audits and achieving significant bottom-line improvements. She has also been instrumental in promoting employee engagement, driving revenue growth, and implementing innovative operational strategies. Currently, she serves as the Head of Operations, Americas at Millipore Sigma in Burlington, MA. In this role, she has implemented and maintained key performance indicators (KPIs) and tracking tools to effectively communicate organizational goals and progress across all levels. She has managed both on-site and remote teams and contributed to the development and implementation of the company's mission, vision, and values statements. Christina's career is marked by her dedication to operational excellence, financial performance, regulatory compliance, and employee development within the pharmaceutical industry.

Dinner table: 4



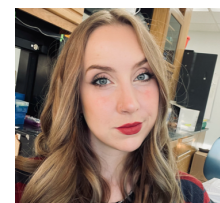
Name: Julia Pinette

Undergraduate: Keene State College - 2015

Current Position: PhD Candidate, Vanderbilt University

Bio: Julia Pinette graduated from Keene State College in 2015 and performed research with Dr. Susan Whittemore studying the effects of environmental pollutants on cardiac development. After graduation, Julia moved to Nashville Tennessee to work as a research assistant for Dr. Matthew Tyska at Vanderbilt University, where she investigated the regulation of intestinal brush border assembly. In 2018 Julia applied to the Interdisciplinary Graduate Program (IGP), the biomedical research PhD program at Vanderbilt University, to further her training. In 2020, she joined the laboratory of Dr. Elma Zaganjor in the Department of Molecular Physiology and Biophysics, where she is wrapping up her research investigating the role of nucleotide metabolism in the regulation of the differentiation of fat cells. Julia's thesis work is in the revision process at the Journal of Lipid Research, and she will be defending her dissertation on September 3rd. Julia will begin her postdoctoral fellowship at The Ohio State University with Dr. Kristin Stanford on October 1st, studying the cardioprotective effects of brown fat-secreted oxylipins. After her postdoc, Julia hopes to teach at a small liberal arts college, and in her free time, enjoys exercising and watching horror movies.

Dinner table: 6



Name: Padmina Shrestha

Undergraduate: Colby-Sawyer College - 2015

Current Position: Postdoc at the University of California, Los Angeles

Bio: My name is Padmina Shrestha. I am currently a postdoctoral fellow at University of California, Los Angeles in the lab of Dr. Kathrin Plath. My project focuses on identifying genetic elements that regulate the expression of long non coding RNA XIST, that is crucial for X-inactivation in females, during early human development. I earned my Bachelors in Science (BSc) in Biology from Colby-Sawyer College (CSC). While at CSC, I worked with Dr. William Thomas on an INBRE funded project to validate a fluorometric approach for quantifying cell adhesion. Additionally, I did my summer internship with Dr. Yashi Ahmed at Dartmouth College in 2014 as an iSURF, where I made deletions of different domains of Axin to elucidate their roles in the Wnt signaling pathway. Following graduation from CSC, I pursued a PhD in Molecular and Cellular Biology (MCB) at Stony Brook University, conducting my thesis research under the guidance of Dr. Alea Mills at Cold Spring Harbor Laboratory. During my thesis research, I discovered that a chromatin remodeling protein Chd5 regulates the expression of factors involved in neuronal differentiation and maturation factors during murine neurodevelopment.

Dinner table: 5



Name: Haley Zanga

Undergraduate: Keene State College - 2018

Current Position: Second Year Medical Student at Loyola University of Chicago

Bio: Haley Zanga, a 2018 graduate of Keene State College, conducted INBRE-funded research under Dr. Jason Pellettieri during her undergraduate studies. Following graduation, she spent two years as a research technician in an academic neuroscience lab at Massachusetts General Hospital (MGH). Following her time at MGH, Haley gained experience working at two different biotech companies in Cambridge before embarking on medical school at Loyola University Chicago Stritch School of Medicine. Haley just completed her second year of medical school, and is now pursuing a research year until May of 2025 where she will transition to clinical rotations thereafter. After medical school, Haley hopes to specialize in pediatric dermatology. In her free time she likes to travel, read, explore new restaurants, and play with her son Hudson and dog Jax.

Dinner table: 6



Monday, August 5th Oral Presentations

Faculty Presentation Session I

Determining glucocorticoid receptor mediated cell stress pathway activation in triple negative breast cancer

Sarah Tarullo - sarah.tarullo@plymouth.edu

Assistant Professor of Biology

Biology Department, Plymouth State University

Despite new targeted therapies and improved screening methods, breast cancer remains the second leading cause of cancer-related deaths among women in the US. This is especially true in triple negative breast cancers (TNBCs), which are associated with poor prognoses primarily due to the lack of effective targeted therapies. While TNBCs do not express female sex hormone receptors, which have effective targeted therapies, ~40% of TNBCs do express the glucocorticoid receptor (GR) a member of the steroid hormone receptor superfamily. In TNBC, GR is associated with resistance to chemotherapy and metastatic recurrence. GR and hypoxia-inducible factors were discovered as a point of convergence for cellular stress signaling that activate expression of proteins associated with aggressive cancers. Subsequent studies have shown that ligand-independent, p38-MAPK driven activation of GR phosphorylation at S134 (pGR) drives transforming growth factor beta (TGF β)-associated gene sets and TNBC cell migration. Our overarching hypothesis is that cell stress activates ligand-independent pGR signaling and promotes TNBC progression. Previously generated MDA-231 GR-S134A mutant and control cell lines were submitted for reverse phase protein array to identify key signaling pathways altered via pGR-mediated signaling. We identified that ligand-independent pGR signaling may drive STING expression/signaling and regulate cell cycle progression. Further, we also identified a connection between pGR and the receptor for hyaluronan mediated motility (RHAMM, *HMMR*), which has been shown to impact cell invasion and the G2/M cell cycle checkpoint. Further understanding of these mechanisms could provide rationale for novel treatment options for TNBC patients.

Student Presentation Session I

CB1 Receptor Expression in the Embryonic Cortex

Erin Plummer - emplummer22@gmail.com

iSURF Research Student - Bench

Erin M. Plummer^{1,2}, Paola C. Montenegro Larrea³, Pamela W.L. Yeh³, Hermes H. Yeh³

¹NH INBRE iSURF, ²Keene State College, ³Geisel School of Medicine at Dartmouth

The increase in cannabis use in the US, including among pregnant women, raises concerns due to the fetal brain's vulnerability to exogenous insults. Clinical studies suggest prenatal cannabis exposure (PreCE) may cause lasting neurological and psychiatric disorders, but specific impacts are unclear. Δ 9-tetrahydrocannabinol (Δ 9-THC), the main psychoactive CB, interacts with the cannabinoid1 receptor (CB1R) to affect neurotransmitter systems, particularly the GABAergic system, which regulates tangential migration of GABAergic interneurons in the embryonic cerebral cortex. This study hypothesizes that PreCE disrupts GABAergic interneuron migration and distribution, leading to and persisting as cognitive impairments later in life. Our overall goal is first to establish whether CB1Rs are expressed in the embryonic and newborn mouse brain. To this end, 40-micron sections derived from the embryonic and newborn mouse brain were processed immunohistochemically with an antibody directed against CB1R. We found that CB1R-like immunofluorescence was widely distributed in the immature cortex. A second set of ongoing experiments is investigating the effects of Δ 9-THC on the migration patterns and distribution of medial ganglionic eminence (MGE)-derived parvalbumin (PV+) and somatostatin (SST+) cortical GABAergic interneurons (cGINs) in an organotypic embryonic brain slice culture preparation with or without Δ 9-THC or the CB1R antagonist AM251. Fluorescent MGE-derived cGINs in the embryonic mPFC were analyzed and preliminary data suggests aberrant migration patterns of MGE-derived cGINs with Δ 9-THC exposure. Further experiments are ongoing to confirm these findings and elucidate underlying cellular mechanisms. Overall, our studies are providing preliminary data in support of the hypothesis that Δ 9-THC disrupts MGE-derived cGIN migration and distribution, potentially leading to cognitive impairments and neurodevelopmental disorders. Understanding these effects is crucial for informing public health policies regarding cannabis use during pregnancy.

The nervous system is important for cell division during regeneration of rhinophores in the nudibranch *Berghia stephanieae*

William Scala - wscala_ug@nec.edu
Undergraduate Research Student

William H. Scala, Haleigh L. Bilodeau, Abigayle M. Chapin, James M. Newcomb
Department of Biology and Health Sciences, New England College

Recent research with axolotls suggests that the nervous system may be involved in systemic priming and early stages of limb regeneration. However, it is not known if this role for the nervous system in regeneration also exists in other organisms, such as invertebrates. Preliminary research suggests that the nudibranch *Berghia stephanieae* can regenerate multiple body parts, such as its chemosensory rhinophores. The aim of this study was to determine whether the inhibition of the nervous system would impact the early stages of regeneration. Animals were divided into two groups: 1) an experimental group in which animals were kept in anesthetic (0.1M magnesium chloride) for the duration of the experiment; and 2) a control group in which animals were kept in artificial saline and never exposed to anesthetic. One of the rhinophores was lesioned in each animal and they were then sacrificed at 4-, 24-, or 48-hours post-lesion. Immunohistochemistry was performed using an antibody for phosphorylated histone 3, a marker for cell division. Baseline levels of cell division in unlesioned rhinophores of both groups of animals were not affected by anesthesia at the two early timepoints, while baseline levels of cell division were actually elevated in anesthetized animals at 48 hours post-lesion. Inhibition of the nervous system significantly decreased the level of cell division in regenerating tissues at the 4-hour ($p=0.0009$) and 48-hour timepoints ($p=0.0002$). These results suggest that the nervous system may be important in early stages of regeneration in both nudibranchs and amphibians, and thus may be an ancestral mechanism related to regeneration.

