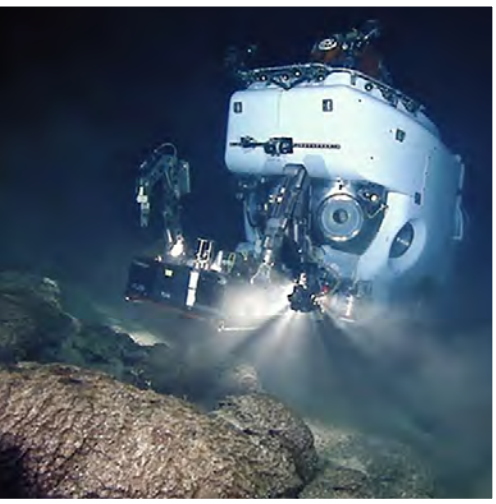
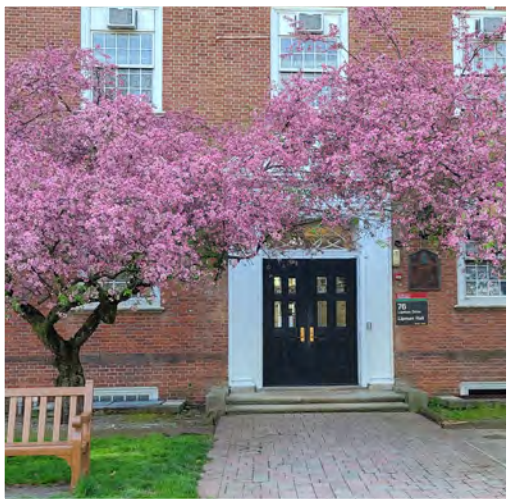
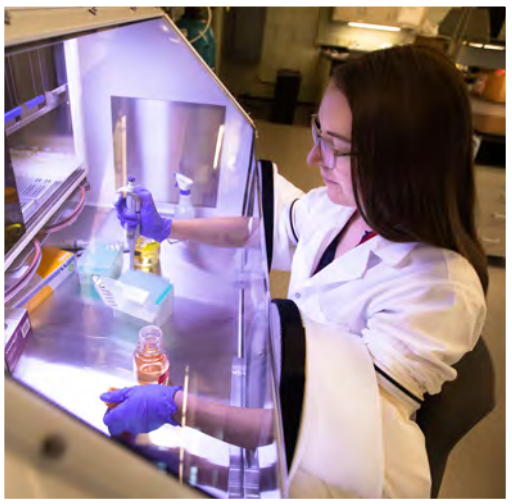
DEPARTMENT OF BIOCHEMISTRY
& MICROBIOLOGY

RUTGERS UNIVERSITY







LIPMAN LOG
2023-2024

GREETINGS FROM THE CHAIR

Max M. Häggblom, Ph.D.

Distinguished Professor and Chair
Department of Biochemistry
and Microbiology

Contents

Greetings from Lipman Hall,

This current issue of the Lipman Log highlights our activities from the 2023-2024 academic year. We have celebrated exciting new research projects and awards, several newly minted Ph.D.'s, and major advances and publications in the different areas of our scholarship and teaching.

Our undergraduate and graduate students are engaged in a variety of inspiring research projects with our faculty members. You can read more on the latest Ph.D. theses, the awards our students and faculty have received and about other activities in the department. Congratulations to all!

We will miss Yun Lucy Hsu, who retired at the end of the academic year after more than 25 years at Rutgers. Her dedication to serving the department and the biochemistry teaching laboratory for many years is very much appreciated.

We mourn the passing of our faculty colleague George Pieczenik, who died in January 2024. George played a distinct role in early development of molecular biology. He joined the faculty of Rutgers in 1976 and later moved to the Department of Biochemistry and Microbiology in 1992.

As always, I thank all our donors that make many of our activities possible. We have a special interview with Dennis Fenton (Ph.D. 1977 in Microbiology), an inspirational supporter and champion of microbiology at Rutgers. The contributions from all our donors fund important student scholarships, awards and travel fellowships, and support our seminars and departmental activities. The Eveleigh Graduate Student Travel Awards, for example, provide much-needed support for our students to travel to national and international conferences to present their work, network, and learn. We continue fundraising for the Peter Kahn Endowed Biochemistry Scholarship to support biochemistry undergraduate students. We hope that you will continue to show your support for the department and our scholarly programs.

From all of us in the Department of Biochemistry and Microbiology our warm greetings!

