



Center for Clinical and Translational Science e-Newsletter

Center News

NCATS Director Cites Rockefeller Paper as CTSA Program’s “Greatest Hit” of Past Two Years

By Editorial Staff

At the 2022 Clinical and Translational Science Awards Program Annual Meeting in November, the focus was developing an effective, efficient, and predictive pipeline to bring more treatments to all people more quickly. Joni L. Rutter, Ph.D., Director of the National Center for Advancing Translational Sciences

(NCATS) at the National Institutes of Health singled out the 2021 Nature paper from the Nussenzweig lab entitled mRNA vaccine-elicited antibodies to SARS-CoV-2 and circulating variants in her keynote address as the national CTSA program’s “Greatest Hit” in the past 24 months, with more than 800 citations

from its publication in February 2021 to November 2022. In addition to Dr. Nussenzweig, four current or former Clinical Scholars, Zijun Wang, Dennis Schaefer-Babajew, Christian Gaebler, and Marina Caskey were coauthors of the paper.

CTSA Greatest “Hit” in Last 24 Months

Article
mRNA vaccine-elicited antibodies to SARS-CoV-2 and circulating variants

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Zijun Wang¹, Fabian Schmidt¹, Yiska Weisblum¹, Frauke Muecksch¹, Christopher G. Barnes¹, Shlomo Finklin¹, Dennis Schaefer-Babajew¹, Melissa Cipolla¹, Christian Gaebler¹, Jenna A. Lieberman¹, Thiago T. Oliveira¹, Zhu Yang¹, Morgan E. Abernathy¹, Kathryn E. Huey-Tubman¹, Ariene Hurley¹, Martina Turroja¹, Kamille A. West¹, Kristie Gordon¹, Katrina G. Millard¹, Victor Ramos¹, Justin Da Silva¹, Jianliang Xu¹, Robert A. Colbert¹, Roshni Patel¹, Juan Dizon¹, Cecille Unson-O'Brien¹, Irina Shmeliovich¹, Anna Gazumyan¹, Marina Caskey¹, Pamela J. Bjorkman¹, Rafael Casellas¹, Theodora Hatziioannou¹, Paul D. Bieniasz^{1,2} & Michel C. Nussenzweig^{1,2}

• Nature, 10 Feb 2021
 • Total Citations: 806 via iCite, (CrossRef has 628)
 • Supported by the Robert S. Wennett Post-Doctoral Fellowship, in part by the National Center for Advancing Translational Sciences (NIH Clinical and Translational Science Award program grant UL1 TR001866).

The Rockefeller University 1901
 NIH National Center for Advancing Translational Sciences

Research of Clinical Scholar Graduate, Dana Orange, Highlighted in the NIH Director’s Blog

By Editorial Staff

The exciting research conducted by Dr. Dana Orange was highlighted in Dr. Lawrence Tabak’s NIH Director’s Blog, [Connecting the Dots: Oral Infection to Rheumatoid Arthritis](#). Dr. Orange graduated from the Clinical Scholars program in 2012 and is now Associate Professor of Clinical Investigation in the Laboratory of Molecular Neuro-oncology at Rockefeller University headed by Dr. Robert Darnell. Dr. Orange is the project leader on an R01 NIH award, Investigating Mucosal Breaks in the Initiation and Progression of Rheumatoid Arthritis.

People with rheumatoid arthritis are more likely to have gum disease than those without and patients with rheumatoid arthritis who have concurrent gum disease have worse

arthritis symptoms and are harder to treat. However, the ways in which inflammation in the gums might relate to inflammation in the joints is not clear. Dr. Orange and Darnell have been studying the blood of patients with rheumatoid arthritis and recently discovered that robust inflammation develops two weeks before the symptoms of a painful joint flare-up. They next wondered what caused that inflammation. In an analysis designed to test whether there might be a microbial trigger for painful joint flare-ups, they discovered that their patients with rheumatoid arthritis and concurrent gum disease had frequent, sporadic episodes with oral bacteria in their blood. The oral bacteria triggered a type of inflammatory cell (monocyte) that is found exclusively in the joints of rheumatoid arthritis patients who do not

respond to anti-inflammatory therapy. In collaboration with William Robinson of Stanford University in California, they further discovered that the oral bacteria they detected in the blood were recognized by autoantibodies produced by patients with rheumatoid arthritis. Comparisons of the sequences of these antibodies indicated that, in some cases, B cells may initially be triggered by oral bacteria and can then damage human joint tissue.



Shen-Ying Zhang, MD, PhD Elected to The American Society for Clinical Investigation

By Editorial Staff



Dr. Shen-Ying Zhang, Clinical Scholars program class of 2011, was elected to The American Society for Clinical

Investigation (ASCI) and inducted on April 20, 2023. The ASCI is a national society comprised of physician-scientists dedicated to improving the health of all people through medical research. Election to ASCI is based on outstanding scholarly achievement. The ASCI was started in 1908, with Dr. Samuel Meltzer of Rockefeller

a founding member, and is one of the country's oldest medical honor societies. ASCI members are leaders in research, clinical care, and medical education. Many hold important leadership roles in academic medicine and the life sciences industry.

Dr. Zhang's research focuses on the central nervous system's molecular and cellular bases of antiviral immunity. Dr. Zhang and her colleagues were the first to show that encephalitis due to infection by HSV-1 and other viruses is not only a pure, viral illness, but that it may also result from single inborn genetic errors impairing brain-specific cell-intrinsic antiviral immunity. Her team within the St Giles Laboratory of Human Genetics of Infectious Diseases discovered that monogenic mutations affecting the production or activity of interferons, the most potent defenses

human cells have against viruses or genes governing other antiviral mechanisms result in impaired central nervous system cell-intrinsic antiviral immunity and underlie viral encephalitis pathogenesis. The former group include TLR3, MDA5, UNC93B1, TRIF, TRAF3, TBK1, TRIF, IFNAR1 and other important molecules of the type I IFN pathways, and the latter include DBR1, SNORA31, and RIPK3. These groundbreaking findings are guiding molecular diagnosis and genetic counseling for affected children and their families. Her work is changing the way we think about how the human central nervous system protects against viruses and has laid a path for new efficient treatment strategies of viral encephalitis.