Characterization of new genetically modified yeast strains in the biofuels industry

Karson Barclay - karsonbarclay@gmail.com
iSURF Research Student - Industry

Karson Barclay^{1,2}, Morgan Tupper³
¹NH INBRE iSURF, ²University of Rhode Island, ³Mascoma LLC

Biofuels have become an upcoming alternative to traditional fossil fuels and from these bio-based fuels ethanol is used in transport. Bioethanol is an alcohol produced from biomass materials such as starch-bearing plants and microbial fermentation.^[1] Within the U.S there are roughly 187 ethanol production plants.^[2] In 2023 alone the U.S Produced more than 15 billion gallons of ethanol with a current running price of \$1.80 a gallon.^{[3]-[4]} Rising input costs and desire to reduce carbon emissions presents a need for ethanol producers to improve efficiency of production. Recent developments in yeast technology have enabled reduction of glycerol during yeast fermentation allowing for increased ethanol yield putting the producer at a competitive advantage. Mascoma LLC, a subsidiary of Lallemand, Inc has several bioethanol yeast products on the market and continues to develop further technology advancements for products. Newly engineered strains were benchmarked utilizing small scale corn fermentation assays demonstrating improved glycerol reduction and increased ethanol yield relative to parental yeast measured by High Performance Liquid Chromatography (HPLC). In parallel, end of fermentation samples were harvested and genomic DNA extracted and analyzed using quantitative polymerase chain reaction (qPCR) to confirm presence of engineered strains. A total of 5 fermentations were conducted over a 6-week period. Newly engineered strains were evaluated for positive changes in four different categories. Each category was assigned a multiplier based on level of importance; this multiplier was then applied to the raw data of each newly engineered strain. The sum of all categories made up the newly engineered strains fitness value which was compared to the parent strain with an assumed fitness value of 1. On average, the new yeast strains showed a 144.9% increase in fitness compared to the parent, ranging from 1.977 to 2.833. These data appear promising and could provide additional value to ethanol producers.

[1] Anyanwu RC, Rodriguez C, Durrant A, Ramadan M, Olabi A-G. 2022. Micro-Macroalgae Properties and Applications. Encyclopedia of Smart Materials. 2:732–758. doi:<https://doi.org/10.1016/b978-0-12-815732-9.00129-7>.

[2] U.S. Fuel Ethanol Plant Production Capacity. 2023 Aug 7. [www.eia.gov](https://www.eia.gov/petroleum/ethanolcapacity/). <https://www.eia.gov/petroleum/ethanolcapacity/>.

[3] Ethanol | 2005-2020 Data | 2021-2022 Forecast | Price | Quote | Chart | Historical. 2024 Jul 11. [tradingeconomics.com](https://tradingeconomics.com/commodity/ethanol). <https://tradingeconomics.com/commodity/ethanol>.

[4] Association RF. 2022. Annual Ethanol Production. Renewable Fuels Association. <https://ethanolrfa.org/markets-and-statistics/annual-ethanol-production>.

Oral Presentations Session Abstracts

Screening Library of Small Molecules Elucidates Potential Inhibitors of the NEMO and IKK β Interaction

Maria Beatriz Hidalgo - Maria.B.Hidalgo.25@dartmouth.edu

POWERED Research Student

Maria B. Hidalgo; Caroline C. Reilly, Kelly A. Tiernan; Maria Pellegrini, PhD; Dale F. Mierke, PhD

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The Nf- κ B pathway is a cell-signaling pathway that transcribes pro-inflammatory genes.¹ The dysregulation of this pathway leads to a plethora of complications and diseases, such as auto-immune diseases, cancer, among others. Its activation can occur through canonical and nonn-canonical pathways. The canonical pathway involves the binding of the IKK complex to the Nf- κ B Essential Modulator (NEMO), a coiled-coil homodimer, which activates the signal transduction that releases the Nf- κ B complex to the nucleus. Of particular interest to our research is the protein-protein interaction between NEMO and IKK β , given its exploitability therapeutic treatments. A recent study by Yu et. al reported the inhibition of the interaction between NEMO and IKK β by small molecule, Shikonin, which was found to bind S85-Q101 of NEMO.² Other potential inhibitors are thought to undergo similar non-covalent interactions with NEMO to block the formation of the NEMO/IKK β complex.² As such, our research seeks to characterize the structure of NEMO to better identify and analyze the binding hot spots in the protein. These studies will aid us in the testing and elucidation of a potent small molecule inhibitor of the NEMO and the IKK subunits. Using protein-ligand modeling simulations and data visualization programs, promising small molecule inhibitors were screened to identify its binding affinity and probability to NEMO. Early results showed that the ligands typically interact with N83-V104 in one of the helices of the dimer. While they bind the dimer spatially differently, all undergo non-covalent and hydrophobic interactions with the NEMO. In general, compound F5234-0159 has the lowest binding energy, but higher numbers of binding clusters. Meanwhile, compound F5123-1356 has a higher energy, but lower numbers of clusters and higher numbers of binding specificity. For further analysis and identification of the best inhibitor, the ligand data will be compared to previous fluorescent polarization (FP) assays. This will allow us to efficiently select the ligands that will be further characterized via NMR.

Tuesday, August 6th Oral Presentations

Faculty Presentation Session II

The combined role of reduced physical activity and added carbohydrate consumption on metabolic flexibility and glucose control

Michael S. Brian – Michael.Brian@unh.edu

Assistant Professor of Exercise Science

Department of Kinesiology, University of New Hampshire

Metabolic flexibility and glucose control are closely linked to improved cardiovascular and metabolic health as we age. A decline in metabolic flexibility is believed to disrupt glucose control in humans. The disruption in glucose control is considered to be due to intracellular mitochondrial substrate trafficking of fat and carbohydrates. A decline in cardiometabolic health is often observed when young adults transition from high school and college to the American workforce. Despite understanding the impacts of sedentary behavior and poor diets, there are limited models to study the early mechanisms behind this decline in young adults. **Methodology:** We developed a novel human model to test whether ten days of low physical activity (LowPA Group) or low physical activity + added sugar-sweetened beverage consumption (LowPA+CHO Group) disrupts mitochondrial trafficking to impair fat oxidation and glucose control. These two study groups were compared to an Active Control group that maintained their physically active lifestyle for ten days. To measure shifts in fat oxidation, participants completed a graded exercise test to measure fat oxidation and carbohydrate oxidation at varying exercise intensities. Participants also wore continuous glucose monitors to measure 24-hour interstitial glucose levels through the 10-day duration. **Results:** The preliminary results from the study suggest that the LowPA+CHO combined stimulus reduces fat oxidation during low to moderate-intensity exercise ($p < 0.05$) compared to the control group, which indicates a greater preference for carbohydrate oxidation. Despite the increased preference for carbohydrate oxidation, our data hints that LowPA+CHO impairs glucose control compared to our Active Control and LowPA groups. **Conclusions:** Our novel human model can detect shifts in fat oxidation and, potentially, glucose control, which may provide novel insight into mechanisms that disrupt fat oxidation and glucose control when young adults become less active and consume sugar-sweetened beverages.

Student Presentation Session II

Progression of Neonatal Ocular HSV Infection in Mice

Braden Brassard - bradenbrassard@gmail.com
iSURF Research Student - Bench

Braden C. Brassard^{1,2}, Fiona McEnany³, Roberto Alers-Velazquez³, David Leib³

¹NH INBRE iSURF; ²Saint Anselm College; ³Dept. Of Microbiology and Immunology, Dartmouth Geisel School of Medicine

Herpes simplex virus (HSV) infects more than two-thirds of the global population and can lead to substantial morbidity and mortality when infection occurs during the neonatal period. Neonatal HSV (nHSV) can cause lasting neurological and behavioral deficits despite early and aggressive antiviral treatment. HSV ocular infection, particularly nHSV ocular infection, is a substantially understudied route of transmission. We investigated the pathogenesis of nHSV ocular infection using a murine model. Neonatal mice were ocularly infected with a subclinical dose of HSV-1 McKrae DLux on postnatal day 5 and euthanized at multiple days post-infection (DPI). Immunohistochemistry (IHC) was used to determine the viral distribution within the cranial region, and viral titer assays quantified viral load in the brain, liver, lungs, heart, kidneys, spleen, and trigeminal ganglia. Quantitative reverse transcription polymerase chain reaction (RT-qPCR) was conducted to measure CXCL10 gene expression—a marker of inflammation—in the organs to further study neuroinflammation as a consequence of nHSV ocular infection. Our results advance our understanding of the progression of nHSV ocular infection and emphasize the critical need for improved therapeutic strategies. The murine model developed in this study provides a platform for further investigation into the mechanisms of viral ocular infections and therapeutic development, ultimately contributing to improved clinical outcomes for affected neonates.