REMEMBERING GEORGE PIECZENIK:

A Pioneer in Molecular Biology and Inspiring Educator

George Pieczenik, Associate Professor of Biochemistry, passed away on March 13, 2024. George played a distinct role during the dawn of the molecular biology era and served on the Rutgers faculty for almost 50 years. He earned his Bachelors of Arts from Harvard University in 1965 and a Ph.D. from New York University in 1972 on the topic of analyzing DNA and protein sequences. He was imaginative and intellectually involved in some of the critical and innovative work that laid the foundation for modern molecular biology. After post-doctoral training at Rockefeller University, where he worked on the ribosome binding sites of the bacteriophage f1, he joined the faculty of Rutgers University in 1976. In the reorganization of Biochemistry, he was transferred in 1992 to [what is now] the SEBS Department of Biochemistry and Microbiology. George taught Introduction to Biochemistry for many years. He was passionate about teaching undergraduates and most recently developed and taught the popular courses Biochemistry and Society and Ethics in Biochemistry Research. His classes were interesting and provocative. George was always highly supportive and encouraging of his students. He also taught a Byrne Seminar: How to Win a Nobel Prize and the Ethics of Winning a Nobel. George took pride in having worked with several different Nobel prize winners and in his paper "A Speculation on the Origin of Protein Synthesis" written with Nobel Laureates Francis Crick, Sydney Brenner and Aaron Klug. George Pieczenik's legacy will continue to inspire future generations of scientists and students.

RUTGERS DAY HIGHLIGHTS

A big thank you to all the coordinators and volunteers who made this year's Rutgers Day display a fantastic experience! It was wonderful to be outside, engaging with excited children as they explored biochemistry and microbiology, and reconnecting with alumni who stopped by to say hello.

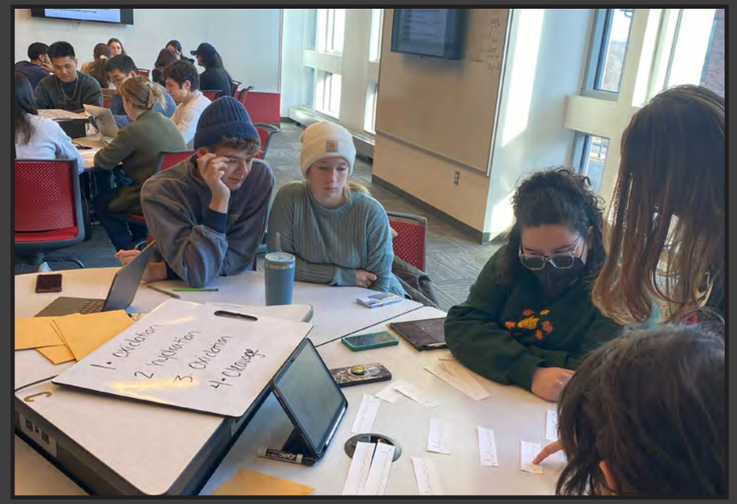
BIOCHEMISTRY CURRICULUM EARNS ASBMB ACCREDITATION

Major 115

The School of Environmental and Biological Sciences Biochemistry Curriculum (Major 115) has been accredited by the American Society for Biochemistry and Molecular Biology (ASBMB). ASBMB accreditation is a national, independent, outcomes-based evaluation mechanism that recognizes excellence in B.S. or B.A. degree programs in biochemistry and molecular biology and related disciplines. The ASBMB accreditation affirms the excellence of our Biochemistry Curriculum, highlighting our commitment to a comprehensive education in biochemistry, which includes upper-level electives focused on current research problems, and diverse opportunities for undergraduate research experiences. The accreditation process itself allowed us to assess our program according to a set of standards developed by experts in the field of biochemistry education highlighting our commitment to excellence in education in biochemistry. Our Juniors and Seniors will now have the opportunity to take the ASBMB Exam to demonstrate mastery in core biochemistry concepts. This year, six of our students took the ASBMB exam, and we are eagerly awaiting the results! Next year, with more time to plan and get the word out, we hope to at least double this number. ASBMB Accreditation will provide our students with a competitive advantage when applying for professional positions or advanced degree programs.

The Biochemistry Major in the Department of Biochemistry and Microbiology provides students with an integrated education in biochemistry that connects a fundamental understanding of biochemical concepts with their applications to biological systems. Students can apply their basic understanding of biochemistry to several specific areas of interest, with focused tracks in Toxicology, Microbial Systems, Plant Systems, and Protein & Structural Biochemistry, or they may take the General option for a broader overview. This redesigned and enhanced curriculum follows the recommendations of the American Society for Biochemistry and Molecular Biology (ASBMB) and has components of both a traditional course-centered approach to teaching and the more current content- and outcome-centered approach. The goal of the major is to prepare students for futures in science, including advanced degree programs in healthcare, pharmacy, or research and as well as the pharmaceutical, biotechnological and chemical industries, government service, communications, law and many other fields.

