



# Center for Clinical and Translational Science e-Newsletter

## Center News

### Celebrating a Decade of Excellence: 10th Anniversary of the Heilbrunn Nurse Scholar Program

By Bernadette 'Candy' Capili, PhD, NP-C

The annual scientific symposium of the Heilbrunn Family Center for Research Nursing was extraordinary this year, marking the 10th anniversary of the Heilbrunn Nurse Scholar Award and being the first in-person event since the COVID-19 pandemic. The celebration commenced on May 15th with a welcome reception in which Helaine Lerner and her sister, Joan Rechnitz, who generously endowed the Center, were honored.

Mrs. Lerner attended the reception where Dr. Barry Collier presented her with the Heilbrunn Nurse Scholar program medal, especially forged for the anniversary. This medal, embossed with the Florence Nightingale Lamp inscription, "Promoting Health, Advancing Nursing Science and Health Equity," symbolizes the program's mission.



On May 16, the scientific symposium began with Dr. Collier providing a history of the Center and the separate Heilbrunn Outpatient Research Center, which was supported by Helaine and Joan's parents Robert and Harriet Heilbrunn. He was followed by Dr. Candy Capili, Director of the Center, who provided an overview of

the Heilbrunn Nurse Scholars program.

#### *Reflecting on Ten Years of Impact and Innovation*

Since its inception, the program has awarded 45 Heilbrunn Nurse Scholar awards to early-career nurse scientists,

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### What Do Participants Say About Their Research Experiences and Why Does It Matter? *Empowering The Participant Voice Finds Out By Asking.*

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By Rhonda G. Kost, MD and Natalie Schlesinger



Clinical translational research relies on the participation of volunteers. We know from the feedback from thousands of research participants that the quality of their experiences participating in research

influences their feelings about research overall, and whether they will stay in a study or recommend research to others. When participants feel listened to, personally and culturally respected, and valued as partners in research, and when communication is appropriate and understandable they rate their experiences highly. When one or more of those experiences go awry, those ratings are much lower. Whether better research experiences predict better retention and

better future recruitment seems intuitive and is a topic of ongoing research.

The associations noted above first emerged during the development and validation of the Research Participant Perception Survey (RPPS), a survey about the research experience that was created with broad participant input and validated by a Rockefeller-led multi-site collaboration. Since its validation, we have fielded the RPPS at Rockefeller for more than a decade. The

### Chagas Disease as an Emerging Infectious Disease in the USA: A Stavros Niarchos Foundation Institute for Global Infectious Disease Research Pilot Project

By Jonathan N. Tobin, PhD and Marija Zeremski, PhD

Chagas disease, caused by infection with the protozoan parasite *Trypanosoma cruzi*, is an emerging parasitic infection in the United States. Also known as American trypanosomiasis, it affects an estimated 8 million people in Mexico and Central and South America, and up to 350,000 people in the US. The main route of

infection is through insect vectors (triatomine bugs), and less frequently through blood transfusion, organ transplantation, mother-to-fetus, and consumption of contaminated, uncooked food. If untreated, Chagas disease becomes chronic and can lead to severe cardiac or gastrointestinal complications, including enlarged

heart, heart failure, megacolon, and death. FDA-approved treatment for the acute phase is very effective, but the effectiveness diminishes the longer a person has been infected. In the US, Chagas disease mostly affects migrant workers and immigrants from Mexico and Central and South America, as well as travelers to these regions,

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# Association of Clinical Translational Science Conference 2024

By Editorial Staff

The ACTS Conference 2024, organized by the Association for Clinical and Translational Science, took place in Las Vegas from April 3rd to April 5th, 2024. The conference offered a three-day program of educational and scientific presentations, outstanding keynote speakers, and opportunities to connect with a vibrant community of students, early-career academics, and experienced researchers.

A focus of the conference was the importance of diversity, equity, and inclusion in enhancing translational research. Another focus was the importance of interdisciplinary collaborations, and boundary-crossing partnerships in translational science.

Speakers highlighted the need for researchers from diverse disciplines, including basic science, clinical research, public health, and community organizations, to work together to address complex health challenges. The conference, a testament to the power of collaboration, also featured sessions on training and career development opportunities in translational science. The conference goal of the conference was to drive progress towards more equitable and impactful translational science, fostering a sense of community and shared purpose among its participants.

The Rockefeller University Hospital Center for Clinical and Translational Science (CCTS) was well represented

by members of the CCTS leadership team and Clinical Scholars. Maija Williams, MPH and COO of the Rockefeller University Hospital, was on a panel to discuss “Translating Success: Incorporating Translational Science Principles into Pilot Grants.” Ms. Williams provided strategies for the attendees to achieve this goal. Information sharing is significant to the benefits of translational research, engaging trainees, participants, and communities.

CCTS leadership served as co-chairs and board members in several Special Interest Group (SIG) meeting. SIG topics focus on workforce and career development, education, evaluation, and data management.

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Miriam Bredella, Marla Keller, Maija Neville-Williams, & Lisa Cicutto

## Research of Clinical Scholar Graduate, Dr. Dana Orange, Highlighted in NIH Director’s Blog

By Editorial Staff



Dr. Dana Orange’s research, [Machine Learning Study Offers Clues to Why Some People Have Rheumatoid Arthritis \(RA\) Pain Without Inflammation](#) was highlighted in the May 2, 2024 NIH Director’s Blog. This is the second time Dr. Orange’s RA research has been highlighted in the NIH Director’s Blog. The previous highlight was on her research on [Connecting the Dots: Oral Infection to Rheumatoid Arthritis](#).

In rheumatoid arthritis, the inflammation injures the joint tissue, causing swelling, reduced function, and pain. There are many treatments that effectively reduce inflammation, pain, and joint destruction and these help most people with RA, but not everyone. RA patients often endure discomfort

despite the most effective anti-inflammatory and disease-modifying drugs. Dr. Orange’s research provides an interesting explanation for why, even without inflammation, the joint lining may be painful in certain RA patients.

The most recent research of Dr. Orange, with Dr. Fei Wang of Weill Cornell Medical College, showed that inflammation in the synovium, the soft tissue that lines the joints, and RA pain aren’t necessarily connected. Some RA patients with minimal joint inflammation reported that they hurt just as much as those with extreme inflammation. Drs. Orange and Wang set out to identify genes in the synovium of patients with minimal joint inflammation that related to the severity of their pain. They realized this investigation would be challenging because people feel pain differently and relatively few tissue samples were available. They developed a novel machine learning algorithm to search for modules of genes that together associate with pain.

Drs. Orange and Wang discovered a group of genes that associate with pain in a discovery cohort, and replicated this

finding in a separate cohort of patients with early, untreated RA. They found that fibroblasts, the major synovium cell that produces extracellular matrix, expressed the pain-associated genes. One of these genes, Netrin-4, was of interest because it was predicted to interact with pain sensitive nerve fibers and has been shown to augment the growth of other types of nerves. They hypothesized that synovial fibroblast Netrin-4 might augment growth of pain sensitive nerve fibers and that this might contribute to pain in low inflammatory RA. Indeed, laboratory experiments revealed Netrin-4 augments growth of pain sensitive nerves and these same types of pain sensitive-nerve can be seen growing into the synovium of RA joints, towards the Netrin-4 producing lining fibroblasts. They hope additional studies of these fibroblast-nerve interactions might led to treatment strategies for patients with RA-associated pain, but limited inflammation.