Clinical Scholar Graduate, Dr. Christian Gaebler Receives the German AIDS Prize 2023

By Editorial Staff



Prof. Dr. Stefan Esser, CEO of DAIG, presents Dr. Christian Gaebler (right) the German AIDS Prize at the German-AIDS Congress. Image credit: © SV Veranstaltungen

Dr. Christian Gaebler from the Charité - Universitätsmedizin Berlin has received the [German AIDS Prize 2023](#) from the German AIDS Society (DAIG). The award recognizes his outstanding research on an innovative therapeutic approach against the human immunodeficiency virus (HIV). The award ceremony took place on March 24, 2023, at the German-Austrian AIDS Congress in Bonn.

Dr. Gaebler joined the Charité Clinic for Infectious Diseases and Intensive Care Medicine after graduating from the Clinical Scholars program in

2021 and now leads the Laboratory of Translational Immunology of Viral Infections. He received the award for the studies he conducted on prolonged viral suppression with anti-HIV-1 antibody therapy when he was Assistant Professor of Clinical Investigation at Rockefeller University in the Laboratory of Molecular Immunology headed by Michel C. Nussenzweig, M.D., Ph.D.

Torian Easterling, MD, MPH, Delivers Seminar in Clinical Research on Advancing an Anti-Racism Public Health Agenda: From Science to Practice

By Maija Williams, MPH



On March 22, 2023, Dr. Torian Easterling presented a lecture entitled Advancing an Anti-Racism Public Health Agenda: From

Science to Practice in the Seminars in Clinical Research series. Dr. Easterling is a family medicine and public health physician who was recently named Senior Vice President for Population and Community Health and Chief Strategic and Innovation Officer for One Brook-

lyn Health, a consortium of three major hospitals and their affiliated facilities in Central Brooklyn. Prior to his role at One Brooklyn Health, Dr. Easterling served as the First Deputy Commissioner and Chief Equity Officer at the NYC Department of Health and Mental Hygiene.

Dr. Easterling's presentation focused on fostering transparent and accountable partnerships by working with humility and transparency to organize collective action, taking responsibility for addressing and repairing harms when they emerge, eliminating the communication gap between decision-makers and those impacted by decisions,

and creating an equitable workplace by establishing racial equity and social justice by integrating equity in hiring, external and internal communication, and management practices grounded in compassion. He also spoke on using data to highlight and contextualize social and structural inequities and experiences of injustice through robust collection, analysis, interpretation, and sharing of both qualitative and quantitative data.

The seminar elicited engaged discussion by those attending in person and the more than 300 virtual attendees. Clinical Directors Network, Inc. recorded the event and it can be viewed [here](#).

Translational Science Conference 2023

By Editorial Staff

The Association for Clinical and Translational Science (ACTS) conference 2023 was held in Washington, DC in April. ACTS members across the United States attended, presented their latest research findings, and discussed the future of translational science and clinical research.

The Society for Clinical and Translational Science (SCTS) was founded in 2010 with Dr. Barry Collier as the first president. In 2013, SCTS merged with the Association of Clinical Research Training to form ACTS. Currently, ACTS has almost 5,000 members who work in academia, business, charitable organizations, and government. The conference is an excellent opportunity for trainees to present their research and participate in career development and mentoring workshops. The highlight for many trainees is the visit to Capitol Hill to meet with representatives of the House and Senate and provide updates on the latest translational research.

Dr. Amihai Rottenstreich, a first-year Clinical Scholar in the Laboratory of Blood and Vascular Biology, gave an oral presentation on his study, Genetic, Laboratory, and Clinical Factors Associated with Low-Dose Aspirin Failure in the Prevention of Preeclampsia. Aspirin is prescribed to prevent preeclampsia, but not all women are protected. Dr. Rottenstreich is studying the potential impact of a genetic variant in a platelet receptor that enhances platelet activation on the response to aspirin. This may lead to a personalized medicine approach to prevention of preeclampsia based on a genetic analysis.

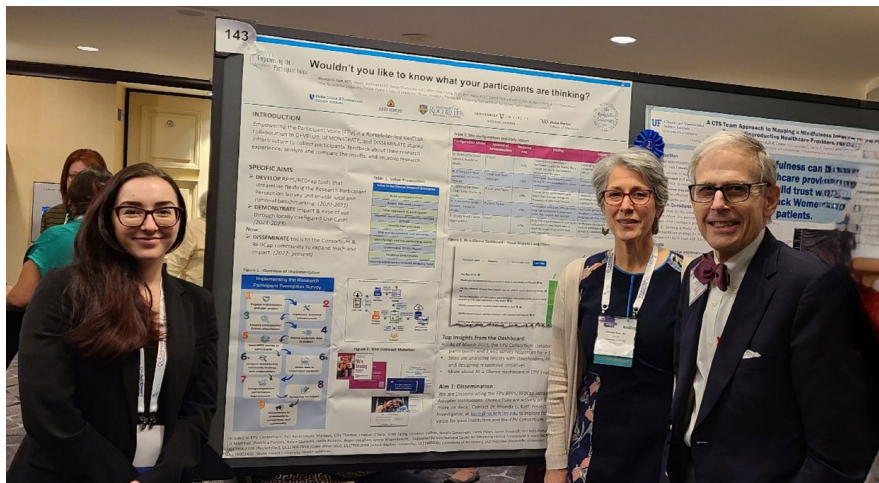
Dr. Rhonda Kost presented her research on engaging research participants, “Wouldn’t you like to know what your participants are thinking?” Investigators, ethics boards, research managers, and directors are all interested in hearing what research participants say, and most research participants are eager to share their thoughts. Yet, common problems make it hard to get feedback in many situations, so this



Amihai Rottenstreich, MD

feedback is often not collected. Common issues include finding the right tool, accessing infrastructure for sending surveys

clinical research. This project will set up the infrastructure to make getting feedback from people who participated in



Natalie Schlesinger, Project Coordinator, Dr. Rhoda Kost, Principal Investigator, and Dr. Barry Collier, Principal Investigator, Center for Clinical and Translational Science

and keeping track of metadata, allocating time and people, getting the proper training and resources, and analyzing the data with tools and standards. A large group of stakeholders is interested in learning how research participants feel about their experience as research participants, since such information is crucial for improving

the research easier. It will also set up the framework for benchmarking within and across institutions, which is crucial for judging performance and making it better.