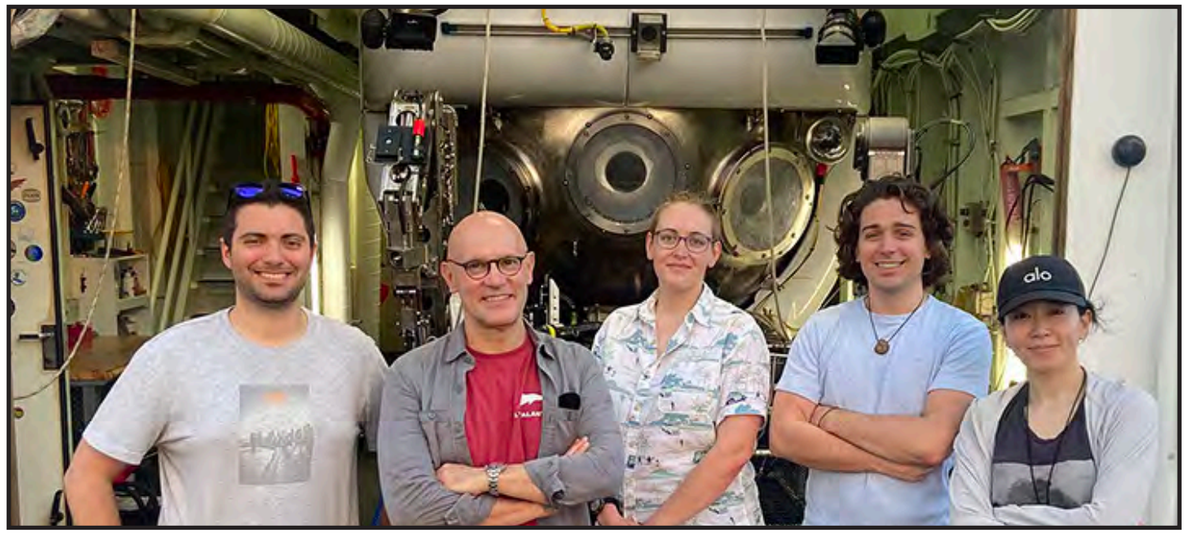
Professors Lori White (right) and Sharron Crane (left) led the ASBMB accreditation effort.



Students in the active learning class, learning the fundamentals of biochemistry

Recovery of the deep-submergence vehicle Alvin after a deep dive on the East Pacific Rise. Photo credits: Costa Vetriani, Rutgers University.

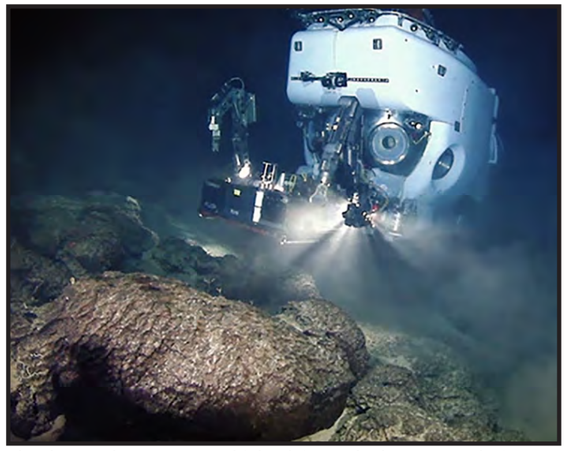
EXPLORING LIFE ALONG THE MID-OCEANIC RIDGE SYSTEM OF THE DEEP PACIFIC OCEAN



The Rutgers science team aboard the R/V Atlantis. From left: Postdoc Matteo Selci, Costa Vetriani, and Microbial Biology graduate students Olivia Cannon, Lucas Foster and Aila Inaba. The DSV Alvin is in the background. Photo credits: Lauren Mullineaux, WHOI.

A deep-sea journey to discover the most extreme microbes on Earth

Professor Costantino Vetriani and his team dove to the bottom of the ocean to explore microbial life at hydrothermal vents. Deep-sea hydrothermal vents are located along the mid-oceanic ridge system, a volcanically active region of the seafloor where the flux of energy from the geothermal source fuels microbial primary production. During the cycling of seawater through the earth's crust along the mid-oceanic ridge system, the reaction of seawater with magmatic rocks at high temperatures generates a chemical brew - hydrothermal fluids - that are then emitted from submarine vents at temperatures that often exceed 300 °C. Since sunlight does not reach the deep ocean, the microorganisms that inhabit deep-sea vents do not rely on photosynthesis for the production of organic carbon. Instead, these microorganisms oxidize reduced chemical species dissolved in hydrothermal fluids, mediating the transfer of energy from the geothermal source to biochemical energy (ATP), and fixing carbon dioxide (a process known as chemosynthesis).

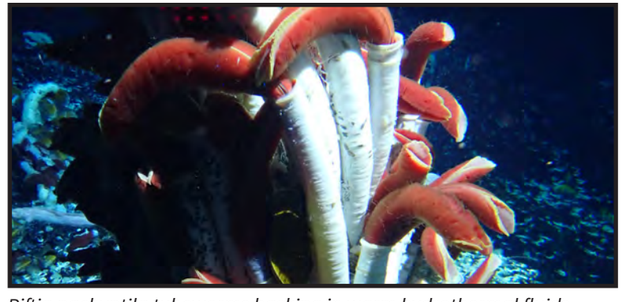


The deep-submergence vehicle Alvin on the bottom exploring a section of the mid-oceanic ridge system. Photo credits: Dan Fornari, WHOI.