# Marie Maynard Daly, PhD – Groundbreaking Rockefeller Scientist, Educator, Visionary

By Barry S. Collier, MD



Celebrating Black History Month, Dr. Barry Collier presented a Seminar in Clinical Research on the remarkable career of Marie Maynard Daly, PhD (1921-2003) on February 14, 2024. Dr. Daly was a pioneering African-American biochemist who overcame racial and gender prejudice to become the first African-American woman to receive a PhD degree in the United States.

Growing up in Queens, New York, Dr. Daly's passion for science was influenced by her father's unrealized aspiration to be a chemist and her own reading about the great scientists in "The Microbe Hunters" by Paul de Kruif. She attended Hunter High School and then earned a bachelor's degree in chemistry with

high honors from Queens College in 1942. She then obtained her PhD from Columbia University in 1947, supervised by Dr. Mary L. Caldwell, the only woman faculty member in Columbia's Chemistry Department. Dr. Daly's PhD thesis was on the enzyme amylase, which was an excellent model for studying the catalytic function of enzymes.

Dr. Daly joined Dr. Alfred E. Mirsky, a pioneer in molecular biology, at the Rockefeller Institute in 1947 with the support of an American Cancer Society award. She focused her work on the chemical composition of nucleic acids and their associated proteins, performing landmark studies on the composition of DNA that contributed to Watson and Crick's helical model; the chemistry of histones, the proteins to which DNA binds in chromosomes, which was crucial to developing the field of epigenetics; and the importance of RNA in protein synthesis, which later led to an understanding of the role of messenger, ribosomal, and transfer RNAs in protein synthesis. After leaving Rockefeller, she performed groundbreaking studies of the complex inter-relationship of hypertension, cholesterol, and atherosclerosis at

Columbia and Albert Einstein College of Medicine where she became a tenured Professor. Her studies were crucial to understanding the importance of controlling both hypertension and elevated serum cholesterol in preventing heart attacks. While at Einstein, Dr. Daly developed and led a program to increase the enrollment of minority students.

To honor her parents, Dr. Daly established a scholarship fund for African-American science students at Queens College that continues to this day. She served in many scientific leadership positions, including as a member of the Board of Governors of the New York Academy of Science, Fellow of the American Association for the Advancement of Science, and Fellow of the American Cancer Society. In 2016, the New York City Board of Education honored her by naming public school PS 360Q in Queens as The Dr. Marie M. Daly Academy of Excellence. In 2023 the American Chemical Society honored her with a National Historic Chemical Landmark plaque at Columbia and in 2024 Pfizer honored her by including her in their Super Bowl advertisement!

## Rockefeller University Center for Clinical and Translational Science (CCTS) Mentor Training Workshop

By Editorial Staff

The Rockefeller University Center for Clinical and Translational Science (CCTS) Mentor Training Workshop was held on March 26, 2024. The workshop was led by Dr. Emma A. Meagher, Professor of Medicine and Pharmacology at the University of Pennsylvania Perelman School of Medicine (PSOM). She serves as the Senior Vice Dean for Clinical and Translational Research and the Associate Dean for PSOM Master's and Certificate Programs. Dr. Meagher is certified as a Master Trainer via the NIH-funded National Research Mentoring Network.

Her work focuses on advancing the science of mentorship and fostering a robust culture of mentoring to support the training of future clinical and translational researchers.

The purpose of the workshop was to gain insights into effective communication techniques, goal-setting strategies, and methods for providing constructive feedback to mentees. Dr. Meagher led a spirited discussion through activities focusing on cultivating belonging and self-efficacy, the power and peril of critical feedback, and building trust

through communications. She raised thought-provoking questions, including specific things a mentor can do to: help mentees feel capable and empowered; set mentees on a path to independence; normalize struggle; support mentees during setbacks; and help mentees adopt a growth mindset. The workshop was well attended by HOLs and CCTS Leadership.



Sandy Simon, Erich Jarvis, Rhonda Kost, Candy Capili, Rita Devine, Elaine Fuchs, Seth Darst, Jim Krueger, Winrich Freiwald, Sarah Schlesinger, Emma Meagher, Jonathan Tobin, Barry Collier, Daniel Mucida, Bob Roeder, Sohail Tavazoie, Robert MacArthur, Manoj Kandpal, and Tobi Olufeko

# New Rockefeller University Center for Clinical Translational Science Community Advisory Board

By Rhonda G. Kost, MD, Dozene Guishard, EdD, CDP, and Jonathan N. Tobin, PhD

In January 2024, the new Rockefeller University Community Advisory Board (CAB) celebrated its first anniversary! Convened in January 2023 by the Advisory Committee on Clinical Translational Science (ACCTS), the CAB brings together community partners representing government agencies, community-based organizations, health care providers, patients, and patient advocates to advise Rockefeller investigators and research leadership and staff. The CAB works to ensure that research conducted at Rockefeller University (RU) has the maximum potential to improve the health of the community. The CAB works with CCTS to ensure that community perspectives and concerns are considered in the choice, design, and implementation of Community Engaged Research (CEnR) conducted by Rockefeller investigators. Voting CAB members include former research participants, a research patient representative, an older adult (lay) representative from the Carter Burden Network, a media/graphic artist, a leader

from the New York Department of Aging, and leaders from several community-based organizations, a disease advocacy foundation, and Community Health Centers. CCTS leadership and staff attend CAB meetings in a non-voting capacity. More information about the CAB mission and membership can be viewed [here](#).

The CAB is led by founding Chair Ms. Dozene Guishard, Health and Wellness Director from the [Carter Burden Network](#), a New York City senior services organization and Rockefeller collaborator since 2017. The CAB meets bimonthly. After two initial meetings to elect leadership and establish a Charter and bylaws, the CAB began to learn about research at Rockefeller. CAB members come from a range of backgrounds, with different levels of familiarity with research. To introduce CAB members to research at Rockefeller, Dr. Rhonda Kost and Dr. Jonathan N. Tobin gave brief presentations in March and May about how community-engaged research is conceived and navigated at Rockefeller to help investigators engage

with community members and other stakeholders in study design and conduct. Clinical Scholars and others have begun to present their research plans in focused presentations to the CAB for feedback. In May, Dr. Amihai Rottenstreich shared his protocol, “Genetic, laboratory and clinical factors associated with low-dose aspirin failure in the prevention of preeclampsia,” describing his search to understand whether a specific genetic variant has a role in determining the therapeutic response (or non-response) to aspirin in prevention of recurrent preeclampsia. The CAB members provided valuable feedback on communicating science to a lay audience, and recommendations for making visuals more informative. Dr. Kost presented work in progress from her “Empowering the Participant Voice” grant, seeking guidance on eliciting and returning feedback on the research participation experience. The CAB provided (and Dr. Kost incorporated) specific recommendations on simplifying and clarifying presentation of data for the public-facing results page hosted

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## 2024 Beatrice Renfield Lecturer, Dr. Ronnie Lichtman, Speaks on Maternal Health and the Effects of Inequity

By Bernadette ‘Candy’ Capili, PhD, NP-C



The Rockefeller University Center for Clinical and Translational Science (CCTS) and the Heilbrunn Family Center for Research Nursing hosted the

16th Annual Beatrice Renfield Lecture in Research Nursing on March 26, 2024. Dr. Barry Collier, Physician-in-Chief of the Rockefeller University Hospital, began the event with a short tribute to Ms. Nancy Ellicot, Rockefeller University Hospital’s first Superintendent of Nursing, who established the standards for the practice of clinical research nursing and invented several novel devices to improve nursing care. Dr. Bernadette ‘Candy’ Capili, Director of the Heilbrunn Family Center for Research Nursing, hosted the program and introduced this year’s speaker, Ronnie Lichtman, CNM, LM, PhD, FACNM. Dr. Lichtman is a professor emeritus and former

chair of the Midwifery Education Program at the State University of New York (SUNY), Downstate Health Sciences University.