Development of the Heilbrunn Research Complexity Instrument

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

The development and implementation of outstanding clinical research studies presents many challenges. Barriers include complex regulatory requirements, restrictive eligibility criteria, specific study timelines, and limited funding. To overcome these barriers and ensure the study's quality and integrity, it is vital that studies have sufficient expert personnel to conduct the research. Specifically, clinical studies require appropriate staffing to support screening for establishing trial eligibility, participant recruitment, obtaining informed consent, ensuring fidelity to treatment (e.g., retention, study maintenance, study adherence), and complying with serious adverse events (SAE) reporting and follow-up. A study that does not have sufficient expert personnel is at risk of compromised participant safety and data quality. Despite the need for appropriate staffing, few quantitative models inform staffing needs to ensure the study's safe conduct, achieve the study goals, and stay within budget.

Published methods to evaluate workload and study complexity related to clinical research are scant. Available tools are specific to oncology research, but do not differentiate between inpatient or outpatient settings, or differentiate by credentials of the research professional (technician, clinical research nurse, non-nurse coordinator) who will implement the research activities. Also, definitions for workload, study complexity, and methods to evaluate the reliability and validity of existing tools are not described in detail.

Clinical research professionals, including nurses, integrate the following information in a clinical research study: 1) input from a variety of clinical staff, including but not limited to pharmacy,

laboratory, radiology, and clinical staff from outpatient and inpatient settings; 2) protocol logistical review, including examination of the draft protocol, logistics, staff adjustments, and budget; 3) protocol approval process, including scientific and institutional review board committee meetings, and reviews of protocol tools, sponsor communication, and staff education; 4) research participant pre-screening, protocol visit management, assessment and recording of adverse events, source documentation, invoicing, and query resolution; and 5) sponsor correspondence, including adverse event reporting, monitoring visit status, and study start-up and close-out visits. These aspects of clinical research staff responsibilities must be considered carefully in a model to assess workload and study complexity. Yet, there remains no instrument to scale the multifaceted dimensions of study complexity.

Therefore, there is a need to identify objective metrics to determine clinical research study complexity for non-oncology clinical research studies. Such metrics can provide investigative teams with an objective method to quantify the activities associated with clinical research studies based on factors contributing to increased study complexity.

Dr. Capili and her colleagues proposed a project to the national CTSA Steering Committee and the Steering Committee awarded the proposal support as a CTSA Working Group. Specifically they proposed to fill this gap by developing a scoring rubric for clinical research studies that captures various metrics critical to the development, administration, and execution of studies.

This project has two phases. Phase

1, which is now completed, entailed face and content validity testing using a sample of established clinical research professionals. Recruited participants were from the team's professional network. Participants rated the HRCI items using a 4-point Likert scale (highly relevant to highly irrelevant). Participants were then invited to attend a ZOOM session to participate in the content validity testing using the 'think aloud' approach. The study team is currently completing Phase 2. Phase 2 focuses on establishing the inter-rater reliability of the tool. In addition, the Working Group is recruiting at least 30 clinical research professionals to use the new tool and to score two clinical research examples.

The authors of this tool include, in addition to Dr. Capili, Allison Norful, Columbia University; Margaret Barton-Burke, Memorial Sloan Kettering Cancer Center; Christine Kovner, New York University School of Medicine; Laura Viera, University of North Carolina Chapel Hill; Jacqueline Attia, University of Rochester; and Scott McInosh, University of Rochester.

*Study Complexity Workgroup Members
Bridget Adams, Oregon Health & Science University; Ashley Arrington, University of North Carolina; Marisa B Chiodo, University of Rochester; Gallya Gannot, NCATS; Olga Jarrin Montaner, Rutgers University; Susanne Heininger, University of Rochester; and Kitt Swartz, Oregon Health & Science University.



Bernadette 'Candy' Capili, PhD, NP-C

The Rockefeller University Hospital and Center for Clinical and Translational Science Sponsor an Employee Appreciation Luncheon

By Editorial Staff

The Rockefeller University Hospital and Center for Clinical and Translational Science (CCTS) held an Employee Appreciation Luncheon on April 10, 2023. The luncheon honored the Hospital and CCTS staff for their extraordinary dedication and expertise. Ms. Maija Williams, Chief Operating Officer of the Hospital, acknowledged that the last two

years of the COVID-19 pandemic have been very challenging. Through it all, the staff continued to support important research, even at great personal risk, that produced crucial information on the immune response to SARS-CoV-2 infection and vaccines, in addition to producing monoclonal antibodies to the virus. Dr. James Krueger, CEO of the

Hospital, praised and recognized the staff's efforts. Dr. Barry Coller, Physician-in-Chief, emphasized the staff's courage and the crucial information that came from the studies the staff supported. This heroic effort epitomizes the mission of the Hospital.



Dr. Mi-Kyung Song Delivers the 2023 Beatrice Renfield Lectureship in Research Nursing

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 15th Annual Beatrice

Renfield Lecture on Research Nursing on March 28, 2023. Dr. Barry Coller, 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, Mi-Kyung Song, PhD, RN, FAAN.

Dr. Song is the Edith F. Honeycutt Chair in Nursing and Director of

the Center for Nursing Excellence in Palliative Care at Emory University's Nell Hodgson Woodruff School of Nursing.

Dr. Song's research focuses on improving end-of-life and palliative care for patients with multiple severe chronic illnesses, especially for patients with advanced kidney disease or after lung transplantation, and their family members. Her research focuses on end-of-life communication, treatment decision-making, surrogate decision-making, and integration of palliative care and bioethics. Dr. Song expertise includes theory-guided intervention development and testing, clinical trials, and biostatistics. She has led numerous NIH-funded intervention trials in the area of end-of-life communication.

Dr. Song's presentation, "The Challenges of End-of-Life Decision Making," focused on her original research program, Sharing Patient's Illness Representation to Increase Trust (SPIRIT) program, which focuses on advanced care planning with patients' family members and care providers to promote mental and emotional

preparation for end-of-life decision-making. She discussed the lessons learned from the SPIRIT program and methods to implement advanced care planning in a real-world setting. For example, through the SPIRIT program, patients can examine their values related to end-of-life care and share them with their caregivers. At the same time, caregivers can also understand their loved-ones illness progression and get prepared for their role as surrogate decision-makers.

One hundred and seventy-four individuals attended the lecture, including representatives from the Heilbrunn Family, the Beatrice Renfield Foundation, the Rockefeller University Hospital Nursing Department, the CCTS Clinical Research Support Office, Facilitation Office, Regulatory Affairs Group, members of Rockefeller Laboratories, and nurses and nursing students from New York and surrounding areas. Also in attendance were five Heilbrunn Nurse Scholars. In addition, Dr. Song's presentation was webcast by the Clinical Director's Network (CDN) to a wide audience across the country.