Multi-Classification Analysis of Volumetric, Protocol, and Application Layer DDoS Attacks on Networked Medical Devices

Eric Brown - ericb5703@gmail.com
Undergraduate Research Student

Eric Brown, Wei Lu
Department of Computer Science, Keene State College

The healthcare industry has witnessed a significant transformation due to the emergence of open-source medical cyber-physical systems, primarily driven by advancements in 3D printing technology. However, the growing use of these open-source systems in hospitals has also brought about cybersecurity concerns. In particular, adopting new technologies, such as mobile medical devices, has introduced new challenges when handling distributed denial of service (DDoS) attacks as they become more frequent, varied, and destructive. This research introduces an in-depth multiclassification analysis of DDoS attacks against medical devices, categorizing them into Volumetric, Protocol, and Application Layer attacks. Utilizing the extensive CICDDoS2019 dataset, which includes eleven specific DDoS attack variations, we systematically classify these variations. Our analysis employs six diverse Machine Learning (ML) models: Logistic Regression (LR), Decision Tree (DT), Random Forest (RF), Support Vector Machine (SVM), Neural Networks (NN), and Extreme Gradient Boosting (XGB). We aim to identify the most effective model for predicting DDoS traffic across each attack category and to ascertain the model with the best overall performance. The findings of this study provide valuable insights into the effectiveness of various ML techniques in countering DDoS attacks, thereby contributing to the protection of the Internet of Medical Things (IoMT) infrastructures against this threat.

Unveiling the role of tRNA dysregulation in cancer: inhibiting tRNA-Arg-TCT-4-1 suppresses cell growth in liposarcoma cells

Anais Torres Arroyo - atorres4@estud.usfq.edu.ec
BioMT SURE Research Student

Anais Torres Arroyo¹ and Esteban Orellana^{2,3}

¹Universidad San Francisco de Quito; ²Department of Molecular and Systems Biology, Geisel School of Medicine at Dartmouth College; ³Dartmouth Cancer Center

Emerging evidence suggests that tRNA dysregulation may actively contribute to tumor progression instead of being a byproduct of the high proliferative state of cancer cells. For instance, tRNA-Arg-TCT-4-1 has been identified as the most highly upregulated tRNA in several cancer types. However, its precise role in cancer cell proliferation and its potential as a therapeutic target remains unclear. We propose that inhibiting this tRNA molecule, in the presence of other known therapeutics will lead to a decrease in cancer cell growth. To test this, we conducted a series of combination therapy assays using antisense oligonucleotides (ASOs) to inhibit tRNA-Arg-TCT-4-1, alongside with PD0222991 (CDK4/6 inhibitor) and VER-155008 (Hsp70 inhibitor). These therapies were applied to human cancer cell lines derived from liposarcoma (LPS853) and cell proliferation was measured via live cell imaging. The growth

Oral Presentations Session Abstracts

curves obtained suggest that the inhibition of tRNA-Arg-TCT-4-1 resulted in cell growth inhibition, and this effect was enhanced when combined with PD0222991 and VER-155008 administration. These findings establish tRNA-Arg-TCT-4-1 as a promising therapeutic target and provide preclinical proof of its inhibition as a potential treatment strategy for cancer.

Cannabis Habits and Perceptions Among GI Oncology Patients at Dartmouth Cancer Center

Rachel Symmes - rsymmes@rivier.edu

iSURF Research Student - Nursing

Rachel Symmes^{1,2}, Elizabeth B. McGrath, DNP, APRN^{3,4}

¹NH INBRE iSURF, ²Department of Nursing, Rivier University, ³Gastrointestinal Oncology Program, Dartmouth Cancer Center, ⁴Dartmouth Health

Background: 38 states have legalized some form of cannabis. Prevalence of use is rapidly increasing across the country both medically and recreationally. Many cancer patients have long turned to cannabis for perceived therapeutic relief from cancer treatments. Despite this, cancer care clinicians are often unaware of patient marijuana use. A patient chart review at our clinic conducted in 2022 revealed that only 4% of charts recorded patient marijuana use. Historical taboo regarding marijuana use lingers for many patients and may impede clear communication between clinicians and patients. Little is known about the long-term effects of cannabis, possible interactions with chemotherapy, and potential disease interactions. **Objective:** The purpose of this study was to explore GI oncology patients' patterns of cannabis use and acquisition. A secondary purpose was to recognize if any patients had been counseled about the potential risks, benefits, and interactions that accompany marijuana usage. **Method:** Using a Cross-Sectional Descriptive Study design, a 25-question survey was developed to capture patient demographics, cancer type/stage, treatment, symptoms, cannabis use, reason, recency, frequency, method of ingestion, formulation (THC/CBD), and location of obtainment. The patients also revealed whether they had been counseled on the potential benefits, risks, drug interactions, and disease interactions that may be associated with cannabis use. IRB approval was obtained. The anonymous survey was distributed to GI oncology patients at a cancer center in a rural academic medical center. Data was stored in REDCap and analysis using basic statistics was performed. **Findings:** 250 patients have been invited to participate in this study. 46 responses have been recorded and analyzed. Prior to cancer diagnosis, 41% of respondents reported having ever used cannabis recreationally and 11% reported having used it for medical purposes. Since their diagnosis, 42% of respondents reported having used cannabis for medical purposes and only 7% used it recreationally. The most common reported reason for use was insomnia with 55%, followed by overall improvement of symptoms (50% of respondents). The majority of respondents (93% and 94.5% respectively) had never been counseled about the potential drug and disease interactions that accompany marijuana use. **Discussion:** There is a growing prevalence of medical cannabis use across the United States. Our population of GI oncology patients exemplifies this statistic. While many patients are using marijuana as an alternative medicine to improve their cancer treatment symptoms, very few have been counseled on the potential drug and disease interactions they may be at risk for. Initiating conversations about cannabis may help to diminish the widespread stigma that exists while simultaneously strengthening the relationship between patients and clinicians. Accessibility of information about cannabis and its potential risks or benefits should be prioritized.

Program Posters

Presented both Monday and Tuesday

1. NH CREATES - Educating the Bioscience Workforce of Tomorrow

Carmela Amato-Wierda¹, Amy Booth¹, Shannon McCracken-Barber², Eleanor Jaffee³, Alison Allen⁴, Kristin Bass⁴

¹University of New Hampshire at Durham; ²University of New Hampshire at Manchester; ³Insights Evaluation LLC; ⁴Rockman et al LLC

For the past three years, NH CREATES the Future (hereafter NH CREATES), or the NH Collaborative for Regenerative Medicine Education and Training for Engineers and Scientists of the Future, has been cultivating interest and expertise in regenerative medicine, biofabrication, and related bioscience subject areas among middle and high school students and teachers. The goal is to help address current and future workforce needs in New Hampshire's rapidly growing bioscience and biotech industries. To date, 130 students and 24 teachers have attended our summer programs and interest is on the rise! This summer, we will also be offering programs on the UNH Manchester campus under the title of Manchester CREATES. Essential to the ongoing success of NH CREATES is establishing a dynamic learning ecosystem to facilitate cross-sector collaboration among middle and high schools, New Hampshire colleges and universities and industry partners. Over the past three years, we have made great strides in this area and hope to expand the NH CREATES ecosystem even further moving forward.

We need NH INBRE members to collaborate with us to help us spread the word about the diversity of biomedical research across NH, and the benefits of a bioscience career. If you are a faculty member, student, or industry partner, connect with us to learn more about NH CREATES and discuss how you can collaborate with us moving forward.

2. Lab Manager / Admin Coordinator for Shared Resources

Christian Lytle, Fred Kolling IV, Robert Gerlach
Dartmouth Cancer Center

Shared Resource laboratories provide researchers with instruments, services, and consultation from experts in their fields. Investigators using the Shared Resources will find they have access to state-of-the-art technology and instrumentation, with the expertise needed to conduct relevant and reproducible research. Dartmouth Cancer Center (DCC) Shared Resource Laboratories are open to all investigators, including those not part of the Dartmouth research community. These resources include Biostatistics and Bioinformatics, Clinical Pharmacology, Genomics and Molecular Biology, Immune Monitoring and Flow Cytometry, Irradiation Pre-clinical Imaging and Microscopy, Mouse Modeling, Pathology, and Trace Element Analysis. Even if you knew about the DCC Shared Resources, there are new services and equipment about which you will want to learn. No study is too large or too small, and consultation is free. Stop by the poster, let's talk about your research and find out how we can support it.

3. COBRE Institute for Biomolecular Targeting (bioMT)

Andreia Verissimo
Geisel School of Medicine at Dartmouth

The **COBRE Institute for Biomolecular Targeting (bioMT)** supports researchers at Dartmouth at the interface between discovery and translation, with emphasis on identification and validation of therapeutic targets for cancer, infection, and inflammation. The **Molecular Tools Core (MTC)** and **Molecular Interactions and Imaging Core (MIIC)** integrate protein biochemistry, biophysics, structural biology, and microscopy to:

- a. Support research projects: MTC generates high-quality proteins and other molecular tools using an integrated pipeline for easy protein expression, purification, and crystallization. We employ HTP protocols to generate tens of constructs for expression screening in multiple hosts in just a few days. The MIIC supports label-free analysis of biomolecular interactions and numerous image applications and provides expertise on a broad range of microscopy modalities to visualize biological processes at cellular and subcellular levels.
- b. Enhance the technology portfolio and provide training opportunities: our cores act as a hub for state-of-the-art equipment and, importantly, technical expertise in classic techniques and cutting-edge technologies. We deliver individual or group training on available instrumentation and workshops on advanced methodologies and image analysis.
- c. Develop education initiatives: We offer immersive hands-on wet lab training to undergraduate and postbac students enrolled in programs at Dartmouth (INBRE, POWERED, ASURE, ISURE, PREP, IMSD). This training helps develop research skills that can be directly applied towards research careers and/or graduate studies in the biomedical sciences. We are currently developing survey hands-on courses on Protein Production & Analytics and Microscopy & Image analysis geared towards graduate students, to provide an overview of the technologies available at Dartmouth.