Dr. Lichtman delivered an impactful and passionate lecture in which she highlighted pivotal aspects of how socioeconomic disparities affect maternal health outcomes. The following are some highlights from the live webinar:

- **Systemic Inequities:** Dr. Lichtman provided a comprehensive understanding of how systemic inequalities deeply impact health during critical periods, such as pregnancy, childbirth, and postpartum. She emphasized the need to view these issues through a socio-political lens to bring meaningful changes.

- **Global Perspective on Maternal Health:** With her expertise in international health, Dr. Lichtman presented alarming trends and statistics showcasing the stark global contrasts in maternal health. Her work in Haiti, funded by a Kellogg Foundation project, stood as an example of how intensive efforts in midwifery can lead to sustainable community health improvements.

- **Research and Policy Recommendations:** The lecture concluded with an insightful discussion on future research directions and crafting policy measures to provide equitable healthcare. She also discussed the importance of training more midwives, particularly from low-income countries, to improve maternal and child health.

The discussion generated by Dr. Lichtman’s lecture served as the beginning of a critical conversation about improving maternal health through equitable healthcare practices. She emphasized the importance of staying informed about these pressing issues and supporting research and policies that foster change. One hundred and thirteen guests attended the lecture, including representatives from the Heilbrunn Family, Rockefeller University Hospital Nursing Department members, and Rockefeller University Hospital Administration. Two Heilbrunn Nurse Scholars were also in attendance. For those who could not attend the live webinar, a recording is available on the Clinical Director Network’s website: <https://www.cdnetwork.org/research-nursing-educational-series>.

# New Civic Science Fellow Abbey Jones, PhD

By Jonathan Tobin, PhD and Abbey Jones, PhD



Dr. Abbey Jones has joined the [Chagas Disease Translational Research Team](#) as a Postdoctoral Associate and Civic Science Fellow. This new position

is hosted by the [CCTS](#) and [The Stavros Niarchos Foundation Institute for Global Infectious Disease Research](#) at The Rockefeller University and [Clinical Directors Network \(CDN\)](#), led by [Jonathan N. Tobin, PhD](#), who is President/CEO and Co-Director of [CCTS Community-Engaged Research](#). This post-doctoral position is funded by the [Rita Allen Foundation](#), which created the [Civic Science Fellows program](#).

The program is an 18-month fellowship, during which Fellows complete one or more seed projects with their host institution that advances the understanding and practice of civic science and the work of the host institution in societal context, with an emphasis on connecting research and practice and engaging meaningfully with diverse communities. The goals and objectives of the Civic Science Fellows program are to catalyze culture change to strengthen science, expand its benefits, and build trust by developing civic science capacity, learning, and practice; advance engagement with anticipatory, emerging

topics in science and technology where there is large potential benefit in proactive civic science approaches; and broaden how scientific research is informed, who participates in doing research, and who decides how research will be used - with influence in institutions and networks advancing the frontiers of science. Fellows engage with the broader civic science community and diverse actors and types of knowledge to develop skills to increase their effectiveness as leaders in civic science. Fellows also participate in the weekly Civic Science Fellows Lab, led by Jeanne Garbarino, the Executive Director of RockEDU Science Outreach at The Rockefeller University.

Dr. Jones received her PhD in Epidemiology from [New York University's School of Global Public Health](#) in May 2024. Her dissertation research investigated challenges to malaria elimination efforts in India related to false-negative results in rapid diagnostic tests. Working with data collected by the [Center for the Study of Complex Malaria](#) in India, an NIH-funded International Center for Excellence in Malaria Research, she evaluated the impact of deletions of the gene *pfrp2* in the *Plasmodium falciparum* parasite on comprehensive malaria intervention programs. She also examined serological markers associated with *Plasmodium vivax* infection as potential screening targets for identifying latent infections. Prior to joining the PhD program at NYU, Dr.

Jones worked at the [Centers for Disease Control and Prevention](#) for eight years, focusing on birth defects surveillance and leading a project examining national trends in the prevalence of gastroschisis, a birth defect of the abdominal wall. Additionally, she was deployed to the CDC Emergency Operations Center for 18 months for the 2015-2016 Zika Virus Outbreak Response. She worked as a data manager and epidemiologist for the US Zika Pregnancy and Infant Registry, and she contributed to calculating the first estimates of the risk of birth defects due to congenital Zika virus infection in the US.

As The Rockefeller University Center for Clinical and Translational Science/SNF Institute for Global Infectious Disease Research Civic Science Fellow, Dr. Jones will bring her experience and expertise in public health research and surveillance to the Chagas Disease Full Spectrum Translational Research Team. She will help to increase awareness and explore policy implications of the emerging Chagas disease epidemic by engaging with scientists, academic research partners, clinicians, staff, patients, and community and public health partners, as well as implement and analyze a surveillance assessment of Chagas disease testing, identification, diagnosis, and treatment rates in underserved communities across the US. For more information about the Chagas Disease Project, see [www.CDNNetwork.org/chagas](http://www.CDNNetwork.org/chagas).

## Rockefeller University Hospital Celebrates Nurses Week 2024

By Rita K. Devine, MPA, RN

National Nurses Week, May 6 to May 12, and International Nurses Day on May 12, birthday of the iconic Florence Nightingale, honors nurses' contributions and reminds us to thank them for their selfless service. Florence Nightingale was an iconic British nurse and reformer who was an expert statistician, and dedicated her life to data-driven improvement of the health sector and healthcare practices.

This year's theme "Nurses Make the Difference" is especially meaningful to the nursing staff at Rockefeller University Hospital. Clinical research nursing is the

specialized practice of professional nursing that simultaneously provides compassionate and expert patient care while ensuring fidelity to the research protocol. This specialty practice incorporates human subjects protection, care coordination and continuity, and contributions to clinical science, clinical practice, and study management.

The week was filled with special recognitions, including daily breakfast treats, daily afternoon snacks, an afternoon dessert party, and a Medical Bingo contest with prizes. The highlight of the week's celebration was a luncheon attended by Dr. Barry Collier.

After noting that nurses have been the most trusted professionals in the United States for the past 22 years, he thanked all of the nursing staff for their dedication, especially recognizing Rita Devine and Jill McCabe for their outstanding leadership. He presented each clinical research nurse with a Heilbrunn Nurse Scholars Program medal celebrating and commemorating the 10th anniversary of the Heilbrunn Nurse Scholars Program. This gift was greatly appreciated by the nursing staff.