Clinical Research Nursing at Rockefeller University Hospital

By Rita Devine RN, MPA & Tia Gareau BSN

Clinical research nursing is defined as the specialized practice of professional nursing focused on maintaining equilibrium between care of the research participant and fidelity to the research protocol. This specialty practice incorporates human subjects' protection, care coordination and continuity, and contribution to clinical science, clinical practice, and study management throughout a variety of professional roles, practice settings, and clinical specialties. Clinical research nurses must integrate expert clinical skills, well-developed critical thinking, and knowledge of regulatory, ethical, and scientific aspects of clinical research into practice.

It is important to clarify the distinction between a clinical research nurse (CRN) and a nurse researcher. Although there may be role overlap, a nurse researcher is usually a doctorally prepared nurse who is "committed to rigorous scientific inquiry that provides a significant body of knowledge to advance nursing practice, shape health policy, and impact the health of people" (American Association of Colleges of Nursing). In contrast, clinical research nurses contribute to science with a focus on the clinical care of research participants and coordination of research activities in a research practice setting.

The CRN's role and description of specialized practice has been described in the medical and nursing literature as far back as 1910. Nancy Poultney Ellicott, the first Superintendent of Nursing at The Rockefeller Institute Hospital from 1909 to 1938, was the first and most prominent nurse leader in the new field of clinical research. She recognized that nurses engaged in clinical research had a unique role in, and impact on, the outcomes of clinical trials. She wrote "In order to make possible the realization

of the aspirations of the founders of the hospital, the nursing must be of the very highest type. Records must be most carefully and accurately kept, symptoms observed and recorded, reports intelligently and faithfully made, for a lapse in vigilance, or in a specimen lost in a moment of heedlessness, might render worthless the labor of many weeks."

It has always been the primary role of the CRN at Rockefeller University Hospital to safely care for the research participant with fidelity to the research protocol. CRNs are now more directly involved in protocol development to help ensure that safety and protection of the participant is being upheld throughout the implementation of the protocol from a CRN perspective. Balancing these roles can be a challenge when participants are enrolled in a multitude of complex studies. The responsibility of remaining informed and knowledgeable regarding numerous concurrent protocols can be challenging, especially when there is clinical and investigative staff turnover.

To advance the CRN role and build practice excellence within a collaborative and interprofessional environment, each CRN is assigned a protocol and is responsible for working with the investigative team during protocol development. This helps ensure safe and efficient implementation. Whenever possible, the CRN is matched to laboratories conducting studies aligned with the CRN's experience and areas of expertise. The CRN attends lab meetings and protocol update meetings that continually evaluate protocol objectives, study design, recruitment, enrollment, and methodology. The CRN serves as a conduit for communication of information and feedback between the clinical staff and investigative team, optimizing the clinical research process.

The value of early CRN involvement for the protocol:

- Contribution of clinical research nursing expertise during all phases of the protocol
- Enhanced focus on research participant safety
- More accurate assessment of protocol feasibility from a clinical research nursing practice viewpoint
- More active engagement of CRN staff with potential for improved participant satisfaction and retention.

The value of early protocol involvement for the CRN:

- Channels of communication are established with the Primary Investigator, study team, and research lab.
- Gain further knowledge of regulatory guidelines and be able to apply knowledge to other protocols.
- Gain an understanding of protocol development from inception, including the essential elements to protocols.
- Learn other aspects of protocol development, such as contracting, budgeting, developing of material transfer agreements, and managing conflict of interest.
- Ability to ensure clinical preparedness by understanding in advance what nursing resources will be needed, including education, training, or equipment.
- Develop a holistic view of all the integral components of a protocol.

CRNs are valuable and valued members of the interprofessional clinical research team, who also establish strong partnerships with research participants. The clinical research nurse is well suited to work with investigative teams to help ensure that comprehensive protocols are developed and smoothly executed with participant safety being paramount.



Clinical Research Nurses and Clinical Research Nurse Practitioner in a study's protocol meeting.

Clinical Scholars Visits the W.E.B. Du Bois: Deconstructing Power Exhibition at the Cooper-Hewitt Museum

By Leon L. Seifert, MD

On May 16, 2023, the Clinical Scholars, along with Drs. Barry Collier and Jonathan Tobin, visited the "Deconstructing Power: W. E. B. Du Bois at the 1900 World's Fair" exhibit at the Cooper-Hewitt Smithsonian Design Museum in Carnegie Hill. The Scholars were welcomed by Matilda McQuaid from the museum's curatorial staff. The tour began with a compelling introduction and exciting stories about the history of the museum and the Andrew Carnegie Mansion, to which the museum moved in 1970, before opening its doors to the public in 1976.

The exhibition of W.E.B. Du Bois' work at the Paris World Exposition fascinated all of the Scholars. The original exhibit in Paris exhibition in 1900 included hundreds of photographs about Black Americans' life and culture, but the Cooper-Hewitt exhibit focused on Du Bois' creative illustration of statistics on Black American life between 1865 and 1900. In this work, Du Bois used unusually innovative, creative, and artful ways to illustrate the powerful data he collected on the progress made by Blacks in economics and education during the

Reconstruction era after the Civil War.

Striking a powerful balance between the worlds of art and science, even 123 years later, it is obvious why the exhibit earned a gold medal at the World Exposition. Impressed and inspired by the creative opportunities in data presentation, the group concluded the event over dinner with avid discussions about the synergistic power of liberal arts and science.



Drs. Matthew Kudelka, Leon Seifert, Emre Mordeniz, Leon Seifert, and Barry Collier



Drs. Rachel Kimani, Leon Seifert, Matthew Kudelka, Barbara Bosch, Emre Mordeniz, Nicole Cruz and Barry Collier

Clinical Scholars Meet with Korn Ferry Biotechnology Team

By Charlie Buffie, MD and Mira Patel, MD

The Clinical Scholars met over dinner with members of the Korn Ferry Biotechnology team, including Stephen Israel, Vice Chairman for Biotechnology within the Global Life Sciences Market, Archana Tadimalla, Senior Client Partner in the Biotechnology and Pharmaceuticals Practice within the Global Life Sciences division, and Elizabeth Ventura, Executive Search Senior Associate, Biotechnology & Pharmaceuticals. There was a lively discussion regarding possible career paths for Clinical Scholar graduates in industry, how to frame one's curriculum vitae to maximize one's chance of being selected for a position, as well as the day-to-day activities of people who choose careers in industry. The Clinical Scholars benefited from valuable career advice, as well as the opportunity to develop long-term relationships with members of the Korn Ferry team.