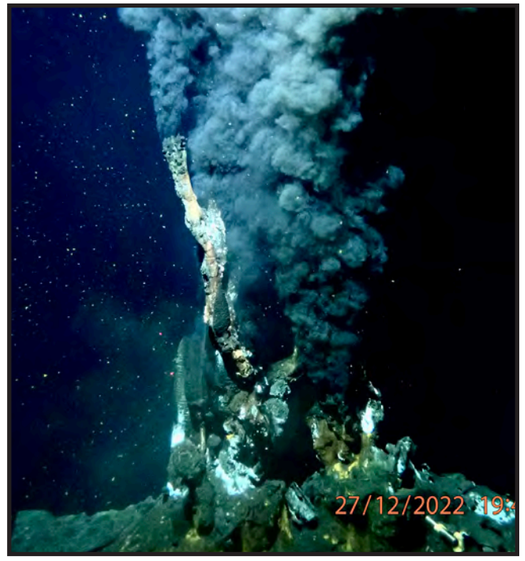
In December 2022 and January 2024, Dr. Costantino Vetriani and his research team at Rutgers University participated in two deep-diving oceanographic expeditions as part of an NSF-funded collaborative project with Dr. Shawn Arellano from Western Washington University and Dr. Lauren Mullineaux from the Woods Hole Oceanographic Institution. Aboard the research vessel *Atlantis*, the science team dove in the deep-submergence vehicle *Alvin* to explore and sample the deep-sea hydrothermal vents located at a depth of 2,500 meters on the East Pacific Rise. Chemosynthetic microorganisms at deep-sea hydrothermal vents establish biofilms on solid substrates and play a critical role in "conditioning" the environment for further colonization by other microorganisms and animals. Hence, microbes mediate the initial processes in the establishment of the vent ecosystem. The main objective of this project is to understand the role of chemosynthetic microbial biofilms as signposts for settlement of larvae at deep-sea hydrothermal vents.

The project provides an unprecedented, quantitative look into the role of microbial biofilms in structuring larval settlement at hydrothermal vents, achieved only through the close collaboration of microbial and larval ecologists. The combined program of seafloor short-term settlement experiments and laboratory-based microbial "-omics" work, carried out at the Deep-Sea Microbiology Lab (https://marine.rutgers.edu/deep-seamicrobiology/index.html) at Rutgers University, will allow the investigative team to statistically model the factors that best predict larval settlement in the field, and test those predictions with shipboard experiments that decouple covarying conditions.

The trailer of a new documentary film featuring Drs. Vetriani's, Arellano's, and Mullineaux's research at deep-sea hydrothermal vents is now available (https://mysteriesof9north.marine.rutgers.edu).



Riftia pachyptila tubeworms basking in warm hydrothermal fluids, East Pacific Rise, depth 2,500 m. Photo credits: Costa Vetriani, Rutgers University.



Deep-sea hydrothermal vent (black smoker) releasing hydrothermal fluids at 340 °C. East Pacific Rise, depth 2,500 m. Photo credits: Costa Vetriani, Rutgers University.

Drs. Costa Vetriani (Rutgers University, right) and Stephane Hourdez (CNRS, France, right) inside the titanium sphere of the deep-submergence vehicle Alvin, during a dive on the East Pacific Rise. Photo credits: Bruce Strickrott, WHOI.

INTERVIEW WITH DENNIS FENTON:

Dennis Fenton is an inspirational supporter of the Department of Biochemistry and Microbiology, SEBS and Rutgers. He earned his Ph.D. in Microbiology from Rutgers University in 1977 working with Doug Eveleigh (on Purification and Properties of a Chitosanase from Penicillium islandicum). In 1982 he joined the newly-formed biotech company Amgen, as one of its first staff members, where he rose to Executive Vice President of Operations. He has for many years been an inspiration in his support of microbiology at Rutgers, with many generous donations honoring his mentors at Rutgers, including endowing the Fenton-Eveleigh Endowed Chair of Applied Microbiology, the James MacMillan Graduate Fellowship, the Douglas Eveleigh Endowed Graduate Fellowship.

Over emails last spring we discussed how he got into microbiology and the role of mentors in his development as a scientist.

Linda and Dennis Fenton with Doug Eveleigh at the 2001 investiture of the Douglas and Linda Eveleigh and Dennis and Linda Fenton Endowed Chair of Applied Microbiology.

What inspired you to become a microbiologist? What made you come to Rutgers?

My desire to become a microbiologist was nurtured by a professor at Manhattan College, Robert Beardsley, who encouraged his students to do independent lab research. He was an expert in agrobacterium. I spent all my free time puttering in his lab learning how autoclaves work, how to pour agar plates and how to run badly designed experiments and infect pea seedlings. As Doug would say it was sheer fun.

I was an average student 3.2 average but because I read every biology book I could find and took a wide range of science courses as my electives I did very well on the GRE. I interviewed at two schools Columbia and Rutgers. I was offered a free ride at Columbia and a teaching assistant position at Cook.

Our (Linda my then fiancé now wife of 50 years) decision was very, very easy to make. The students at Columbia were miserable, the professor was insulted when I asked how long it would take to get a degree and Linda who accompanied me was shuffled off into a conference room and ignored.