4. COBRE: Center of Integrated Biomedical and Bioengineering Research at the University of New Hampshire

Rick H. Cote

University of New Hampshire at Durham

The University of New Hampshire's (UNH) first COBRE: Center of Integrated Biomedical and Bioengineering Research (CIBBR) was established in 2017 to enhance the biomedical and bioengineering research environment at UNH. During Phase 1 (2017-2023), CIBBR accomplished this objective by (1) making \$5.6M investment in Research Project and Pilot Project funding for 13 early-stage (plus 4 mid-career) UNH faculty; (2) providing a comprehensive Mentoring Program for CIBBR investigators that contributed to a doubling of NIH funding awarded to UNH during this period; (3) investing over \$2M in biomedical research infrastructure through acquisition of state-of-the-art instrumentation and creation of its Molecular and Cellular Phenotyping Core, and; (4) closely collaborating with the University Instrumentation Center through institutional contributions to new instrumentation, addition of new technical staff, and development of a long-term plan for sustainability. Under our broad thematic focus, areas of research excellence have been developed and strengthened in the areas of biomedical engineering, structural biochemistry, biosensors, cell biology and signal transduction, neuroscience and behavior, and biophysical chemistry. Entering into the second year of Phase 2, CIBBR has created a new Data Science Core, invested in additional instrumentation for its Molecular and Cellular Phenotyping Core along with appointing three Assistant Core Directors, and promoted a "cluster hire" of additional early-stage and senior-level biomedical and bioengineering researchers. These initiatives will further accelerate rigorous, multidisciplinary research through financial and mentoring support of new Research Project Leaders and Pilot Project investigators, provision of state-of-the-art instrumentation in well-managed core facilities, and emphasis on rigor and reproducibility in the conduct and dissemination of research to advance the translation of biomedical discoveries to applied solutions that improve human health.

5. Core Services offered by the NH-INBRE/CIBBR Data Science Core and the Hubbard Center for Genome Studies at the University of New Hampshire

W. Kelley Thomas

University of New Hampshire at Durham

Enhancing capacity in data science is essential for analyzing and interpreting extensive biomedical data, modeling complex biological processes, and promoting multidisciplinary research integration. However, the rapid pace of data generation and the need for advanced computational training present significant challenges. To address these needs, two IDeA programs have collaborated to establish the NH-INBRE and CIBBR Data Science Core (DSC) at the University of New Hampshire. This core aims to support data science needs by: (1) providing sustainable, accessible research support and computational infrastructure for data analysis, storage, and dissemination, and (2) creating and offering data science training modules to enhance expertise across the state. The Hubbard Center for Genome Studies (HCGS) was established at UNH in 2001 to advance genomic science. The HCGS fosters innovative research and education in genomics, providing state-of-the-art resources and expertise in genome sequencing, bioinformatics, and computational biology. HCGS supports a diverse array of research projects, addressing biomedical, agricultural, and environmental genomic needs across the One Health spectrum. Offering advanced genomic technologies, including high-throughput sequencing platforms, the HCGS seamlessly integrates with the Data Science Core to offer cutting-edge bioinformatics tools and training. This enables researchers to conduct comprehensive genetic data analyses, enhancing their capacity to address complex scientific challenges.

6. Instruments and Services offered by CIBBR's Molecular and Cellular Phenotyping Core in collaboration with the University Instrumentation Center

Don Wojchowski

University of New Hampshire at Durham

The COBRE: Center of Integrated Biomedical and Bioengineering Research (CIBBR) at the University of New Hampshire (UNH) has dedicated resources since 2017 to enhancing the biomedical research infrastructure through creation of its Molecular and Cellular Phenotyping (MCP) Core in close collaboration with the University Instrumentation Center (UIC). The primary objectives of the MCP Core are to: (1) acquire instrumentation and enable contemporary approaches that translate rigorous multidisciplinary research into biomedical and bioengineering solutions, and (2) judiciously and sustainably manage state-of-the-art instrumentation available to UNH researchers, NH-INBRE and other IDeA-funded researchers, and industry partners in a shared-use environment. To further advance these goals, the MCP Core has recently supported the acquisition, training, and management of the following instruments: Orbitrap Ascend LC-MS system with ETD and UVPD capacities (funded primarily by an NSF MRI award, and co-managed by the UIC); GloMax Explorer Fully Loaded Multi-Mode Plate Reader (with fluorescence, luminescence, and absorbance), Leica CM1860 freestanding cryostat; and Pavone Nanoindenter. New services include project-specific lentivirus production and bioreactor for generating bacterial biomass. With the growth of the MCP Core, we have appointed Assistant Core Directors (with associated staff) to provide expert scientific consulting and training in three sub-cores: Cell Biology, Molecular Biology and Bioanalytics. MCP sub-core directors and MCP and UIC staff offer: (1) guidance on instrument-specific scientific applications with established protocols; (2) basic instrument training, routine instrument calibration and maintenance, (3) delivery of training workshops, and (4) coordination of experimental design, data management and sharing, and data analytics with CIBBR's Data Science Core staff through the entire data life cycle. The MCP Core additionally partners with the UIC whose staff provide expert training and technical support, as well as managing instrument scheduling & billing. We encourage NH-INBRE and COBRE investigators to take advantage of the instrumentation, scientific consulting, instrument training, and technical support that the MCP and the UIC offer.

Monday, August 5th Poster Presentations

Poster Session I (11:30 am – 12:45 pm)

- 7. BASELINE: High-Resolution Lineage Tracing through Cas12a Base Editing**
Asma Abderrahim^{1,3}, Evan Winter², Aaron McKenna²
¹University of New Hampshire, ²Dartmouth College, ³Dartmouth Cancer Center
- 8. Investigation of regulatory dynamics of formin INF2**
John Bonsu Arthur¹, Miriam Lee², Henry N. Higgs²
¹University of Ghana, ²Dartmouth College
- 9. Translational Analysis of Radiation Resistance and Fatty Acid Metabolism within Glioblastoma Cell Lines**
Kenneth Austin^{1,2}, Tingting Huang², Kelli B. Pointer²
¹Hampton University, ²Radiation Oncology and Applied Sciences, Dartmouth Cancer Center
- 10. Investigating the Role of miR-188-5p in Regulating FOXN2 Expression in Pancreatic Cancer**
Claire Bartley, Dr. Kristen Johnson
University of New Hampshire at Manchester
- 11. The Effects of Commonly Used Insecticides on the Growth and Development of the American Horseshoe Crab, *Limulus polyphemus***
Jasper M. Bates, Kaitlyn G. Sullivan, and Christopher C. Chabot
Plymouth State University
- 12. Assessing new 3D mold fit and anesthetic survivability following repeated live imaging of Zebrafish fry**
Brianne Boyd, Abigail Frankauski, Victoria DiBona, PhD
Saint Anselm College
- 13. The nervous system regulates stem cell division in planarians**
Sophia Brasley, Emily Cornell Du Houx, Kaleigh Powers, Shannon Berry, Ashley Seel, Haley Zanga, Margaret Rice, Allison Blouin, and Jason Pellettieri
Keene State College
- 14. Progression of Neonatal Ocular HSV Infection in Mice**
Braden C. Brassard^{1,2}, Fiona McEnany³, Roberto Alers-Velazquez³, David Leib³
¹NH INBRE iSURF; ²Saint Anselm College, ³Dept. of Microbiology and Immunology, Dartmouth Geisel School of Medicine
- 15. Production of m-cresol in *S. cerevisiae* by gene editing**
Matthew Chamberlain^{1,2}, Jake Pileggi³
¹NH INBRE iSURF, ²University of New Hampshire at Manchester, ³Fermentation Analytical and Biochemistry Support Group, Mascoma LLC
- 16. Bioprinting hNPCs in Sodium Alginate and GelMA**
Esther Choi, Nathan Clark, Byron Dupuis, Rowen Barker, Trinity Minard, Matthew Woodworth
University of New Hampshire at Manchester
- 17. Impacts of Chemotherapeutic Drugs on CRISPR Gene Editing of the PLK1 Gene**
Daniela M. Diaz, Christine A. Hodge, Matthew S. Hayden MD, PhD
Dartmouth Geisel School of Medicine at Dartmouth
- 18. Marsh Bacteria as a Source for Novel Antibiotics: A Bioprospecting Study**
Madelyn Donahue, Noreen Ward, Deb Audino
Great Bay Community College
- 19. Detecting Novel CTGF Exon Variants and Association to Cardiovascular Disease**
Emma Duggan, Austin Boynton, Emily Carson, Lillian Denoncour, and Heather Doherty
Plymouth State University
- 20. Investigating the Impact of Exercise and Lactate on Esports Performance**
Jessica Dutkus, Hannah Nelson
New England College
- 21. The effect of virtual reality gaming on cardiovascular fitness in college students**
Paige Dymkoski, Ray Wicklow, and Lindsay Vago
Franklin Pierce University