Clinical Scholars and Korn Ferry Biotechnology Team

The Heilbrunn Family Center for Research Nursing Nurse Scholar Symposium

By Bernadette 'Candy' Capili, PhD,

Each year, the Heilbrunn Family Center for Research Nursing hosts a symposium to showcase the research conducted by the Heilbrunn Nurse Scholar awardees. This year's symposium was held virtually on May 5, 2023. A total of 45 people attended, including members of the Rockefeller University Hospital, Rockefeller nurses, nursing faculty from the Tri-State Area, Nurse Scholars' mentors, and the Nurse Scholars' study team members.

The topics for the symposium ranged from home sleep environments of socio-economically disadvantaged families to investigating the effect of social determinants of health on psychoneurological symptoms among patients on immunotherapy. On May 5, Lauren Covington, PhD, RN, Jessica Davis, PhD (candidate), Doncy Eapen, PhD, RN, and Gee Su Yang, PhD, RN, presented.

Dr. Covington, an assistant professor at Delaware University, discussed *Sleep and Stress in Families with Socioeconomic Disadvantage: A Snapshot of Daily Life* on sleep behaviors among low-income families with toddlers.



First, she reviewed the literature showing that insufficient sleep drives health disparities among individuals from low socioeconomic backgrounds. In addition, preliminary data from her study showed that a higher

number of caregiver's daily stressors was associated with poor coping, negative emotions, and worse sleep health.

Ms. Davis, a PhD student at the University of Pittsburgh, spoke on her research, *Neonatal Diet Type and Association with Adverse Feeding Outcomes and Gut Microbiome Composition in Neonates with Critical*



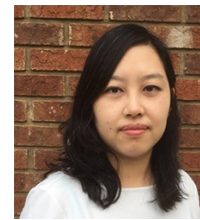
Congenital Heart Defects on neonates born with critical congenital heart defects. She discussed how neonates are highly vulnerable to feeding intolerance, necrotizing enterocolitis, and malnutrition. An early finding from her study was that direct chest/breastfeeding might protect against gastrointestinal disturbances and bloody stools. Conversely, fortifying the neonate's feeds actually seemed to increase the risk of bloody stools among human milk-fed neonates.

Dr. Eapen, an assistant professor at the University of Texas Health Science, Houston, discussed her ongoing research, *Positive Parenting: Empowering Young Mothers Experiencing Homelessness*



with a History of Interpersonal Violence to Improve Parenting Strategies about women with children with a history of interpersonal violence living in a sheltered congregate residence. She discussed barriers and facilitators to accessing parenting support for women experiencing homelessness. She also provided participant narratives regarding their experiences in joining her study.

Lastly, Dr. Yang, an assistant professor from the University of Connecticut, discussed her ongoing research,



Investigating the effect of Social Determinants of Health and Intestinal Microbiome on Psychoneurological Symptoms Among Patients

on Immunotherapy on various distressing symptoms. She spoke about pain, cognitive dysfunction, sleep disturbances, fatigue, depressive symptoms, and the interplay of social determinants of health and pathways of microbiota-hormone signaling that may affect health and treatment outcomes following immunotherapy.

The discussions after each presentation were robust and engaging. Judging by the questions and comments, the symposium was well-received by nurse scholars and attendees.

Addressing Health Equity at Rockefeller University Hospital and the Center for Clinical and Translational Science

By Maija Williams, MPH

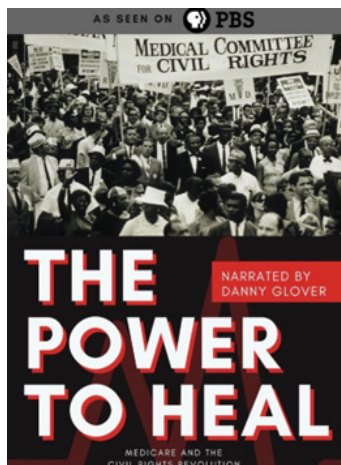


Image obtained from <https://www.blbfilmproductions.com/>

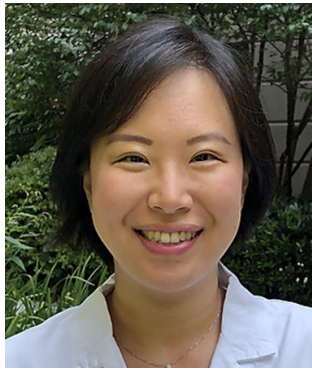
The Rockefeller University Hospital and the Center for Clinical and Translational Science (CCTS) hosted its first event under the hospital's 2023-2024 health equity goals. This year's health equity goals focus on providing in-person and virtual educational resources and events to support open discussion among faculty, staff, and senior leadership to address health disparities and promote health equity in research.

As part of the hospital and the CCTS's lunch and learn educational series, the film *Power to Heal: Medicare and the Civil Rights Revolution* (2018) was screened on May 11, 2023. This film presents the

compelling and largely unknown story of how civil rights activists joined forces with the federal government to use Medicare funds and the Civil Rights Act to compel America's segregated hospitals to open their doors to African Americans. This dramatic documentary is narrated by Danny Glover and directed by Charles Burnett. Immediately following the screening, the film's producer Dr. Barbara Berney hosted a live Q&A with attendees. The hospital will host a final viewing of the film in July. For more information on the viewing and to be added to the guest list, please email Maritza Sanchez at mpuello@rockefeller.edu.

Meet the Graduate: Moonjung Jung, MD

By Editorial Staff



Moonjung Jung received her MD from Ewha Womans University College of Medicine in Seoul, South Korea. She completed her Internal Medicine Residency training at Houston Methodist Hospital, Weill Cornell Medical College, Houston, TX, and her Hematology and Medical Oncology fellowship training at the National Institutes of Health in Bethesda, MD. Dr. Jung joined Rockefeller University as a Clinical Scholar in the Laboratory of Genome Maintenance in July 2016 under the mentorship of Dr. Agata Smogorzewska. She is currently an Assistant Professor of Medicine at the Johns Hopkins University School of Medicine.

How did you get interested in research? Were you always interested?