Janet Haas, Zhen Lin, Jill McCabe, Alicia Sicangco, Kari Bovee, Barry Collier, Rita Devine, Tia Gareau, Alex Buenaventura, Anna Karapetian, Ruth Santos, Viktoriya Pimanova, Pino Miranda

## Sandhya Vasan, MD, Clinical Scholar Graduate, Delivers Seminar in Clinical Research

By Editorial Staff



Dr. Sandhya Vasan delivered the March 13, 2024, Seminar in Clinical Research entitled, “Leveraging International Cohort Studies for HIV Therapeutic Research”. She was hosted by Dr. Marina Caskey, Class of 2009 Clinical Scholars program. Her talk was well attended and enthusiastically received. Dr. Vasan is a graduate of the Clinical Scholars program, Class of 2005. She described her lead role in the “Thai Cohort” of people living with HIV in Thailand and multiple studies to investigate potential therapies for HIV cure, spanning therapeutic vaccines, immunomodulators, and monoclonal antibodies.

Dr. Vasan is a Vice President at the Henry M. Jackson Foundation for the

Advancement of Military Medicine (HJF), overseeing the foundation’s global infectious diseases research. As Director of the HJF Component of both the Emerging Infectious Diseases Branch and the U.S. Military HIV Research Program (MHRP) at the Walter Reed Army Institute of Research (WRAIR), she provides key scientific leadership for a wide array of basic and clinical studies, including research on novel HIV vaccine strategies, development of preventive and therapeutic monoclonal antibodies, and long-term remission of HIV. She oversees more than 250 researchers and staff domestically and more than 700 staff members at multiple clinical research sites in Africa, the Middle East, and Asia.

Dr. Vasan joined MHRP in 2011 and spent seven years at the Armed Forces Research Institute of Medical Sciences in Bangkok, Thailand, conducting clinical trials of therapeutic interventions and preventive vaccines while establishing and leading a nonhuman primate research laboratory. She later served as MHRP’s Associate Director for HIV Vaccine Research. A major focus of Dr. Vasan’s work in HIV research has

been the potential of broadly neutralizing HIV-1 antibodies to elicit antiretroviral-free HIV-1 remission, either independently or in conjunction with other novel therapeutics.

She obtained her undergraduate degree in mechanical engineering at the Massachusetts Institute of Technology before completing her M.D. at the Harvard-MIT Division of Health Sciences and Technology at Harvard Medical School. Following her residency in pediatrics at Johns Hopkins University, she worked at the Communicable Disease Centre and National University of Singapore. From 2002-2011, she engaged in research pertaining to HIV vaccines, therapies, and adjuvants at the Aaron Diamond AIDS Research Center and at Rockefeller University.



Drs. Sandhya Vasan and Marina Caskey

## Clinical Scholars Attend *Enemy of the People*

By Editorial Staff

The Clinical Scholars attended the play *Enemy of the People* on May 9, 2024. The drama, originally published by Norwegian playwright Henrik Ibsen in 1882, was reimagined by playwright Amy Herzog. The drama centers on a medical officer who is charged with examining the town’s public baths, which are essential to the local economy and the town’s existence. According to his assessment and the findings of an initial report, the water is contaminated. He is branded an enemy of the people because he refuses to back down and be muzzled when he wants to release the report. Despite being first written in 1882, the play’s message remains relevant to the present day. It explores the ethical dilemma of how to handle knowledge that has the potential to significantly impact the health of many, even if it may cause economic hardship. The physician’s oath is a commitment to individual patients and

members of the public. Thus, when the government demands that physicians owe a responsibility to “the public,” it can create enormous stress. The arts and sciences component of the Clinical Scholars program explores novel methods of learning, using plays, museums, art, and guest lecturers.

Below, the Clinical Scholars share their impressions of the play:

Dr. Matthew Kudelka thought it was a great play and very provocative, “We mostly focus on science and producing great discoveries, but making discoveries is not sufficient. One needs to know how to communicate them and integrate them into society. I think of science as pure and fact-based, and of economics as more subjective, and in my mind, science always trumps economics when the two are in conflict. This is not, however, how the world sees science and economics. The two are often placed side by side, and when the two conflict, self-

interest often determines the winner. This emphasizes that great discoveries are just the beginning.”

Dr. Barbara Bosch shared her perspective, “A thought-provoking and immersive play on the voice of medicine and science in a capitalist society. Although the original version was written in 1882, it is disturbingly applicable today. It was a true treat for me as a physician-scientist to be able to see the play.”

Dr. Mai Takahashi noted that “The performance made me think of moral dilemmas within the scientific community and societal dynamics, raising important questions about the nature of truth and the consequence of its impact on society. The characters’ conflicts were surprisingly relevant to us. The performances were both captivating and thought-provoking.”



Juan Angulo-Lozano, Suzanne Rivera, Matthew Kudelka, Dennis Schaefer-Babajew, Mai Takahashi, Barbara Bosch, Tamar Berger, Barry Collier, and Bobbi Collier

# Clinical Scholars Entrepreneurship Curriculum Dinner with Daniel Gilmer, Ph.D.

By Editorial Staff

The Clinical Scholars had a dinner meeting with Daniel Gilmer, Ph.D., Senior Director, Diagnostics Commercial Enablement, and Global Launch Lead at Pfizer on May 15, 2024. Dr. Gilmer joined Pfizer after five years with McKinsey & Company. He received a B.S. from Howard University and his Ph.D. in Microbiology from Rockefeller University in Dr. Vincent Fischetti's Lab. He is an equal of Exebacase, the first phage lysin to undergo a Phase 3 clinical trial. Dr. Gilmer is a member of the New York Academy of Sciences, the Rockefeller University Council, and the Council on Foreign Relations.

Dr. Gilmer discussed his experiences at Rockefeller and his subsequent career path. Drs. Matthew Kudelka and Mai Takahashi shared their takeaways from the evening discussion.

Dr. Kudelka: "Dr. Gilmer covered several job options in industry and how to get there. Some of the highlights from the conversation include the fact that industry has an excellent work-life balance, but at the expense of some of academia's autonomy. Dr. Gilmer's career choices were diverse in that working in consulting gave him many critical abilities that allowed him to advance more swiftly in the huge pharmaceutical sector."

Dr. Takahashi: "The discussion centered on several key aspects of building a career in industry and transitioning from academia, his daily work routine, and future career planning. Networking is crucial; talk to people one step ahead in their careers in your field and continually seek new opportunities. Dr. Gilmer manages numerous meetings and actively connects with different teams to foster collaboration. He also highlighted specific opportunities for physician-scientists in industry. The group talk offered a wonderful chance to connect with one of the role models for career development in industry, fostering insightful discussions."



Front: Nicole Cruz, Mira Patel, and Sarah Schlesinger. Back: Barry Collier, Tamar Berger, Daniel Gilmer, Barbara Bosch, Mai Takahashi, Nicolas Gomez Banoy, Matthew Kudelka, and Juan Angulo-Lozano

## Avery Bechtold, PhD, RN - 2023 Heilbrunn Nurse Scholar Receives New Award

By Bernadette 'Candy' Capili, PhD, NP-C



2023 Heilbrunn Nurse Scholar Avery Bechtold, PhD, RN, a post-doctoral fellow at the University of Alabama - Birmingham,

has been awarded a research grant from the Sigma/Hospice and Palliative Nurses Foundation End of Life Nursing Care program. This grant is a testament to her groundbreaking work to bolster

communication and decision-making processes for patients and their caregivers. Dr. Bechtold's research, entitled "Development of an Intervention for Optimizing Values Discussions between Patients with a Left Ventricular Assist Device (LVAD), Their Family Caregivers, and the Healthcare Team: A Sequential Explanatory Study," delves into the complex decision-making interactions for those coping with an LVAD.