22. **Region and Sex-Specific Proteomic Profiling in Glioblastomas: Exploring Tumor Heterogeneity and Potential Biomarkers**
 Mohamad Faizal Bin Mohamad Farouk¹, Sachi Badola², Jaeden Barr³, Tyler Amell-Angst², Madhumala Kereygalahalli Sadanandappa Ph.D¹, George Zanzizzi M.D, Ph.D¹, Arti Gaur Ph.D⁵.
¹College of Natural Sciences, University of Texas at Austin, ²Dartmouth College, ³Department of Chemistry and Biochemistry, Hampton University, Hampton, Virginia, ⁴Department of Pathology and ⁵Department of Neurology, Dartmouth-Hitchcock Medical Center and Geisel School of Medicine at Dartmouth.
23. **An Update on Ethical Challenges in Implementing AI for Predicting Suicide Risk: A Literature Review**
 Gaby Garcia^{1,2}, Lindsay Schommer^{3,4}
¹NH INBRE iSURF, ²Department of Nursing, University of New Hampshire at Durham, ³Dartmouth-Hitchcock Medical Center Epilepsy Clinic, ⁴Geisel School of Medicine at Dartmouth
24. **Accuracy of Producing Deliberate Smiles in People with Parkinson's Disease.**
 Natalia Gonzalez¹, Isabella MacGregor¹, Aurora Mastro², Harlan Fichtenholtz², & Sarah Gunnery¹
¹New England College, ²Keene State College
25. **Examining the Correlation Between Cognitive and Physical Measures on Baseline Virtual Reality Performance in Older Adults**
 Jeremiah J. Greenberg, Michael S. Brian, Ferdinand Delgado
 University of New Hampshire at Durham
26. **Understanding the Effect of Crossover Location on Meiotic Chromosome Segregation in Budding Yeast.**
 Kayla Kadiri, Pallavi Gadgil, Gisela Cairo Baza, and Soni Lacefield
 Geisel School of Medicine at Dartmouth
27. **Echoes of Climate Anxiety: Sleep Disruption, Mental Health, and the Cultural Resilience Through Zines**
 Belly C Kurugira, Loretta L.C. Brady, Ph.D.
 Saint Anselm College
28. **Influence of extracellular RNA and RNA-binding proteins on proinflammatory profile of macrophages**
 Kayla Lyle¹, Evan Young¹, Yanisa Perez¹, Brett Turner¹, Pavel Ivanov², and Tatiana Jones¹
¹Rivier University, ²Harvard Medical School
29. **mTOR signaling regulates porphyrin biosynthesis in a planarian model of acute porphyrias**
 Leslie Manga-Abomo, Leanna Landfair, Kaleigh Powers, Lucy McGrade, Mahad Ahmad, Isabel Garcia, Elijah Trepanier, and Jason Pellettieri
 Keene State College
30. **Characterization of ReNcell VM Spheroids Bioprinted in Different Hydrogel Formulations**
 Trinity Minard, Matthew Woodworth, Esther Choi, Nathan Clark, Byron Dupuis, Rowen Barker
 University of New Hampshire at Manchester
31. **POCUS Integration into Education Capston**
 Betsy Piburn, DMS, PA-C, CAQ-EM, Clare Idelkope, PA-S, Mackenzie Young, PA-S
 Franklin Pierce University
32. **Hydrogel strategies for studying neural biomechanics**
 Nikhita Podapati, Maria Soja Venceslau, Kate Mazur, Mark T. Scimone, PhD
 University of New Hampshire at Manchester
33. **Isolation, Purification, and Characterization of F. nucleatum Bacteriophages**
 Andrew Stanley, Dr. Kyle MacLea
 University of New Hampshire at Manchester
34. **F59.B1.8 Knockdown in Caenorhabditis elegans Impairs Survival**
 Claire Stewart, Alexis Frank, and Dr. Shallee T. Page
 Franklin Pierce University
35. **SNPs in the V. cholerae regulatory genes hapR, hns, and vieA upregulated virulence gene expression in the hapR-positive background strain C6706**
 Daniel Taishoff, Elizabeth Hanson, and M.S. Son
 Plymouth State University
36. **Unveiling the role of tRNA dysregulation in cancer: inhibiting tRNA-Arg-TCT-4-1 suppresses cell growth in liposarcoma cells**
 Anais Torres Arroyo^{1,3} and Esteban Orellana²
¹Universidad San Francisco de Quito, ²Department of Molecular and Systems Biology, Geisel School of Medicine at Dartmouth College; ³Dartmouth Cancer Center

- 37. IL-12 In Combination With CCL3 and FLT3 Ligand Generates an Improved Abscopal Effect in Intratumoral Immunotherapy**
Grace Ugochukwu¹, Taylor Jones², Kevine Kamga³, Alicia Santos³, Greg Ho³, Jennifer Fields³, Steve Fiering³
¹College of Natural Sciences, The University of Texas at Austin, ²College of Science, Engineering, and Technology, Norfolk State University, ³Department of Microbiology and Immunology, Dartmouth Geisel School of Medicine at Dartmouth
- 38. Localization of retro-Tango ligands on zebrafish retinal and spinal cord neurons**
Becket C. White^{1,2}, Adrianna J. Milton³, Marnie E. Halpern³
¹Plymouth State University, ²NH-INBRE iSURF, ³Department of Molecular and Systems Biology, Geisel School of Medicine at Dartmouth
- 39. Assessing the Effect of RTA408 on Systemic Sclerosis**
Alexandria M. Williams^{1,2}, Em Morris³, Chen-Yu Wang³, Heetaek Yang³, and Patricia Pioli³
¹NH INBRE iSURF, ²Rivier University, ³Department of Microbiology and Immunology, Geisel School of Medicine at Dartmouth
- 40. The Drive to Annihilate Superbugs with the Discovery of a New Antibiotic**
Sarah Woods, Bonnie Akerman Ph.D
 White Mountains Community College

Monday, August 5th Poster Presentations

Poster Session II (2:30 pm – 3:45 pm)

- 7. A novel function of Rgf3p (Rho1p GEF) in nuclear membrane expansion in mitosis**
Rubén Celador¹, Patricia García¹, James Moseley² and Yolanda Sánchez^{2}*
¹Instituto de Biología Funcional y Genómica, CSIC/Universidad de Salamanca y Departamento de Microbiología y Genética, Salamanca, Spain, ²Department of Biochemistry and Cell Biology, The Geisel School of Medicine at Dartmouth
- 8. Characterization of new genetically modified yeast strains in the biofuels industry**
Karson Barclay^{1,2}, Morgan Tupper³
¹NH INBRE iSURF, ²University of Rhode Island, ³Mascoma LLC
- 9. Update on SpeechMatch Research: Building a Normative Database**
Mia Bellavance, B.A., Samantha Heinrich, B.A., Karen Jennings, Ph.D., and Lawrence Welkowitz, Ph.D.
 Keene State College
- 10. Oyster River Biotechnology Network: Biotechnology Opportunities at Oyster River Cooperative School District (SAU5)**
Sue Bissell and Megan Thompson
 Oyster River Cooperative School District
- 11. Immune checkpoint VISTA regulates DNA sensing that contribute to type I interferon (IFN-I) production.**
J'Voughnn Blake¹, Zachary T. Peters¹, Lindsay K. Mendyka², Angelique Cortez¹, Alecia Roy², Sicong (George) Shan², Zoe Chafouleas¹, Sladjana Skopelja-Gardner²
¹Dartmouth College, ²Geisel School of Medicine at Dartmouth
- 12. An Unintended Alliance: The Impact of An Aging infrastructure & Deferred Facility Maintenance on Student Health and Mental Well-being**
Verna DeLauer, Morgan Saletnik, Ariana Brew, Gavin Giovagnoli, Jill Hertl, Baneen Al Ghadhbawi, Ruby Conroy, Claire Casey, Andrea McGill-O'Rourke
 Franklin Pierce University
- 13. Molecular Dynamics Simulations Through Hydrogels**
Ivy Brooks¹, Dr. Mathew Young¹, and Dr. Arpita Srivastava
¹Department of Chemistry at New England College
- 14. Multi-Classification Analysis of Volumetric, Protocol, and Application Layer DDoS Attacks on Networked Medical Devices**
Eric Brown, Wei Lu
 Department of Computer Science, Keene State College
- 15. Preliminary Research for Murine Macrophage Response to Microplastics Present in Bottled Water**
Cassandra Carvalho, Elizabeth Bangs, Dr. Debra Costa-Nino
 Nashua Community College
- 16. Influence of client physical behavior and therapist empathy on therapist fatigue and affect: Contributions from Polyvagal Theory**
Katana Corning, Mary-Hannah Gawlick, Kyle Pierce, Anyelina Martinez
 Saint Anselm College