I was always interested in research because I wanted to lead the field of medicine by creating original data that can change clinical practice. But my idea of research could have been more specific, and I never imagined doing bench research, at least during medical school. During residency, I got interested in hematology and found a mentor, Dr. Larry Rice, who guided my clinical research. I was fortunate to present a poster abstract on a retrospective study about the risk of inferior vena cava (IVC) filter in heparin-induced thrombocytopenia at the American Society of Hematology Annual Meeting, where I was fascinated (and overwhelmed) by the breadth and depth of research in all areas of hematology. Then I went to NIH for my clinical fellowship, which changed my research interests completely. I joined the lab of Dr. Cindy Dunbar and started working on bench research using induced pluripotent stem cells (iPSCs) to model deficiency of the transcription factor GATA2, which is

associated with an inherited bone marrow failure syndrome. It was a challenging research project for a clinical fellow with no prior laboratory training, but I learned so much from it and developed a passion for basic/translational research.

How did you come to the Laboratory of Genome Maintenance?

During my final year in fellowship, I sought a second postdoc/instructor position in NYC to continue my research training while reuniting with my family. A graduate of the Clinical Scholars program, Jan Davidson-Moncada, also a clinical fellow at NIH at that time, recommended I consider the Clinical Scholars program. He wrote an introductory email to Dr. Collier, who introduced me to Dr. Agata Smogorzewska, given my interest in inherited bone marrow failure syndromes. She invited me for an interview, so I came to Rockefeller and met Agata, everyone in her lab individually, and Dr. Collier. I had a gut feeling that Agata's lab would be a safe and supportive environment for me to join and a great place to continue developing my niche in inherited bone marrow failure syndromes.

What is your current research, and how will your NIH K99 grant assist with the investigation?

I study endogenous and exogenous sources of DNA damage and their effects on hematopoietic stem cells. Fanconi anemia is the model disease to study endogenous sources of DNA damage, and it is the subject of the K99 award I received from NIH. I am now diversifying research directions beyond Fanconi anemia and endogenous DNA damage to study hematopoietic stem cell function and behavior affected by various sources of DNA damage with and without DNA repair deficiencies. The K99 award helped me to become competitive in my job search and has allowed me to devote my time to research. With salary support from the K99, I could postpone providing outpatient care and limit my inpatient service to attending only 4 to 6 weeks a year. Also, having stable salary support and research funding during the COVID-19 pandemic (my award was activated in March 2020) was very helpful and reassuring. A special shoutout to

Agata for encouraging me to apply for the K99. I almost didn't apply for it, given my expected timeline at Rockefeller and concerns about competitiveness and visa, etc. Without the K99 award, my career could have been quite different now.

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

At the end of my fellowship, I liked bench research and academia but wanted to know if it was my focus for life. I expected the Clinical Scholars program to give me another opportunity for mentored research with protected time after fellowship to figure out whether I wanted to stay in academia and do bench research for life. The question of whether I should instead go into clinical research or even industry rather than academia continued until the end of the first year in the Clinical Scholars program. Things changed when I had a very interesting discovery from my project in Agata's lab, which became the basis of my K99 application. After having that eureka moment, I started enjoying the satisfaction science could provide. So, my expectations were met as I found what I enjoy doing for life.

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

Science is not in one shape. Through the many gatherings during the Clinical Scholars program, including the reunion event, I met many Clinical Scholars graduates and invited speakers working in various careers. They were all doing their own approach to science in different fields – academia, industry, government, or private practice, which opened my limited vision of what science should be like. Now I appreciate all shapes and career paths of science.

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

I loved having informal conversations over lunch with invited speakers. The research topic might be outside my area of interest, but listening to their career journey was always interesting and encouraging.

Meet the Scholar: Dennis Schaefer-Babajew, MD

By Editorial Staff



Dr. Dennis Schaefer-Babajew joined the Clinical Scholars program in July 2021 in the Laboratory of Molecular Immunology, which is led by Dr. Michel Nussenzweig. Dr. Schaefer-Babajew received his MD from the University of Heidelberg in Germany. He was selected to be the Co-Chief Scholar for the upcoming 2023 – 2024 academic year.

How did you get interested in research? Were you always interested?

I have been fascinated with science since I took high-school chemistry, and I intended to study chemistry at university. But during my last year of high school, I shadowed my aunt, who was working as an OR nurse at the time, at her workplace for a week. And there I realized that medicine is also super interesting. This revelation is ironic as it was all surgery, which I later became uninterested in as a specialty. It was the combination of having to fundamentally understand the underlying biology and physiology, while at the same time having the real human connections with patients, that swayed me away from pursuing a direct PhD track in either biology or biochemistry. I decided to go to medical school - with the full awareness that it would later allow me to do research in addition to clinical medicine - if I so chose to.

How did you come to the Laboratory of Molecular Immunology?

During my first year of medical school, I attended a basic course on the immune system. The course was incredible, and I became absolutely fascinated by the immune system - both how it can work absolute magic in protecting us and how quickly it goes awry in the context of autoimmunity or blood cancers. How I ended up in Michel's lab was

serendipitous. I was on a Studienstiftung scholarship with a long-standing collaboration with Rockefeller University for German scholarship recipients to come to Rockefeller University for a year as visiting students. When looking through the roster of Principal Investigators at Rockefeller University, Michel stood out among the immunologists, with an extensive excellent track record with visiting students. I emailed him to introduce myself, and he replied immediately. I spent a fantastic year in his lab as a visiting student, which solidified my desire to pursue research full-time after graduating from medical school. When I graduated right before the pandemic, I asked Michel if I could come back - this time as a postdoc. And he said yes.

What is your current research?

I am interested in the fundamental question of how the immune system, particularly the B cell and antibody side, has intricate ways to regulate itself and other arms of the immune system. Humans have a relatively long-life span, and so it is common to re-encounter pathogens regularly, or get boosted with vaccines - take COVID-19 as an example. Based on that observation, it stands to reason that past encounters with antigens (pathogen or vaccine) would shape how an individual responds a second, third, fourth, etc. time. A first encounter with antigen X leads to establishing an expanded pool of antigen-specific memory cells - T and B memory cells, to be precise. And these cells tend to react faster and stronger when the individual gets exposed again. This is the central dogma of adaptive immunity. However, how exactly the products of that first response, namely antigen-specific antibodies, modulate or regulate that subsequent recall response needs to be clarified. My research focuses on trying to understand in molecular detail the mechanisms of this "antibody feedback" phenomenon. For one, it's an exciting and fundamental question that I'm curious about. Still, it also has enormous implications for our understanding of how vaccines work and how to design the best sequential vaccination strategies for problem pathogens such as HIV.