At Rutgers the students all seemed genuinely happy and eager to meet me and talk about their research. Many spent time talking to Linda and telling her about

the area and its points of interest. Doug's answer to my question was as fast as I could get the work done, I could get my degree. It was up to me not him. I was stunned. He and his senior grad student Richard Monaghan made me feel relaxed and welcomed. I was interested in studying antibiotics given Rutgers' history, but working with extracellular enzymes seemed like it could be fun. As it turned out growing cells and purifying proteins became an extremely important skill with the advent of recombinant DNA technology. It changed my life.

James and Laura MacMillan with Linda and Dennis Fenton at the 2010 celebration and recognition of Prof. James Macmillan.

What role did Doug Eveleigh and Jim Macmillan (for whom the graduate fellowships are named) play in your development as a scientist?

My interview with Jim Mac the department head was noteworthy as his last question was …Do you drink beer ? …….Which I did and was a skill I was proud of... but how do I answer….would yes mean I was not a serious student? I decided on the truth. "Every night sir, after playing basketball". He smiled and said you're in. Although I never took a formal course that Jim taught, I spent hundreds of hours, usually over a beer, listening to his stories and learning more about yeast than 10 courses would have taught me. Jim and Laura became lifelong friends. We traveled through Europe together several times on river cruises where my education on all aspects of yeast research and beer consumption continued.

Doug was one of the most inspirational individuals I have ever meet. His excitement and enthusiasm was contagious. He was a caring individual who was not interested in padding his resume with my publications. He was interested in developing the minds of his students and teaching them how to think and design experiments. The hardest lesson for me to learn was there are no failed experiments.

Every failure teaches you something about your assumption or your failure to control a variable. A weekly progress review with Doug was a learning experience where he would gently nudge you to ask the right question. I would leave his office with 10 reprints that seemed to have nothing to do with my problem. But after reading them and letting them swim in my brain I would usually get it. A light would go off and back to the bench I would run. Joining Doug's lab was one of the best luckiest decisions I made in my life.

You have been extremely generous, inspirational, in your support of microbiology at Rutgers. What motivates you? What would you say to other alumni about supporting the program/school?

I urge my fellow graduates to reflect on what your time at the Department of Biochemistry and Microbiology has given you and to think about how you could help the next generation of scientist grow and excel. Your time at our department was a gift I hope you can use your resources to help the department thrive and excel.

What is your advice to the current graduate students, how should they prepare for the next steps in their careers?

I hope graduate students in the department today appreciate how lucky they are to have a job where you get to ask nature a question and have the means to resolve the mystery. You live in a community of scholars who are all trying to answer questions that could have major implications in making the world a better place. Helping each other to become successful. Teamwork is a basic skill for your future success.

I worked on the enzymatic degradation of Chitosan. World shaking research, right? Not really. But learning the skills of growing cells and purifying proteins allowed me to personally participate on a team of scientists who cloned, expressed and purified two drugs, Epogen and Neupogen, that have saved millions of lives. If you learn how to think and analyze data, who knows where your career will take you.

Do you have a favorite or notable memory from being at Rutgers?

Doug always found some money for all his students to attend ASM meetings and the crazy work and fun filled hours at those meeting will live in my memory forever. Once we chartered a bus to the Chicago and spent 10 hours singing and drinking our way across the country. That's when I learned Doug was a Rugby player with a colorful collection of songs.

Dennis Fenton and the signing of his Ph.D. thesis at the "Sheer Fun - Microbiology with Professor Douglas Eveleigh symposium in 2014.

FACULTY & STUDENT AWARDS

Grants

Debashish Bhattacharya Secures $2.9M Schmidt Futures Grant

Dr. Debashish Bhattacharya, alongside collaborators Chundawat SPS and Khare SD, has been awarded a $2.9 million Schmidt Futures grant for a project on using Sargassum seaweed as a renewable feedstock for sustainable biomanufacturing. The research will run from April 2024 to March 2029.

Jeff Boyd Receives NIH Grant for Research on Innovative Inhibitors to Combat Gram-Positive Bacterial Infections

National Institute of Allergy and Infectious Diseases (NIH): First-in-class covalent inhibitors of the SUF pathway of iron-sulfur cluster biosynthesis for the treatment of infections caused by *Staphylococcus* aureus and other Gram-positive bacteria. Role: co-PI $425,514; 4/2024-2026

Professor Dismukes Receives Edison Patent Award

Professor Charles Dismukes is honored to receive the Edison Patent Award, a recognition that holds deep personal significance. Edison's legacy of innovation has been a guiding inspiration for Professor Dismukes, influencing his decision to join Rutgers in 2009. Edison's work symbolizes the passion and commitment needed to turn fundamental knowledge into practical, world-changing solutions—a principle that has shaped Professor Dismukes' own research journey.

This dedication to innovation is shared by the coauthors of the patent and cofounders of RenewCO2, Anders Laursen and Karin Calvinho. Their work with RenewCO2 focuses on addressing the urgent environmental challenges facing our planet, reflecting a mission that is both timely and critical.