17. **MPNST-Associated Pain in Mice: A Model for Translational Research and Therapeutic Development**
Seynabou Diagne¹, Khalil Kasim², Yuan Pan²
¹POWERED Dartmouth Cancer Center, ²MD Anderson Cancer Center
18. **Exploring hTG2 Production and Gelatin-Methacrylate Crosslinking**
Ethan Edwards, Matthew Woodworth, Dr. Won Hyuk Suh
University of New Hampshire at Manchester
19. **Worldviews, social media habits, and general health outcomes.**
Kaitlyn G. Ferdinand and Maggie E. Gasuk
Keene State College
20. **Do Adverse Childhood Experiences impact Stress Reactivity?**
Samantha Goldblatt and Harlan Fichtenholtz
Keene State College
21. **An Exploratory Analysis of Physical Activity Fragmentation, Step Counts, and Blood Glucose Variability**
Sarah E. Guerrette, Kelly J. Brown, Michael S. Brian
University of New Hampshire at Durham
22. **Conservation of Select Circadian Clock Mechanisms in the Circatidal Clock of the American Horseshoe Crab, *Limulus polyphemus***
Fletcher K. Hall, Sara L. Mercier, Christopher C. Chabot
Plymouth State University
23. **Examining Relations Between Host Bacteria *Arthrobacter globiformis* NRRL B-2979 and Phage BenchWarmer**
Caroline Heafield, Dr. Kyle MacLea
University of New Hampshire at Manchester
24. **Investigating the role of TCF20 as a potential SWI/SNF cofactor**
John Horangic^{1,2}; Luke Deary³; Xiaofeng Wang³
¹NH INBRE iSURF, ²University of New Hampshire at Manchester, ³Department of Molecular and Systems Biology, Dartmouth College
25. **Regenerating Connections: Utilizing regenerative medicine as a cross cutting theme in a biology course**
Elizabeth (Liz) Hoyt
Portsmouth High School
26. **Investigating the functional activity of memory biased CD8+ T cells**
Ahilya Kadba^{1,3}, Leena Abdullah², Yina Huang^{1,2}
¹NH-INBRE iSURF, ²Dartmouth College, ³University of New Hampshire
27. **The Search for Biofilm Genes: a Transposon Mutagenesis Saga**
Austin Laquerre, Angelica Valente, Lori Koziol PhD
New England College
28. **Peptide Lv is a novel mediator of macrophage anti-inflammatory phenotype**
David Laseinde^{1,2}, Rodwell Mabaera MD PhD³
¹University of Southern Mississippi, ²Dartmouth Cancer Center, ³Department of Microbiology and Immunology, Dartmouth Geisel School of Medicine
29. **Urinary Incontinence: Patterns of Management Strategies and Urinary Infrequency**
Alexis Lever^{1,2}, Bridget Linehan PhD, APRN³
¹NH INBRE iSURF, ²Rivier University, ³Dartmouth-Hitchcock Medical Center
30. **The Role of Corticostriatal Pathway in Learning with Nicotine Stimulus**
Alicia Martinez, Tyler Allen², Jason Hensley², Ghazal Koohkansaadi², Alyona Latsilnik², V, Souza², William Wade², Emlee C. Kohler², Sergios Charntikov²
¹Rivier University, ²University of New Hampshire-Durham
31. **The Impact of Duchenne Smiles on Perceptions of Individuals with Parkinson's Disease**
Aurora Mastro¹, Keira Grupe², April Capwell², Keegan Finley¹, Ella MacGregor¹, Sarah Gunnery PhD¹, Harlan Fichtenholtz PhD²
¹Keene State College, ²New England College
32. **Manipulating Host Pathways Crucial for Orthobunyavirus Neuropathogenicity.**
Henry Tettey Matey¹; Lisa M Francomacaro², Surachai Supattapone MD, PhD, DPhil²
¹University of Ghana, ²Dartmouth College
33. **Mushroom Cultivation: Establishing lab protocols for research**
Matt Mignone, Dr. Bonnie Akerman
White Mountains Community College

34. **Effect of Reinforcer Value and Evaluation of Sex Differences on Schedule-Induced Polydipsia in Rats**
Hannah O'Brien, Emily Tyler, Joseph R. Troisi II, PhD
Saint Anselm College
35. **Neural activity in the zebrafish larval brain in response to stress.**
Maria Gabriela Salazar, Krishan Ariyasiri and Marnie E. Halpern
Department of Molecular and Systems Biology, Geisel School of Medicine at Dartmouth
36. **Cannabis Habits and Perceptions Among GI Oncology Patients at Dartmouth Cancer Center**
Rachel Symmes^{1,2}, Elizabeth B. McGrath, DNP, APRN^{3,4}
¹NH INBRE iSURF, ²Department of Nursing Rivier University, ³Gastrointestinal Oncology Program, Dartmouth Cancer Center, ⁴Dartmouth-Hitchcock Medical Center
37. **Investigation and Design of Silica Surfactant Nanoparticles for Drug Delivery**
Clifford J. Teixeira and Dr. Matthew T. Hurley
Saint Anselm College
38. **Key Cytokines of Cancer Stem Cells in Glioblastoma**
Jameson Twombly, John Galeotalanza, Hye Young Shin
Rivier University
39. **Biomolecular Condensation of Human Androgen Receptor N-Terminal Domain and Implications for Castration-Resistant Prostate Cancer**
Forrest Veilleux¹, Natalie Loui², Prof. Paul Robustelli², Prof. Shallee Page¹
¹Franklin Pierce University, ²Dartmouth College
40. **Transformation of Normal Astrocytes into stem cells-like characters using epidermal growth factor (EGF)**
Kelsey Whiting, Hye Young Shin, Ph.D.
Rivier University

Tuesday, August 6th Poster Presentations

Poster Session III (9:00 am – 10:15 am)

7. **Molecular Dynamics Simulations of Hydrogels**
Benjamin Albrecht, Dr. Matthew Young, and Dr. Arpita Srivastava
New England College
8. **Targeting Transcriptional Regulators of Pancreatic Cancer Tumorigenesis**
Amber Austin¹, Somer Matar², Steven Leach, MD²
¹Hampton University, ²Geisel School of Medicine at Dartmouth
9. **Transcriptomic Profiling of Glioblastomas to Identify Biomarkers in Tumor Microenvironment**
Jaeden Barr¹, Sachi Badola², Mohamad Faizal Bin Mohamad Farouk³, Tyler Amell-Angst², Madhumala Kereygalahalli Sadanandappa Ph.D¹, George Zanazzi M.D, Ph.D¹, Arti Gaur Ph.D¹
¹Department of Chemistry and Biochemistry, Hampton University, ²Department of Psychological and Brain Sciences, Dartmouth College, ³Department of Molecular Biosciences, University of Texas at Austin, ⁴Department of Pathology, Dartmouth Geisel School of Medicine, ⁵Department of Neurology, Dartmouth Geisel School of Medicine
10. **Cognitive and Muscular Expenditures of a Shoulder Exoskeleton: An Exploratory Study**
Patrick Boland, Reed Miller, Scott Philibert Jr., Lito Amit
Keene State College
11. **Proposed methods to examine the impact of meditation and music on the gut microbiome and mental health in nursing students**
Emelie Brady, Kaeleigh Reardon, Morgan Rodrigues, Emma Urban, Jeanelle Boyer, Kirk Sanger
Keene State College
12. **An Exploratory Analysis: Is physical activity fragmentation associated with changes in substrate utilization when young adults undergo activity and diet alterations?**
Kelly J. Brown, Sarah E. Guerrette, Michael S. Brian
University of New Hampshire at Durham
13. **The Nudibranch *Berghia stephanieae* Does Not Exhibit Whole-Body Regeneration**
Abigayle Chapin and James M. Newcomb
New England College
14. **Studying the photo-decomposition of anthropogenic compounds in waste streams**
Aurora Couto, Sadira Durette, Samuel Khumbula, Ryan Tompkins, Jesse Marcum
Keene State College

15. **Crystal structure of glutamyl-tRNA synthetase from *Helicobacter pylori***
Dylan E. Davis^{1,2}, Jesuferanmi Ayanladea², David T. Laseindea³, Sandhya Subramanianda², David M. Dranow^{4,6}, Thomas E. Edwards^{4,6}, Peter J. Myler^{4,5}, and Oluwatoyin A. Asojoa²
¹Dartmouth Cancer Center, ²College of Arts and Science, Dartmouth College, ³College of Arts and Sciences, University of Southern Mississippi, ⁴Center for Global Infectious Disease Research, Seattle Children's Research Institute, ⁵Seattle Structural Genomics Center for Infectious Diseases, ⁶UCB BioSciences
16. **Comparative Cytotoxicity of Equine Non-Steroidal Anti-Inflammatory Drugs**
Amanda Diggins, Beth Wilkes, Tracey Lesser, & Karel Pluhar
 NHTI - Concord's Community College
17. **Cytotoxicity of 0.25% LAP on LN-229 cells, and the serial dilution of ATRA & CHIR on RVM cells**
Byron Dupuis, Rowen Barker, Esther Choi, Nathan Clark, Trinity Minard
 University of New Hampshire at Manchester
18. **Cardiovascular Impact of Using Virtual Reality**
Paige Dymkoski
 Franklin Pierce University
19. **Transgenerational impact of multiple environmental stressors on keystone aquatic grazer *Daphnia***
Samuel Elkins, Reilley Smith, Rachael Stokes, Autumn Berlied and Priyanka Roy Chowdhury
 Keene State College
20. **Role of Media and Spore Isolation Method in *Clostridioides difficile* Germination**
Ayah Elrayah and Amy Rohlfing Ph.D.
 Saint Anselm College
21. **In Vitro Neovascularization of a Cryogel Bone Scaffold for Bone Defect Repair**
Gabrielle Gardiner^{1,2}, Levi M. Olevsky³, Katherine R. Hixon^{3,4}
¹NH INBRE iSURF, ²Plymouth State University, ³Thayer School of Engineering, ⁴Geisel School of Medicine at Dartmouth
22. **Acute Effects of Moderate Exercise Intensity on Inhibitory Control**
Kell Grandjean da Costa, Jesse Gushee, Elizabeth Ochs, Christopher Weeden
 Colby-Sawyer College
23. **Screening Library of Small Molecules Elucidates Potential Inhibitors of the NEMO and IKK β Interaction**
Maria B. Hidalgo; Caroline C. Reilly, Kelly A. Tiernan; Maria Pellegrini, PhD; Dale F. Mierke, PhD
 Department of Chemistry, Dartmouth College, Hanover, NH
24. **Ligand Independent Glucocorticoid Receptor Signaling Alters Proliferation in Triple Negative Breast Cancer Cells**
Jaden C. Joaquin, Erin Cammarota, and Sarah E. Tarullo
 Plymouth State University
25. **A Tale of Two Cortices: Interaction of Visual Pathways in Motion-Induced Blindness**
Hazel Kane, Gabriella Amirtham, and Julianne Smith
 University of New Hampshire at Manchester
26. **The Relationship Between Computer and Human Measured Facial Expressivity, Stigma, Health, and Health-Related Quality of Life in People with Parkinson's Disease**
Ella MacGregor & Sarah Gunnery
 New England College
27. **Modeling OUD in mice: developing a chronic subcutaneous morphine paradigm to examine protection by the gut microbiome.**
Soren Maret¹, Nadia Pavlik¹, Izabella Sall¹, Randi Foxall¹, Jennifer Whistler² & Cheryl Whistler¹
¹University of New Hampshire; ²University of California Davis
28. **Microplastics and Antibiotic Resistant Bacteria in Water Treatment Plant Vs. Lake Massabesic**
Rylie McCoy
 University of New Hampshire at Manchester
29. **Temperature Cycles and Egg Density Affect Early Development and Behavior of the American Horseshoe Crab, *Limulus polyphemus***
Sara L. Mercier, Fletcher K. Hall, Christopher C. Chabot
 Plymouth State University
30. **The Impact of Wildfire-Driven PM 2.5 on Statewide Respiratory and Cardiovascular Diagnoses and Procedures Across California Healthcare Facilities From 2012-2020**
Sophie Nadeau and David Lutz
 Colby-Sawyer College