What were your expectations when you

joined the Clinical Scholars program and have they been met?

I was hoping to, on the one hand, have the opportunity and freedom to study questions that I'm excited about (such as the above) in a human-relevant setting, but also to receive an education in how to conduct research at the interface of what are practical, clinically relevant topics but also fundamental biology questions. I was keenly interested in becoming more acquainted with conducting bedside-to-bench translational research. Additionally, I had previously heard from alums of the program about the very close mentoring structure of the Clinical Scholars program and how it provided them with life advice not found in any textbook. My expectations were definitely met. I've profited greatly from the freedom to pursue your research with relatively few constraints, while at the same time being exposed to diverse research experience and wisdom conferred in our weekly activities, particularly from the visiting speakers.

What are your expectations and goals as Co-Chief Scholar?

When something is good, one does well not to rock the boat. I hope to be able to be a good link/liaison between the program's leadership and my fellow Scholars. I hope that the other Scholars can bring up any questions or concerns they may have and be able to advocate for them. One of my aims is to re-establish engagement between the Scholars, which has fallen a little to the wayside due to the pandemic: I want to organize increased informal gatherings where we can talk with each about our work, as well as the things needed for work-life balance.

What has been the most educational, engaging, and surprising aspect of being in the CS program?

The cumulative experience of meeting all the different Wednesday lecture speakers for lunch provides the opportunity to discuss career pathways, research experiences, and networking. It has been fascinating to hear the personal accounts of their research and careers from such a diverse group of outstanding scientists from areas I wouldn't necessarily have heard of otherwise.

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Meet the Scholar: Dennis Schaefer-Babajew, MD

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

The Clinical Scholars program is a very welcoming and supportive collective of people with the shared mission of promoting translational, clinically relevant, research with a vast trove of invaluable experiences. Leadership shares in the mission to help Scholars advance their careers. The Scholars are also a wonderful group of very talented peers who, despite pursuing an incredibly diverse set of research agendas, are united in their efforts to embed their work in a context that is directly clinically relevant.

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

I intend to finish my clinical training

in internal medicine and hematology/oncology before establishing myself as a physician-scientist at the intersection of immunology and cancer. I plan to develop an independent research program to further investigate the feedback circuitry of the adaptive immune system from a basic science perspective and pursue translational questions using clinical specimens. I firmly believe that vaccination approaches hold great promise in the setting of infectious diseases and oncology. However, a more comprehensive understanding of how to elicit vaccine responses and how they are autoregulated over time is needed to establish successful vaccination strategies in either setting.

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

The Clinical Scholars program is a safe space to test yourself and dive into science knowing you have the best support and resources to develop your research.

Having graduated and in a new institution and position, what takeaways would you share with a junior Scholar?

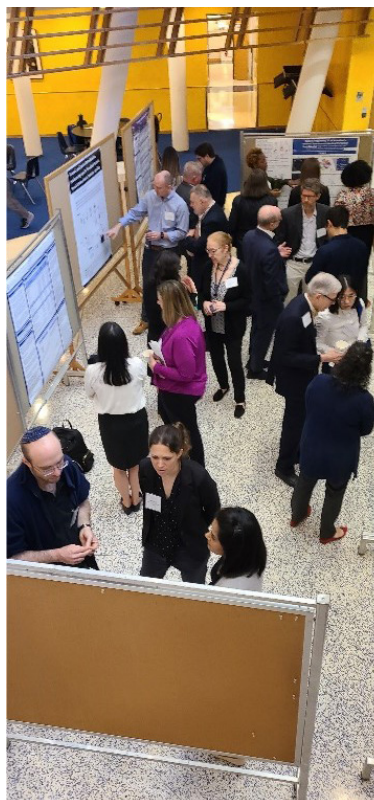
Learn as much as you can and develop your niche while in your mentor's lab. You are expected to bring new skills and expertise to the new institution. So, develop those new skills and expertise while you can at Rockefeller.

Yale/Rockefeller University CTSA Collaborative Research Day

By Michelle Romanick

On May 25, 2023, more than 40 members of the Rockefeller University Hospital Center for Clinical and Translational Science (CCTS) and the Yale Center for Clinical Investigation (YCCI) participated in the first joint in-person event since 2019, continuing the tradition of the annual Collaborative Research Day meetings between Yale and Rockefeller that began in 2008. This year's event focused on career steps after graduating from the Clinical Scholars program. It provided an excellent opportunity for trainees and junior faculty to have open discussions on creating their career paths. Scholars from both institutions discussed their current research studies, potential collaborations, and other topics of mutual interest. Dr. Sarah Schlesinger, Program Director of the Rockefeller University Clinical Scholars program Lloyd Cantley, MD, YCCI Co-Director of Education, warmly welcomed the attendees.

The day's first event consisted of poster presentations by CCTS and YCCI Scholars. The lively scientific discussions among Scholars continued through lunch. The CCTS posters comprised: *Detection of Pre-malignant Changes in Fanconi Anemia Mucosa*, **Tamar Berger, MD**; *Clinical and Demographic Predictors of Survival for Fibrolamellar Hepatocellular Carcinoma Patients - A Patient-Community Registry-Based Study*, **Amichai Berkovitz, MD**; *A Novel Small Molecule Metabolite Produced by Specific Intestinal Bacteria Taxa Activates*



Innate Immune Signaling, **Charlie G. Buffie, MD, PhD**; *The Embodied Facial Motion Perception: The Connectome of pSTS*, **Emre Mordeniz, MD**; *Molecular Mechanisms of Human APOE Immune Modulation in Cancer*, **Mira Patel, MD**; and *Memory B Cell Development Elicited by mRNA Booster Vaccinations in The Elderly*, **Zijun (Vinci) Wang, MD, PhD**.

The YCCI posters that were presented comprised: *Distinct Effector Features of Early-Life CD8 T Cells*, **Nina Brodsky, MD**; *Blood Pressure Elevations Among Young Veterans: Examining Trajectories by Sex, Race, and Ethnicity*, **Tiffany E. Chang, MPH**; *Impaired Regulatory T-Cell Activation in Neonatal Spontaneous Intestinal Perforation*, **Oluwabunmi (Bunmi) Olaloye, MD**; and *The Significance of PDCD4 in Melanoma Brain Metastasis*, **Olivia Prounce, PhD**.