The focus of her research is pivotal, addressing how personal values can significantly influence the management of

lifestyle changes and crucial health-related decisions. The anticipated outcome from her work is to refine strategies, enabling patients with LVADs and their caregivers to better understand and incorporate their values into their medical journey. Riding on the momentum of her Heilbrunn award, which examined the lived experiences of LVAD patients, she is set to expand her research. This additional funding will amplify her efforts toward comprehensive data collection, paving the way for a subsequent K99/R00 application.

## The New York Historical Society Visit: America's Ongoing Reconstruction

By Editorial Staff

Members of Rockefeller University Hospital and Center for Clinical and Translational Science visited the New York History Society to hear the presentation, "America's Ongoing Reconstruction," featuring a discussion between Dr. Selwyn M. Vickers, president and CEO of Memorial Sloan Kettering Cancer Center and Mr. David M. Rubenstein.

Dr. Vickers detailed the major advances that occurred in securing the civil rights and voting rights of African-Americans during the Reconstruction, and the painful loss of many advances in the subsequent reaction to the Reconstruction era. He also recounted his grandmother's and his parents' commitment to education, with both being educators and his father the first African-American to earn a PhD from the University of Alabama. Despite their educational achievements they suffered from discrimination, including the loss of teaching positions. He also recounted the steps in his own distinguished career. "People unite across generations," he observed.



Rita Devine, Majja Williams, Rhonda Kost, Barry Collier, Kathy High, and Manoj Kandpal

survey asks participants about their Overall experience in research rated on a scale from 0 (worst) to 10 (best); whether they would recommend research participation to friends or family; to what extent they felt listened to and respected; and whether they had sufficient privacy and understood what they were signing up for. There is also an open text field for unstructured feedback.

We seek to understand and respond to participants' feedback for several reasons: 1) investigators have an ethical imperative to assure that informed consent is effective, and the RPPS is one of few validated participant-centered measure of informed consent; 2) from a humanistic perspective, we should try to make participants' experiences positive to minimize harm; 3) good experiences support retention; 4) as we seek to reduce disparities and make research more representative, we need to understand how different populations experience our research environment so we can tailor it, if necessary, to be inclusive and culturally appropriate.

When other institutions heard about the RPPS over the years, they expressed excitement about trying it, yet until recently few had implemented it successfully. Several years ago, we identified a set of common challenges that institutions faced when thinking about using RPPS, and developed a multi-CTSA project to lower the barriers for institutions to use the RPPS. Here, we report on our progress as we near the conclusion of that four-year project.

Empowering the Participant Voice (EPV) is supported by a 4-year Collaborative Innovation Award from the National Center for Accelerating Translational Science (NCATS) to develop, demonstrate, and disseminate a REDCap-based infrastructure to streamline the collection of research participant feedback using the Research Participant Perception Survey (RPPS). EPV is a collaboration among investigators at Vanderbilt, Wake Forest, Johns Hopkins, Duke, the University Rochester, and Rockefeller, with Dr. Rhonda Kost, Clinical Research Officer, serving as Principal

Investigator. The project has three specific aims. Aim 1 was to develop a custom REDCap infrastructure to streamline the collection of research participant feedback using the Research Participant Perception Survey (RPPS). The infrastructure includes an analytic dashboard module that allows researchers to visualize their RPPS survey data without the need for additional programming, and to aggregate deidentified data to the project's Consortium dashboard for benchmarking. The developed infrastructure and a comprehensive implementation Guide are shared on the [EPV project website](https://pubmed.ncbi.nlm.nih.gov/38476242/) and further described in a 2024 publication. (<https://pubmed.ncbi.nlm.nih.gov/38476242/>) Aim 2 involved using the infrastructure to send surveys to participants at each site, generating local data and locally configured use cases as proof of concept and models for dissemination. Aim 3 involved disseminating the new infrastructure free of charge to other CTSA and REDCap users to expand the consortium, broaden representativeness, and advance clinical translational science using participant-centered measures.

At Rockefeller University, the RPPS survey is fielded every other month via email to every research participant who has recently completed a study or signed informed consent at Rockefeller. Most participants in studies at Rockefeller report very positive experiences. Overall, more than 80% of participants at Rockefeller give their experiences one of the two highest ratings. Scores are also consistently high (>90%) for feeling listened to, respected, and free from pressure to join or stay in research.

Survey responses are linked to the protocol, Principal Investigator, and Laboratory; participant demographics and study characteristics are tracked for purposes of filtering. Project and Hospital leadership regularly review the responses, share study-specific findings with investigators, and use the data to inform practices and improve participants' experiences. Results from the survey at Rockefeller are shared on a [public-facing webpage](#) that was designed

with iterative input from the [Rockefeller Community Advisory Board](#). This is especially relevant, because approximately 50% of RPPS respondents rate "receiving a summary of the overall study results" of high importance when considering joining future research.

Raising awareness about the survey is important. We would like to hear from every participant. Currently, about 20-25% of participants return the survey, though younger participants (age 18-44 return it less often (13%) and participants 65 and older, more often (>40%).). At Rockefeller, race and ethnicity are well represented, with Black/African-American participants making up 22%, and Hispanic/Latino/a/x participants making up 18% of respondents.

At Rockefeller we have been sending a version of the RPPS since 2013, so we have a decade of results to track for trends, and as a foundation for measuring change. Prior to EPV, we documented the success of a long-term campaign to communicate to participants that we value their role in research, resulting in an absolute 20% point increase in the rating of feeling valued as a partner in research, as well as one lab's very successful intervention to improve the effectiveness of informed consent, with a parallel rise in their ratings for feeling prepared by the consent process and overall rating. The ability to monitor participant experiences over time and then act on the findings is crucial for continuing to improve our procedures and policies.

RU shares de-identified response data to the EPV Consortium Database, which allows us to compare our survey data in a blinded fashion with that of our peer institutions. The Consortium dashboard currently contains over 5,000 responses; contributors are the five original EPV sites, plus Columbia and the University of Michigan, which joined in 2023. The RPPS is a vital outcome measure that helps guide us in our commitment to continually improve the way we conduct our research at Rockefeller. The EPV is making this Rockefeller tool available to sites across the US.

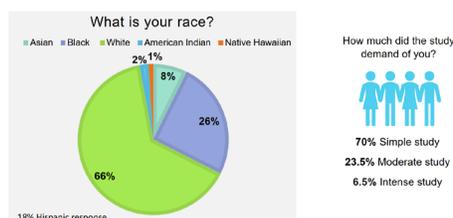


### Who received a survey?

Everyone! Participants who are 18 or older, and recently signed informed consent, or completed participation received an invite by email. For longer studies, participants receive surveys annually. We send surveys out every other month.