- 31. *Arthrobacter globiformis* Temperate Phages: Chickaboom Infects MaGuCo Lysogens**
Rachel Pitt
NHTI -Concord's Community College
- 32. CB1 Receptor Expression in the Embryonic Cortex**
Erin M. Plummer^{1,2}, Paola C. Montenegro Larrea³, Pamela W.L. Yeh³, Hermes H. Yeh³
¹NH INBRE iSURF, ²Keene State College, ³Geisel School of Medicine at Dartmouth
- 33. The nervous system is important for cell division during regeneration of rhinophores in the nudibranch *Berghia stephanieae***
William H. Scala, Haleigh L. Bilodeau, Abigayle M. Chapin, James M. Newcomb
New England College
- 34. Investigating Effect of FOXN2 Expression on Morphology and Collagen Dynamics in PANC-1 and PANC-1/NIH3T3.2 Spheroids**
Ashna Siddiqui and Kristen Johnson
University of New Hampshire at Manchester
- 35. Using 16S rRNA Sequencing to Characterize Tick-Borne Pathogens in the Northeast**
Laura Slama, Melanie Ortega, David Needle, Kelley Thomas, Muriel Kelly, Kellen Sawyer, Seth Goodnight
University of New Hampshire at Durham
- 36. Elucidating the function of NBR1 in autophagy**
Jayde E. Sokaloo, Brian J. North, Chris J. Shoemaker
Geisel School of Medicine at Dartmouth
- 37. Worldviews and Traumatic Childhood Experiences**
Brynn A. Tela, Mason A. Mysliwy
Keene State College
- 38. Acute Effects of Moderate-Intensity Exercise on Cognitive Flexibility**
Christopher Weeden, Elizabeth Ochs, Jesse Gushee, Kell Grandjean da Costa
Colby Sawyer College
- 39. Annotation of Cluster DE Actinobacteriophage Chickadee**
Shallee T. Page, Eric R. Winitzer
Franklin Pierce University