At Rutgers, Professor Dismukes leads several pioneering projects within the Department of Chemistry and Chemical Biology (CCB) and the Waksman Institute, continuing to embody Edison's spirit of transformative innovation.

mBio Editor Dr. Dominguez-Bello Honored with Outstanding Service Award

The American Society for Microbiology (ASM) has awarded an Outstanding Service Award to Dr. Dominguez-Bello, one of mBio's top editors, for exceptional service and dedication in 2023. The award recognizes Dr. Dominguez-Bello's efforts in elevating the journal's reputation and impact. ASM and journal staff expressed their gratitude, noting Dr. Dominguez-Bello's role in the journal's success, which has been critical to the strength of ASM's Journals program. "We truly appreciate the ongoing commitment to advancing science and to mBio," stated ASM, highlighting Dr. Dominguez-Bello's diligence and expertise in the peer review process.

Enhancing Learning Experiences: Sharron Crane participated in Summer 2024 Course Transformation Institute

Dr. Sharron Crane participated in the Provost Teaching Fellows / TEN Course Transformation Institute, which was designed to support student-centered course design. Dr. Crane initially focused on the "Molecules of Life" course (11:115:100), but the principles and techniques she acquired were applicable to all her classes. Her goal was to effectively implement backward design, active learning, and useful assessment practices. These approaches fostered the intellectual development of her students and promoted collaborative learning. The institute also provided training in best practices for Universal Design, ensuring that Dr. Crane's course was accessible to all learners.

Prof. Joan Bennett named Distinguished Mycologist by the Mycological Society of America

Distinguished Professor Joan Bennett was named Distinguished Mycologist by the Mycological Society of America (MSA). MSA's Distinguished Mycologist Award is awarded annually to an individual who has established an outstanding mycological career. This is one of the highest awards bestowed by the MSA and marks a distinguished career. Nominees for the award are evaluated on the basis of quality, originality, and quantity of their published research, and on the basis of service to the MSA or to the field of mycology in general. Dr. Bennett was presented with this award by the Chair of MSA Distinctions, Timothy James, during MSA's Annual Meeting June 10-12, 2024 in Toronto.

Prof. Bennett is a fungal geneticist who did pioneering work on the clustered genes involved in the biosynthesis of fungal secondary metabolites, specifically aflatoxins. She joined the faculty at Tulane University in 1971 and continued collaborating with scientists at SRRC on aflatoxin biosynthesis and genetics for over 30 years. In 2005, the failure of levees after Hurricane Katrina flooded her New Orleans home, and the subsequent mold contamination caused her to interact with fungal metabolism in an unsettling, and too personal new dimension. The revolting smell in her water-logged home inspired her to switch her research focus to studying the volatile compounds emitted by filamentous fungi. In 2006, she moved to Rutgers, the State University of New Jersey, as a distinguished professor in the School of Environmental and Biological Sciences, where her laboratory has investigated the physiological activity of fungal volatile organic compounds using genetic model systems.

Prof. Bennett was elected to the U. S. National Academy of Sciences in 2005 and to the American Academy for Arts & Sciences in 2021. She is past president of both the Society for Industrial Microbiology and Biotechnology (2001-2002) and the American Society for Microbiology (1990-1991). In addition, she has served as past vice president of the British Mycological Society and the International Union of Microbiological Sciences.

Lauren Hall Awarded ASM Student Travel Fellowship

Lauren Hall, a graduate student in Microbial Biology, was awarded the prestigious ASM Student Travel Fellowship in 2024 by the American Society for Microbiology (ASM).

Microbial Biology Graduates

Degree	Name	Advisor
MS	Haines Ronald	Huizhou Fan
MS	Brochon Helene	Jeff Boyd
MS	Kong Fanding	Donald Schaffner

Student Awards

Douglas Eveleigh Travel Awards: Amara Qureshi, Gabriella Panayotakis, Shrinivas Nadi, Avanthika Bharath, Matt Finegan, Chloe Costa,Neil Simmons, Gustavo Rios

Selman A. Waksman Excellence in Microbiology: Alyssa K. Leung

Theodore Chase Award: Christine V. Cherian, Jake Rothstein, Amber Stone

Strumeyer Award Excellence in Biochemistry: Zachary R. Smith, Benjamine E. Lefkin

MB Travel Awards: Amara Qureshi, Avanthika Bharath, Matt Finegan, Neil Simmons, Lauren Hall