### Who Responded?

From January 2022 – June 2023, we sent 1002 surveys and received responses from 230 participants. Below are some of the characteristics of the participants who returned the survey.



# Meet the Scholar: Rachel W. Kimani, DNP

By Editorial Staff



Dr. Rachel Kimani joined the Clinical Scholars in July 2021 in the Laboratory of Neurogenetics of Language led by Dr. Erich Jarvis. Dr. Kimani received her Doctor of Nursing Practice from the State University of New York at Binghamton. Dr. Kimani's research focuses on how mental and physical comorbidity influences people's health trajectories and the implications of the complex mix of healthcare.

### **What sparked your research interest?**

During my five-year stint in the ER, I observed how quickly interventions and treatment guidelines changed. As a participant in projects related to sepsis improvement projects and updates to CPR guidelines, I realized that I was at the end of the research cycle's implementation. This sparked my curiosity about the research generation process, and I decided to apply to graduate schools to develop my career in scientific research.

### **How did you come to join the Jarvis Lab?**

Dr. Jarvis is a faculty mentor at the Pathways Project of Rockefeller University. The project uses Compassion-Based Resilience Training (CBRT). This evidence-based model teaches individuals the science and skills to reduce stress, improve resilience, and live a life of well-being and engagement. The project is based on Dr. Bruce McEwen's research on allostasis and neuroplasticity and incorporates mindfulness techniques to combat stress and improve self-perception. In 2021, I joined the project, motivated by the Black Lives Matter movement to work on racism-based stress. As a Clinical Scholar at Rockefeller, I aim to apply clinical translational science techniques to study

how racial stressors impact health and develop effective and culturally relevant interventions to address the health effects of racism.

### **What is your current research?**

My research aims to understand how racial stress affects individual health outcomes. I am building on Dr. Bruce McEwen's allostatic load concept to develop a theoretical framework. This framework suggests that stress is initially processed cognitively, leading to behavioral and physiological adaptations that preserve homeostasis or allostasis. However, chronic activation of these adaptive mechanisms, without adequate recovery periods, leads to an 'allostatic load,' which can cause various pathophysiological conditions.

Although systemic racism is recognized to have led to entrenched health disparities, there is a lack of targeted interventions that can effectively address the resultant health outcomes. To tackle this issue, I am collaborating with bench scientists and social scientists to measure biomarkers of racism-based stress and develop culturally sensitive and evidence-based interventions. The main goal of these interventions is to reduce the adverse health effects associated with racial tension and promote health equity.

### **What were your expectations when you joined the Clinical Scholars program, and were they met?**

When I joined the Clinical Scholars program, I had a vision to lead a comprehensive project that would leverage the strengths and perspectives of a diverse group of participants, resulting in multiple scholarly publications. In retrospect, while the ambition was admirable and provided a fertile ground for my research ambitions to flourish, I learned the value of perseverance.

### **What has been a learning opportunity or teaching moment as a Clinical Scholar?**

As a Clinical Scholar, I have gained much knowledge and experience in developing a protocol and being the Principal Investigator. Each stage of my research has taught me something new.

However, the most enlightening aspect of my work has been realizing that research is a gradual process. As a result, I have learned to appreciate the importance of patience and the confidence that arises from building something significant over time.

### **What has been the most educational, engaging, or surprising aspect of being in the Clinical Scholars program?**

Interdisciplinary learning is crucial, and as part of my program, I have participated in seminars outside of my field. These experiences have been both educational and eye-opening, challenging my perspective on problem-solving. By understanding others' approaches, I have enriched my research.

### **If someone asked you to describe the Clinical Scholars program in one sentence, what would it be?**

The Clinical Scholars program provides a unique opportunity for clinicians to expand their skills, receive mentorship in clinical research, and become leaders in healthcare through academic advancement and the development of clinical innovation.

### **What are your next steps/career goals when you graduate from the program?**

My goal is to make a real difference through my research. The Clinical Scholars program has been a significant step toward achieving that goal. Therefore, I am actively seeking a faculty position where I can continue my research on health inequalities and contribute positively to education and policy.

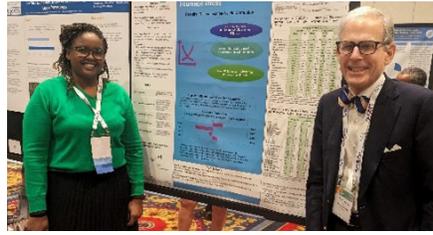


Dr. Tamar Berger, a 2nd-year Clinical Scholar, presented a poster and gave an oral presentation on her impactful research project, ‘Detection of premalignant changes in Fanconi anemia (FA) mucosa.’ Patients with FA face an exceptionally high risk of head and neck squamous

cell carcinoma at a young age, which is the leading cause of mortality in this population. Employing a molecular screening tool could enable earlier detection of oral cancer, thereby opening the possibility of using preventive treatment to save lives. Dr. Berger and her colleagues have developed a noninvasive screening tool for the identification of premalignant genetic biomarkers in normal-appearing mucosa and lesions of patients with FA. The goal is to allow early premalignant intervention to prevent the development of cancer.

Dr. Bernadette ‘Candy’ Capili, Director of Heilbrunn Family Center for Research Nursing, presented a poster on ‘Team Science Training Needs and Preferences for Clinical Research Professional Roles: A Mixed Methods Needs Assessment.’ Her project is to identify areas where competency improvement is needed and decide on the preferred training method to strengthen the skills of clinical research professionals.

Dr. Rachel Kimani, a 3rd-year Clinical Scholar, presented a poster on her research, ‘Racism-based stress injury and



Rachel Kimani and Barry Collier

biomarkers of stress: A Feasibility and Correlation study.’ The goal of this study is to inform the development of culturally responsive interventions to reduce the detrimental effects of race-based stress and trauma.

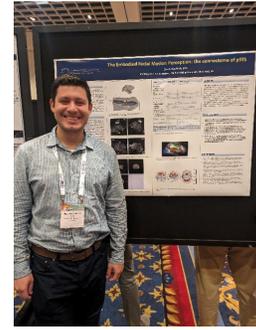
Dr. Rhonda G. Kost, Associate



Genesis Burgos-Rivera, Anna Rauso, Natalie Schlesinger, and Rhonda Kost

Professor of Clinical Investigation and Clinical Research Officer, presented two posters: ‘Placing Participant Experiences at the Center of Improving Research by Empowering the Participant Voice,’ and ‘Full Spectrum Town Hall Meetings: Advancing Clinician-Patient-Researcher Engagement for Hidradenitis Suppurativa.’

These presentations highlighted researcher-participant and research-community engagement as ongoing practices in relationship-building that fosters mutual respect, empowers communities, and helps investigators remove barriers to research.



The goal is to accelerate discovery and move discoveries toward treatments that improve health and quality of life.

Dr. Emre Mordeniz presented his research, ‘The Embodied Facial Motion Perception: The connectome of pSTS.’ This finding provides a novel understanding of emotion perception and social cognition by showing evidence for an embodied process with possible implications in diagnosing and treating social cognition deficits of psychiatric disorders.

The CCTS team enjoyed the conference, networking, and learning more about the exciting research conducted at CTSA Hubs. One activity appreciated by all was the opportunity



to have lunch and enjoy each other’s company.