MEETING ATTENDEES

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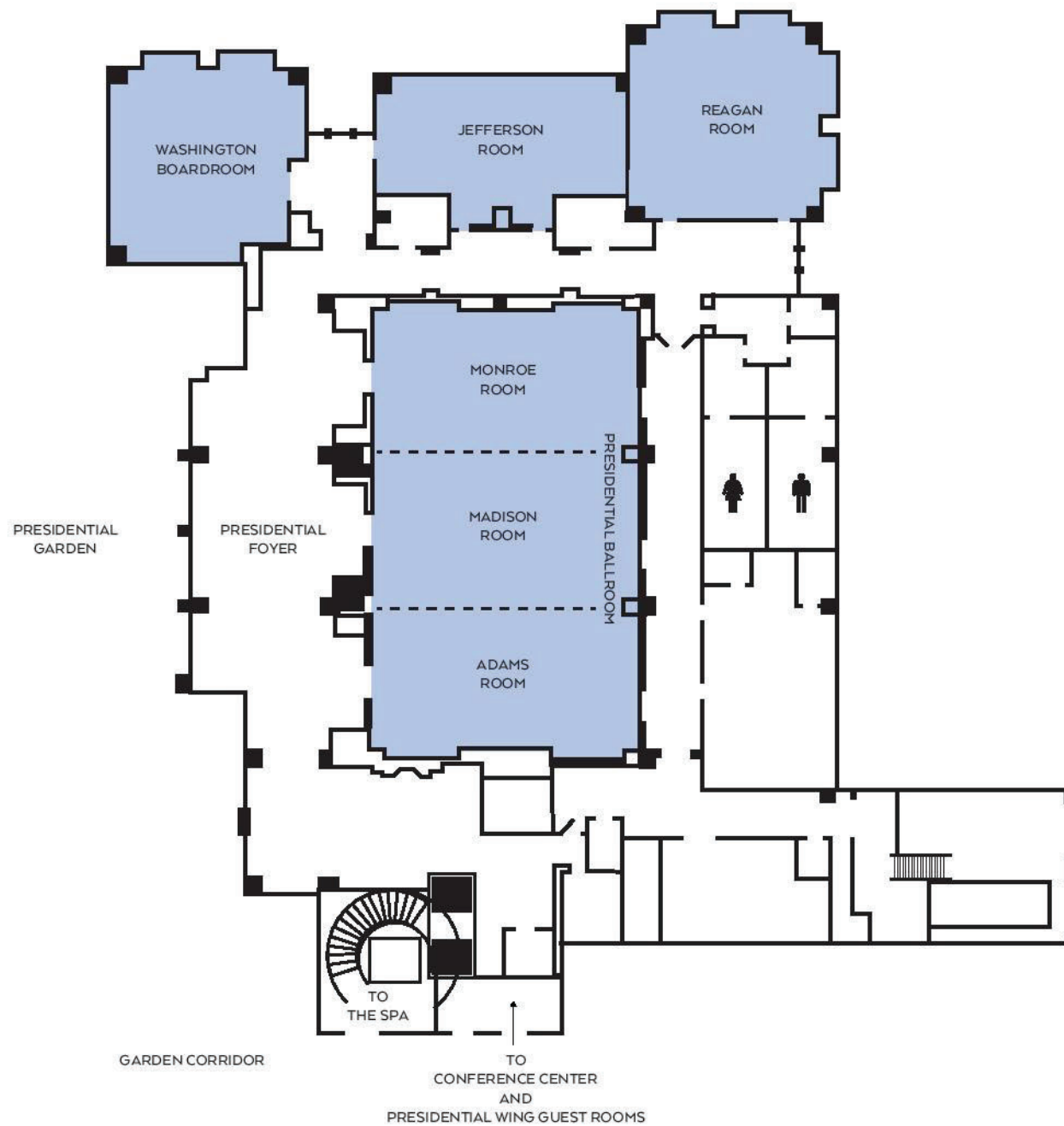
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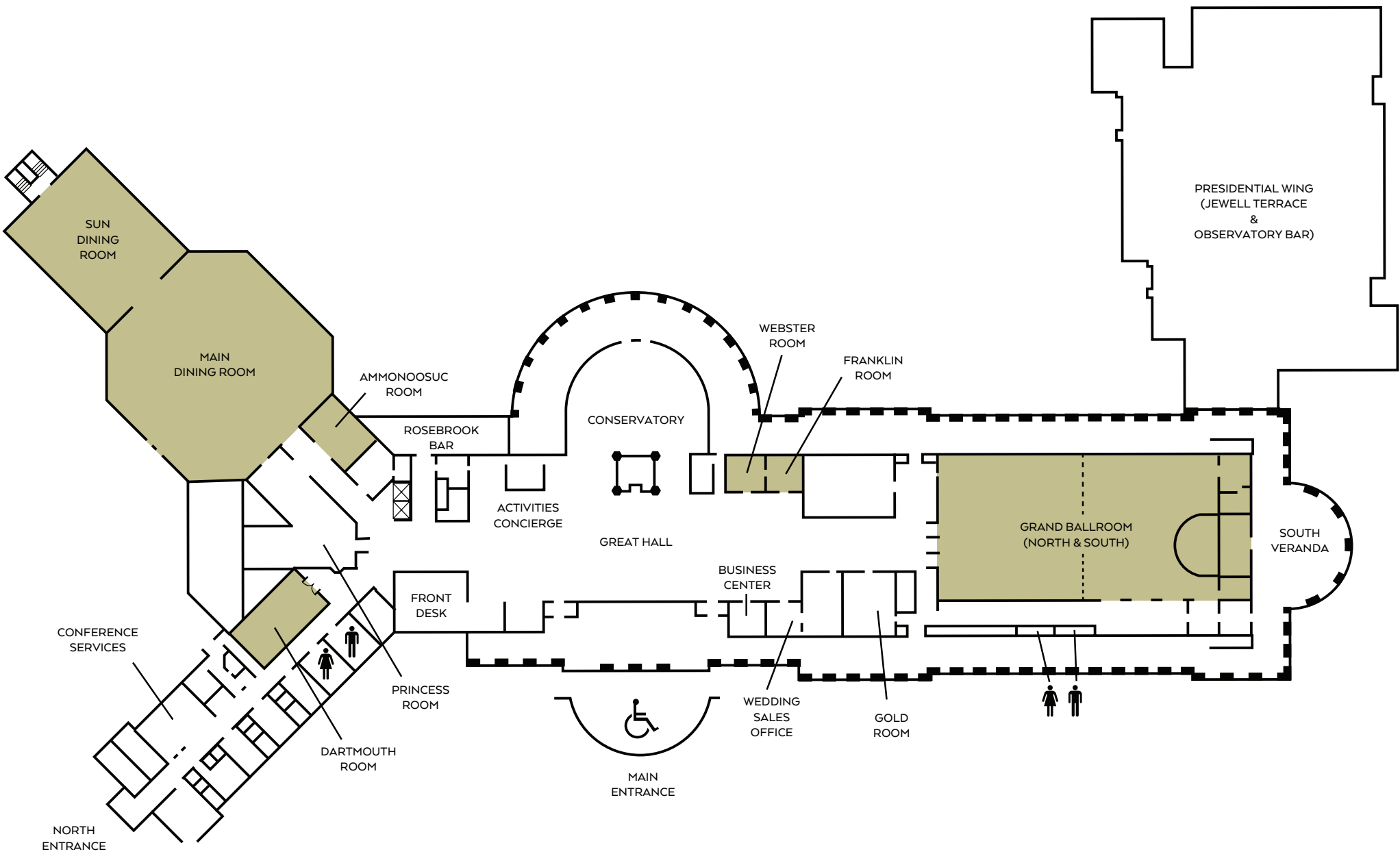
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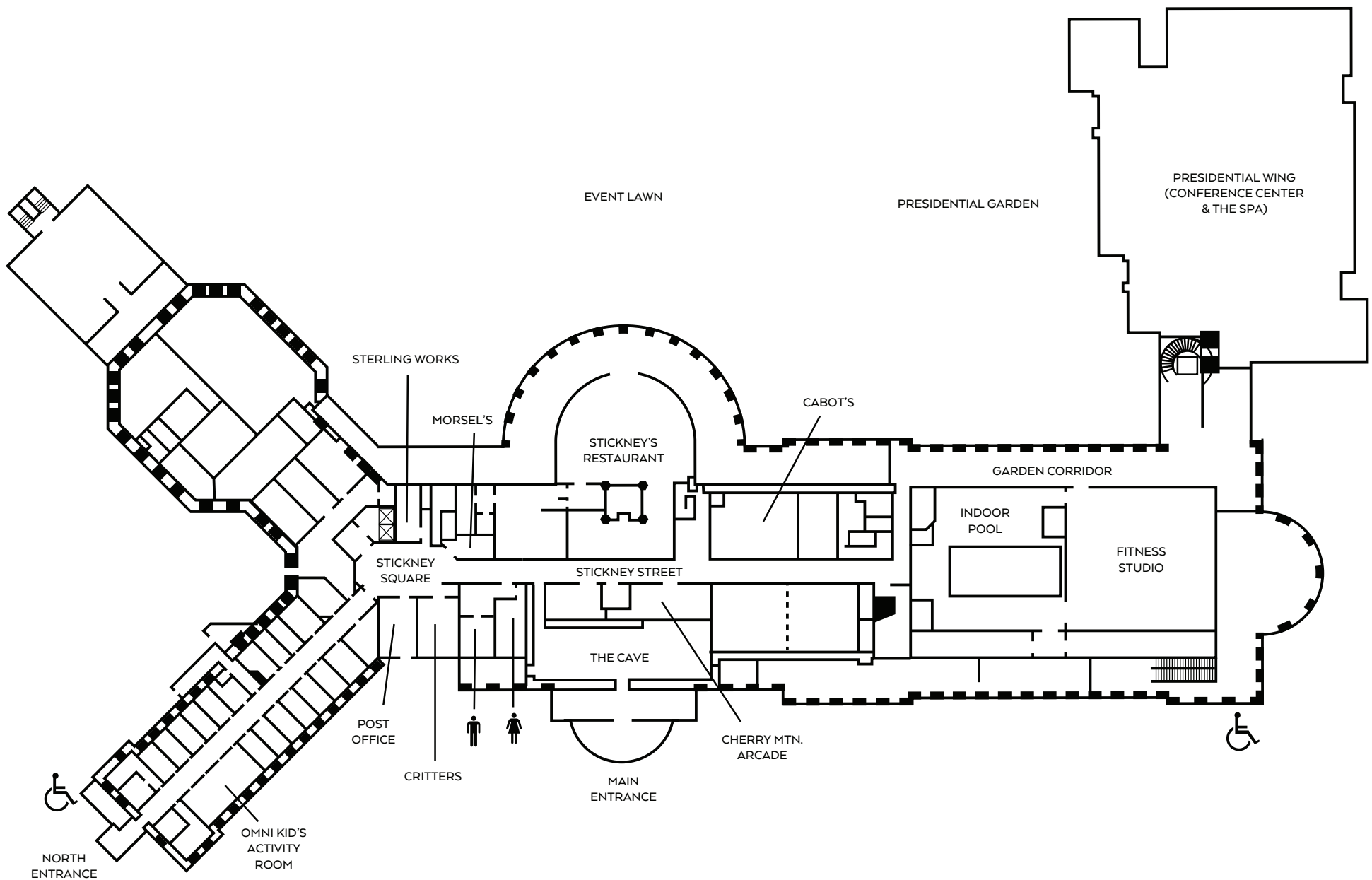
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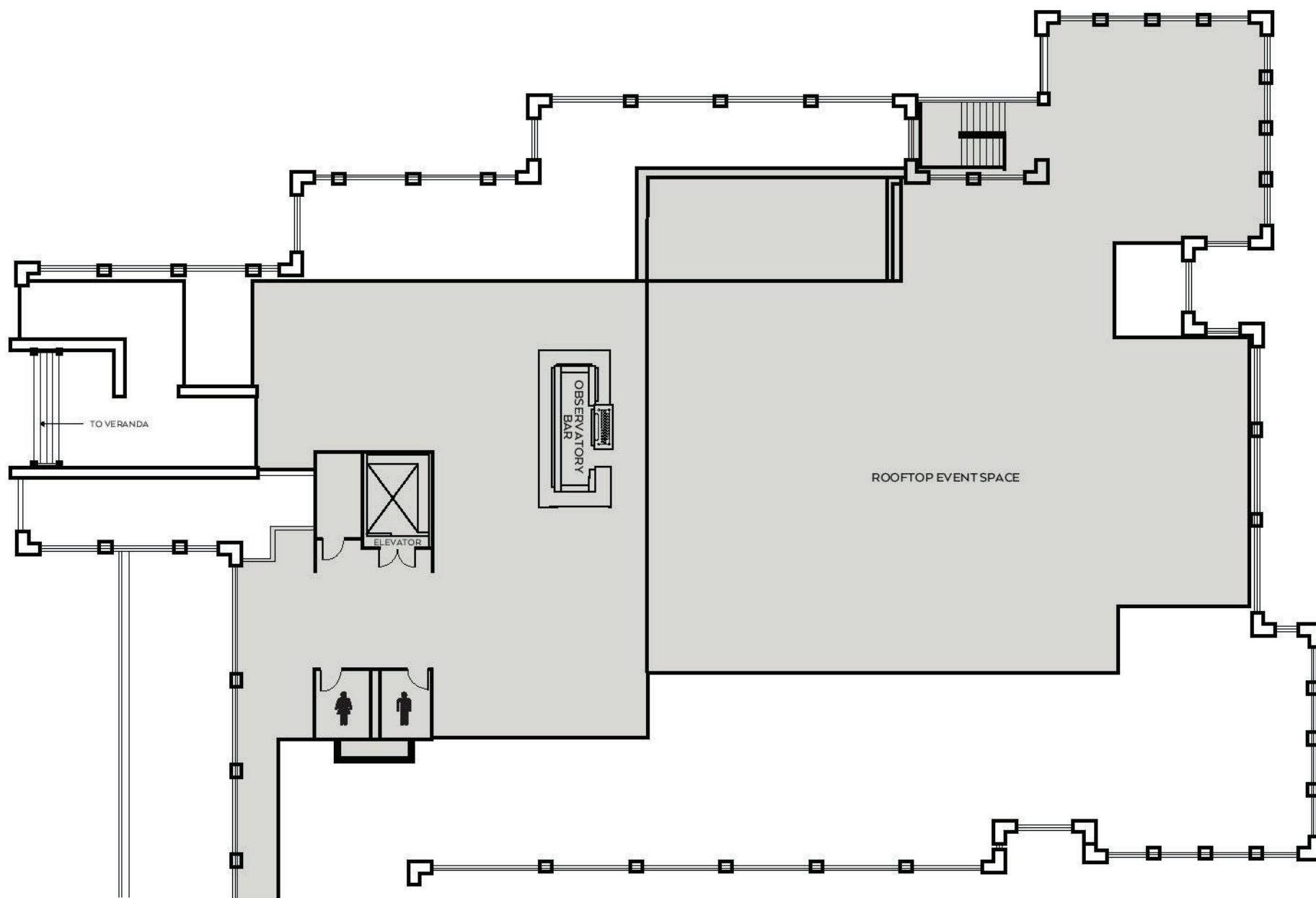
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Thank you for sharing your feedback,

~ The Evaluation Team

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