Robison Award: Franklin Rodreiguez, Eduardo Troian

PH.D THESES

Julia Van Etten, PhD

Graduate Program: Ecology &Evolution | Advisor: Debashish Bhattacharya

DNA transfer as a driver of eukaryote genome evolution

As molecular and sequencing technologies have advanced, many of the biological phenomena we consider to be canonical have become more circumspect, riddled with stipulations, qualifications, exceptions, and often, a broader context. One such process is horizontal genetic transfer (HGT), or the acquisition of foreign DNA by a genome within a generation. This process was traditionally thought to be unique to the prokaryotic domains of life (Bacteria, Archaea) where it is common. However, it is now widely accepted that HGT is a significant mechanism for driving genetic variation, adaptation, and evolution in eukaryotes as well. Conspicuous cases of adaptive (often ancient) HGT identified in genomes of, typically model organisms, have established the study of eukaryotic HGT as a worthy pursuit due to the striking and relatively instantaneous functional innovations conferred by protein-coding genes that have persisted within genomes and outlasted selective pressures. Yet, further investigation must be made into properties underpinning this process, such as frequency, HGT diversity (i.e., coding vs. non-coding), transfer mechanisms, and ecological drivers. Furthermore, these principles must be investigated in non-model systems to elucidate the true scope of this process within the eukaryotic domain. Through the work in my dissertation, I address these important topics using culture work and metagenomic data to gain insights into the frequency and quality of HGTs across different algal genomes.

Yongjia Gong, PhD

Graduate Program:Food Science | Advisor: Liping Zhao

The guild level response of the human gut microbiome to food components and their processing methods

The human gut is predominantly inhabited by obligate anaerobic bacteria, maintaining a hypoxic environment. An increased ratio of facultative to obligate anaerobes indicates gut microbiome dysbiosis, associated with a range of chronic conditions including metabolic syndromes and inflammatory bowel diseases. Dietary fibers mitigate dysbiosis by producing short-chain fatty acids (SCFAs), regulating glucose homeostasis, and suppressing facultative anaerobic bacteria. The thesis investigated the relationship between the gut microbiome and food components such as dietary fibers to understand the mechanisms to mitigate oxygen-induced dysbiosis. It was found that dietary fibers can effectively protect gut microbiome and maintain the SCFA-producing bacteria under the microaerobic conditions, which may suppress the growth of facultative anaerobic bacteria. The processing methods of dietary fibers contribute to the variation of such protective effect. Another mechanism of combating oxygen-induced dysbiosis is by scavenging the oxygen/ROS via antioxidants. Elemental iron, as a potential new supplements, was shown to protect gut microbiome from oxygen. This thesis shed light on the development of microbiome-targeting food for patients with oxygen-related dysbiosis.

Ian Schlegel, PhD

Graduate Program: Microbial Biology | Advisor: Costantino Vertriani

Under pressure: the diversity and physiology of the hydrothermal vent microbiome

Hydrothermal vents, where magma interacts with cold seawater, create unique ecosystems sustained by chemosynthesis. This thesis investigates the community structure and metabolism of chemosynthetic biofilms at a basalt-hosted deep-sea hydrothermal vent, analyzing changes over time and across redox gradients using metagenomics and metaproteomics. Initial pioneer populations, dominated by Campylobacterales, diversify taxonomically and physiologically, exhibiting processes like carbon fixation, sulfur oxidation, and nitrate reduction. A novel isolate, Nautilia sp. strain PV-1, is characterized as a thermophilic, hydrogen-oxidizing, carbon-fixing, nitrate/sulfur-reducing bacterium, stimulated by high pressure but not dependent on it. This strain's unique membrane adaptations suggest a new lipidomic profile for facultative thermopiezophiles. Comparisons with a related strain, PH1209T, reveal differences in pressure tolerance and prophage presence, advancing the understanding of microbial adaptations to hydrostatic pressure in extreme environments.

FACULTY PUBLICATIONS

Ladd TM, Selci M, Davis DJ, Cannon O, Plowman CQ, Schlegel I, Inaba A, Mills SW, **Vetriani C**, Mullineaux LS, Arellano SM (2024). Faunal colonists, including mussel settlers, respond to microbial biofilms at hydrothermal vents. Deep-Sea Res. I 208:104314. doi: doi.org/10.1016/j.dsr.2024.104314

Barosa B, Ferrillo A, Selci M, Giardina M, Bastianoni A, Correggia M, Di Iorio L, Bernardi G, Cascone M, Capuozzo R, Intoccia M, Price R, **Vetriani C**, Cordone A, Giovannelli D (2023). Mapping the microbial diversity associated with different geochemical regimes in the shallow-water hydrothermal vents of the Aeolian archipelago, Italy. Front. Microbiol. 14:1134114. doi: 10.3389/fmicb.2023.1134114

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Zhai L, Xiao H, Lin C, Wong HLX, Lam, YY, Gong M, Wu G, Ning Z, Huang C, Zhang Y, Yang C, Luo J, Zhang, L, **Zhao L**, Zhang C, Lau J, Lu A, Lau L, Jia W, Zhao L, Bian Z (2023). Gut microbiota-derived tryptamine and phenethylamine impair insulin sensitivity in metabolic syndrome and irritable bowel syndrome. Nature communications, 14(1), p.4986.

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*co-senior

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WHAT'S SHAKIN'

CELEBRATING MILESTONES...

Lucy's Retirement

Yun Lucy Hsu retired at the end of the academic year after more than 25 years at Rutgers. She joined the Department of Biochemistry and Microbiology as Principal Laboratory Technician in 2008 with the overall responsibility for operation of the biochemistry teaching laboratory working with the instructors to ensure that students had all the reagents, materials and equipment needed in the Experimental Biochemistry and Introductory Biochemistry Lab courses. Her dedication to serving the department and the biochemistry teaching laboratory for many years is highly appreciated and we wish her all the best in her new adventures.