## Chagas Disease as an Emerging Infectious Disease in the USA

continued from page 1

although local transmission has also been identified in southern states. With support from a pilot project funded by [The Stavros Niarchos Foundation Institute for Global Infectious Disease Research](#), we built a full-spectrum translational research team to address the emerging Chagas disease epidemic in the US. The team includes primary care and infectious disease clinicians, laboratory scientists, pharmacists, epidemiologists, mathematicians, and other public health researchers from different institutions, including [Federally Qualified Health Centers \(FQHCs\)](#), [Migrant Health Centers](#), major universities, and teaching hospitals (see the list of partnering institutions in the Box). The Chagas

### Community-Academic Partnership:

- The Rockefeller University
- Clinical Directors Network (CD)
- Sun River Health
- Migrant Clinicians Network (MCN)
- University of California San Diego
- Center for Discovery and Innovation in Parasitic Diseases San Diego State University
- University of California San Francisco
- University of Texas Health Science Center at San Antonio
- Baylor College of Medicine/National School of Tropical Medicine
- University of Florida
- New York University
- Rita Allen Foundation
- Stavros Niarchos Foundation

Disease Research and Learning Community meets online monthly

for 1.5 hours to discuss different topics, including clinical and public health practice priorities; current recommendations for Chagas disease diagnosis and treatment; adaptation and implementation of clinical practice guidelines into low-resource settings, such as at FQHCs and other safety net practices, how to increase screening, and epidemiologic surveillance; designing and conducting randomized controlled trials for special populations that include pregnant and post-partum women, infants, and children; mathematical models of the spread of the disease; and use of Artificial Intelligence (AI) to identify undiagnosed cases using electronic health record (EHR) data.

We have partnered with the [University of Texas Health San Antonio ECHO Program](#) and [Dr. Paula Stigler Granados](#) of San Diego State University and created an educational program consisting of 4 CME/CNE accredited sessions, each 1.5 hours long. The topics included: 1. Chagas Disease in the USA: Screening, Diagnosis, and Treatment for Primary Care Clinicians. 2. Congenital and Pediatric Chagas Disease in the USA; 3. Chagas Disease as a Migrant Health Issue. 4) Interprofessional Team Approaches to Chagas Disease Managements.

These interactive online educational sessions were attended by 315 individuals from the US and other countries. Attendees included nurses, NPs, MDs, public health professionals who work for health departments and FQHCs and other safety net practices, university/teaching hospitals, and other hospitals and health centers. Pre-post evaluations revealed that the sessions increased participants' knowledge about Chagas disease as well as their confidence to diagnose, screen, and treat Chagas disease. Many attendees also expressed interest in additional presentations about other infectious or parasitic diseases, such as Chikungunya, Dengue, Zika, and Hepatitis. We have also developed a partnership with [Baylor's National School of Tropical Medicine](#), headed by [Dr. Peter Hotez](#), who also serves on the [SNF International Advisory Board](#). Dr. Hotez is a leader in both basic and clinical research in Chagas disease.

We also evaluated the feasibility of extracting electronic health records (EHR) data to characterize the epidemiology, practice patterns and clinical outcomes related to Chagas disease by conducting a retrospective assessment at several Health Information Exchanges (HIEs) and Clinical Data Research Networks (CDRNs) that combine EHR data from large number of FQHCs, safety net and other healthcare practices. In addition, we obtained data from large national databases with access to EHR data from health systems that combine billions of clinical data points in ways that form high-quality, longitudinal data sets.

The number of identified Chagas disease cases was unexpectedly small. For example, a commercial national clinical database that includes data from 330 million patients, identified approximately 2,000 patients with Chagas disease diagnosis, a number that is dramatically lower than CDC's current estimate of [288,000 people infected with Chagas disease in the US](#). These data suggest significant deficiencies in Chagas disease testing, diagnosis, and treatment. The reasons for this gap may include immigration status of patients, lack of insurance, stigmatization, lack of access to tests and treatment options.

To expand this work, Dr. Tobin has been awarded a grant of \$211,000 from the [Rita Allen Foundation](#) to support one [Civic Science Postdoctoral Fellow](#) for 18 months. Abbey Jones, PhD in

Epidemiology from School of Global Public Health at New York University, was chosen for this position and joined the Chagas team in June 2024 following her graduation.

Our future Chagas disease work will include development of additional online educational sessions with the goal of increasing Chagas disease knowledge and awareness. Additionally, we are developing a model for screening and linkage to care at FQHCs and other safety-net practices, adapting current guidelines to low-resource settings, and conducting epidemiologic surveillance and characterization of diagnosed patients by analyzing de-identified EHR data from local and national data systems. Finally, we propose to develop randomized control trials (RCTs) for Chagas disease treatment in children and infants using different formulations of FDA-approved anti-parasitic drugs and RCTs to prevent cardiomyopathy and heart failure, potentially repurposing existing FDA-approved medications as well as testing new drugs under development.

All information related to this project, including recordings of the CME-accredited ECHO educational sessions, are consolidated in a dissemination webpage at [CDNetwork.org/chagas](#).



Dr. Jonathan Tobin presents on the Chagas Study at the 2024 SNF Institute for Global Infectious Diseases Research Symposium



Chagas Disease Pilot Study Poster Presentation at 2024 SNF Symposium: (Left-to-Right) Janet Haas, PhD, RN, Jonathan N. Tobin, PhD, Marija Zeremski, PhD, Eunice Mak, MPH, Melissa Samanoglu, and Abbey Jones, PhD

# Celebrating a Decade of Excellence: 10th Anniversary of the Heilbrunn Nurse Scholar Program

Continued from page 1

including PhD students, post-doctoral fellows, and assistant professors. These scholars, hailing from the Northeast, Midwest, and South, have garnered numerous accolades, including prestigious National Institutes of Health (NIH) research awards, including R01s, R21s, K awards, and F99/K00 awards, as well as foundation grants from the Fulbright, Jonas, and Hillman foundations.

## ***Memorable Moments from the Anniversary Celebration***

Sixteen Heilbrunn Scholars attended the celebration and Dr. Collier saluted them by noting that many of the Nurse Scholars have gone on to outstanding careers in academia and government, fulfilling the mission of the Center “to promote research nursing locally, nationally, and internationally.” Dr. Collier specifically recognized Dr. Marilyn DeLuca, a national nursing leader and major Center advisor, for her steadfast support and contributions to the Heilbrunn Nurse Scholar program.

## ***Insights from Our Esteemed Alumni***

The scientific symposium featured two insightful panels moderated by Heilbrunn alumnae. Karen Jennings Mathis (2019 Cohort), Associate Professor at Brown University, and Krista Knudson (2016 Cohort), Assistant Professor at Marquette University, co-chaired the session and led a stimulating discussion with the Extramural Nursing Research Advisory Committee Panel, which included:

- Dr. Marilyn DeLuca (Principal, Global Health-Systems-Philanthropy Consulting and New York University School of Medicine)
- Dr. Margaret Barton-Burke (Memorial Sloan Kettering Cancer Center)
- Dr. Wendy Henderson (University of Pennsylvania)
- Dr. Lisa Lewis (Rutgers University-Camden)
- Dr. Rita Pickler (The Ohio State University)

The panel addressed critical questions about early-career nurse scientists,



covering mentoring, technology, and artificial intelligence. The panelists shared valuable lessons they learned during their careers.

- The second panel featured Heilbrunn Alumnae:
  - Dr. Susan Malone (2014 Cohort), Assistant Professor, New York University
  - Dr. Christina Marea (2018 Cohort), Assistant Professor, Georgetown University
  - Dr. Jennifer Glayzer (2021 Cohort), Post-Doctoral Research Scientist, Indiana University

They shared how the Heilbrunn program impacted their careers. Christina Marea discussed how the data collection instrument she developed as a Heilbrunn Scholar, which focused on the care of women and girls affected by female genital mutilation/cutting, has now been used in 30 countries. Susan Malone recounted her pioneering research that showed a novel relationship between the length of sleep intervals and metabolic disorders in young adults.

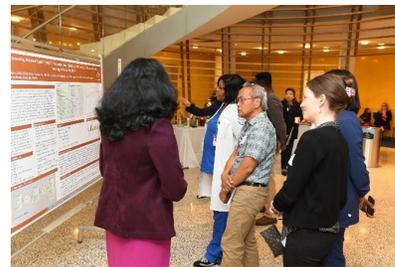


## ***Highlighting Current Researchers***

Current Heilbrunn researchers presented their innovative work, including Avery Bechtold, a post-doctoral fellow at the

University of Alabama-Birmingham, who is studying the experiences of patients and families with left ventricular assist devices, and Katie Yang, a Ph.D. student at the University of Rochester, who is studying intuition and memory in clinical nursing practice.

Dr. Capili emphasized that many Scholars focus their research on understudied conditions and hard-to-reach populations. She stated, “By impacting the lives of people in



marginalized communities, Nurse Scholar researchers assist in achieving health equity.” Dr. Capili also noted that the program has gained national acclaim for the high-quality of the research performed by the Scholars. She noted that, “As nursing professionals and researchers nationwide learn about the Heilbrunn Nurse Scholar Award, many see it as an early career success marker.”



Dr. Barry Collier presenting Ms. Helaine Lerner with the Heilbrunn Nurse Scholar program

# Discovering the Molecular Structure of Antibodies and Elaborating the “Sciences of Recognition”

By Elizabeth (Betsy) Hanson



Antibodies are proteins made by the immune system. They seek out specific antigens-toxins, the cell walls of bacteria, or the outer coats of virus particles, for example to disable these invaders or signal other cells to remove them. For decades, immunologists puzzled over the amazing specificity of antibodies for the antigens to which they bind. In the late 19th century Paul Ehrlich proposed that the the answer lay in their molecular structure. But only in the mid-20th century did methods become available to study large proteins such as antibodies.

Gerald Edelman (1929-2014) began working to decipher the structure of antibodies, also called immunoglobulins (IgGs), when he joined the Rockefeller laboratory of Henry Kunkel in 1958 as a graduate student. Over the next several years, and after joining the university's faculty, he showed that IgG molecules were composed of two types of polypeptide chains, known today as light and heavy chains. At the same time, Rodney Porter at the University of Oxford, UK, used a complementary approach to chemically split apart the IgG molecule and deduce its Y-shaped structure. Edelman went on to determine the complete 1,300 amino acid sequence of an immunoglobulin, the longest amino acid sequence to be worked out at that time.

“For their discoveries concerning the chemical structure of antibodies,” Edelman and Porter shared the Nobel Prize in 1972. This research launched the field of molecular immunology, and opened the door to the wide-ranging use of antibodies in diagnostic testing-from home pregnancy tests to tests for allergies and infectious diseases such as hepatitis-and as therapies, for example to control the rejection of organ transplants, treat autoimmune diseases and cancers, and inhibit blood platelets from causing heart attacks..

Edelman has described immunology as a “science of recognition,” and in the 1970s he shifted the focus of his research to another such science: the mechanisms of cell-cell interaction in the early development of the embryo and in the formation and function of the nervous system. These studies led to the discovery of cell adhesion molecules (CAMs)-molecules that glue cells together to form tissues, and that guide the fundamental processes of development, including the formation of the nervous system. It was, in fact, the discovery of a specific antibody that allowed Edelman in 1974 to isolate the neural cell adhesion molecule (NCAM), the first cell-cell adhesion molecule to be purified and characterized.

One of the most significant insights provided by this work is that the precursor gene for the neural cell adhesion molecule gave rise in evolution to the entire molecular system of adaptive immunity. Expanding on this discovery, Edelman formulated a detailed theory to explain the development and organization of higher brain functions in terms of a process known as neural Darwinism, or neuronal group selection. He then extended this theory into a new, biologically based theory of consciousness.

Gerald M. Edelman received the BS from Ursinus College (1950), the MD from the University of Pennsylvania School of Medicine (1954), and the PhD from the

Rockefeller Institute (now University; 1960). He did research at the Johnson Foundation for Medical Physics (1954-1954), and served as medical house officer at the Massachusetts General Hospital (1954-1955), as captain in the U.S. Army Medical Corps (1955-1957), and as assistant physician at the Rockefeller Hospital (1957-1960). In 1960 he joined Rockefeller's faculty and served as assistant dean of graduate studies, rising to professor in 1966. In 1974 Edelman was named Vincent Astor Professor at Rockefeller. He founded the Neurosciences Institute in 1981. In 1992 Edelman moved to the Scripps Research Institute, where he is today professor and chairman of the department of neurobiology. Edelman also remains director of The Neurosciences Institute in La Jolla, California. In addition to the Nobel Prize (1972), Edelman's achievements have been recognized by The Warren Triennial Prize (1992), the Medal of the Presidency of the Italian Republic (1999), the C.U. Ariens-Kappers Medal (Netherlands Institute for Brain Research, 1999), La Medaille de la Ville de Paris (Echelon Vermeil, 2002), and the Santiago Grisolia Chair Prize (2003). He has received honorary degrees from many universities, including The Rockefeller University (2008). Among other learned societies, Edelman is a member of the U.S. National Academy of Sciences, the American Academy of Arts and Sciences, the American Philosophical Society, and the Academy of Sciences of the Institute of France.

## New RU-CCTS Community Advisory Board

Continued from page 4

on the project website. In September, Clinical Scholar Rachel Kimani presented her proposed pilot project, “Effects of Compassion-Based Resiliency Training (CBRT) Intervention on Racism-based Stress among African Americans: A Pilot Study,” which builds on the results of her prior protocol, “Racism-based stress injury and biomarkers of stress: A Feasibility and Correlation study”. The CAB was particularly interested in how the investigator is integrating mechanistic science and behavioral

interventions to understand and mitigate the negative health impact of racism. In November, Clinical Scholar Julia Wu presented her new project, “Investigating the impact of inflammation on amyloid precursor protein (APP) expression in the hematopoietic compartment.” The CAB provided valuable patient and community perspectives on priorities, approaches, and communication.

In November, the CAB elected Logan Bellew as its first Vice-Chair. Mr. Bellew is working with Ms. Guishard and the rest of

the CAB to enlarge the membership and impact of the CAB. Investigators who are interested in meeting with the CAB and/or discussing their research with the CAB for feedback should contact Anuradha Hashemi, the Community Engagement Specialist ([ahashemi@rockefeller.edu](mailto:ahashemi@rockefeller.edu)) for more information.