Celebrating 10 Years at Rutgers: Congratulations to Nalini Kaul and Michelle Mac Pherson

Congratulations to Biochemistry Program Coordinator Nalini Kaul [Left] and Department Administrator Michelle Mac Pherson [Right] on their 10-year anniversaries at Rutgers. We're grateful for their continued dedication and hard work.

DBM NEWBIES

Zachery Lonergan, Ph.D. | *Assistant Professor*

Zach is originally from West Virginia and received his B.S. in Biology from West Virginia Wesleyan College. He then completed his Ph.D. in Microbe-Host Interactions at Vanderbilt University in the lab of Eric Skaar, where he investigated the relationship between pathogenic bacteria and nutrient metals during infections. Most recently, Zach completed his postdoctoral fellowship at the California Institute of Technology with Dianne Newman, where he studied how the molecule nitric oxide is sensed and metabolized by bacteria and is the foundation for his research program at Rutgers.

Anil Kumar, Ph.D. | *Postdoctoral Research Associate*

Anil recently completed his PhD at CSIR-IHBT, India, in June 2023, where he researched microbial succession at a fast-retreating glacier in the Indian western Himalayas. He is now focusing on studying the diversity and functional roles of Acidobacteriota members in tundra soils.

Gabriel Palmieri | *PPL Laboratory Technician*

Gabriel holds a Bachelor of Science in Microbiology and Linguistics from Rutgers University and a Master of Arts in Linguistics from the University of Toronto. Previously, he served as a Flow Cytometry Specialist at Princeton University, supporting over 30 molecular biology labs. In his free time, Gabriel enjoys reading science fiction and fantasy, cooking, watching movies, hosting board games, and photography.

Maria Gloria Dominguez-Bello promoted to Distinguished Professor

Distinguished Professor Maria Gloria Dominguez Bello, The Henry Rutgers Professor of Microbiome and Health, is a pioneering and influential builder of the exciting interface between microbiology and anthropology and an international leader in research, teaching and service. She is internationally recognized as a leading researcher in microbial ecology, particularly the study of the role of animal-microbe interactions in health. Her research has focused on understanding symbioses between microorganisms and their hosts, their coevolution, and the contribution of microbial genes to the function of microbe-dominated organs, and the effect of perturbations. She is particularly well known for her fruitful and pioneering studies in investigating the ecological and evolutionary effects of urbanization on the human gut microbiota and has pioneered a new subdiscipline, 'Microbial Anthropology'. She works in a highly collaborative sphere and plays a major role in fostering international collaborations and bringing teams together with synergistic multidisciplinary collaborators.

ACTIVITIES

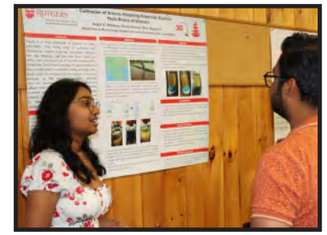
Vani Bhagat, Alyssa Allijan, Dr. Natalya Voloshchuk, Jyoti Kandel and Youngjian Qin

Natalya Voloshchuk's Students Present at Research Symposium

Two teams of undergraduate research students working with Dr. Natalya Voloshchuk presented their projects at the William Patterson University 17th Annual Undergraduate Research Symposium. Vani Bhagat and Alyssa Allijan presented their design of a GFP purification protocol that can be used in the summer Experiments with GFP course taught at the department for high school students at the department Jyoti Kandel and Youngjian Qin investigated the pET expression system to produce endoglucanase CelB2. The work presented by Jyoti Kandel and Youngjian Qin was awarded 2nd place in the Biochemistry category poster competition at the symposium.

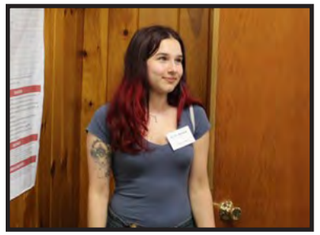
Häggblom Lab at NEMPET Conference

Undergraduate research students in the Häggblom Lab present their work at the 2024 NEMPET (Northeastern Microbiologists: Physiology, Ecology and Taxonomy) Meeting June at the Minnowbrook Conference Center, Blue Mountain Lake NY.



Angel Robinson

Niveda Thuravil



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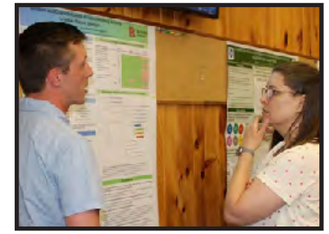

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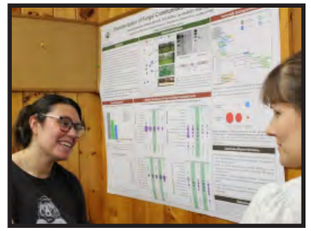

Hannah Panesso

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Editors: Max Häggblom, Lindsay Vasy

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