The afternoon events included oral presentations and a panel discussion with Clinical Scholar program graduates. The Clinical Scholar talks were presented by Dr. Nicole Cruz from Rockefeller and Dr. Josefa L. Martinez from Yale. Dr. Cruz's presentation, *Understanding the Role of PPARγ and KMT2D in Acute Myeloid Leukemia*, discussed the role of a methyltransferase enzyme (KMT2D) in the biology of acute myeloid leukemia, specifically, how KMT2D affects the transcriptional program of the transcription factor PPAR-γ. She also discussed how she used the resources available at the Rockefeller University Hospital to conduct an IRB-approved protocol to acquire the normal monocytes from healthy human participants that she needs for her studies. Dr. Martinez's presentation, *Developing an Implementation Strategy for a Mobile Health Intervention in the Special Supplemental Nutrition Program for Women, Infants, and Children*, described her implementation science study that



Drs. Louis Cohen, Rachel Niec, José O. Alemán, and Brian Sevier

employs a user-centered stakeholder-engaged approach to design the evaluation plan and cost data collection protocol for the scaling up of the Lactation Advice Through Texting Can Help (LATCH) program. LATCH is a two-way text messaging intervention designed to augment and reinforce breastfeeding peer counseling. Preliminary themes from the key-informant interviews include barriers and facilitators to implementing LATCH, quality improvement questions, and adaptations made to services during the pandemic.

One of the day’s highlights was the Career Next Steps panel discussion moderated by Dr. Brian Sevier, YCCI’s Senior Associate Director of Research Operations. The panelists were José

O. Alemán, MD, PhD, MS, Assistant Professor of Endocrinology at New York University Grossman School of Medicine, Louis Cohen, MD, MS Assistant Professor, Department of Medicine, Division of Gastroenterology at Icahn School of Medicine at Mount Sinai, and Rachel Niec, MD, PhD, MS, Instructor in Clinical Investigation at Rockefeller University. The panelists provided descriptions of the paths they took after graduating. Their unique stories highlighted that there is no single way to build one’s career. Among their valuable take-home points were: determine and explore your interests and make connections with people who share your passion and interests; set goals for the next steps; and build relationships and resources to achieve those goals. The

robust audience participation reflected the importance of the topic and the sage advice provided by the panelists.

Dr. Barry Collier, Co-Director of the Clinical Scholars Program and CCTS, and John Krystal, MD, Co-Director of the Yale Center for Clinical, closed the event by thanking everyone for creating another very successful collaborative event. Yale will host the next Research Collaboration Day in 2024, with hopes that it too will be in person.



Rockefeller and Yale Attendees

Developing Effective Vaccines Against Group A and Group C Meningitis

By Elizabeth (Betsy) Hanson



Note: Dr. Emil Gotschlich passed away on February 14, 2023 and Rockefeller University held a memorial to celebrate his life and his pioneering research on March 27, 2023. Dr. Gotschlich served as Vice President for Medical Sciences, 1996 to 2005, and Chair of the IRB, 2002-2017. He was a consummate physician scientist whose research saved many thousands of lives and his leadership of the IRB enabled and improved countless clinical studies. He will be dearly missed by all who were fortunate to know him. The description of his medical research below comes from the “[Discoveries Advancing Science](#)” series prepared to celebrate the Hospital’s centennial in 2010.

Since the Rockefeller Institute’s inception, researchers there endeavored to treat and prevent meningitis caused by meningococcal bacteria. Early in the twentieth century Simon Flexner developed horse antisera that saved the lives of many patients. In the 1920s the seminal work of Oswald Avery, Michael Heidelberger, and Walter Goebel demonstrated that the virulence of pneumococci, which caused pneumonia, was attributable to the presence of capsules on the surface of the bacteria and that these were complex polysaccharides. This finding was extended to other bacteria, and in 1935 Henry Scherp and Geoffrey

Rake, working in the laboratory of Leslie T. Webster, isolated the capsular substance of the predominant meningococcus serotype A (then called type I). They demonstrated that it was a polysaccharide composed of a nitrogen-containing sugar and phosphoric acid units. In the 1930s and 1940s, other Rockefeller researchers showed that polysaccharides were potent antigens, and used them in early efforts to develop a pneumonia vaccine. Then, in the late 1960s, Emil C. Gotschlich (1935 -), a member of the laboratory of Maclyn McCarty, built on these decades of Rockefeller research to achieve the goal of developing effective vaccines against meningitis.

Meningococcal meningitis was a chronic problem at military recruit camps. From 1966 to 1968 Gotschlich left the University for military duty at the Walter Reed Army Institute of Research, where he developed novel methods to isolate highly purified meningococcal capsular polysaccharides from serotypes A, B, and C that preserved their high molecular weight. With a team of colleagues he showed that injection of 50 µg of group A or group C polysaccharide induced human beings to rapidly produce specific antibodies, and that these were able to kill meningococci in vitro. The Army research team in 1970 demonstrated that the group C polysaccharide was 90 percent effective in preventing meningitis by this organism in military recruits.

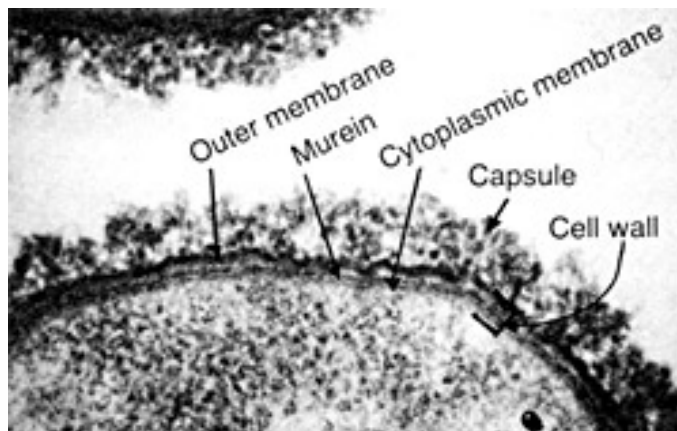
The efficacy of the group A polysaccharide could not be tested in the U.S. since disease due to that serotype was very rare. However, group A meningitis was very common in other parts of the world. In a collaboration with the World Health Organization and the Institut Merieux, a French vaccine manufacturer, lots of group A vaccine were prepared. The vaccine’s efficacy in

preventing meningitis was demonstrated in controlled field trials first in Egypt and the Sudan and then in Finland.

Electron-micrograph (taken by Dr. John Swanson) of a Group A meningococcus shows the capsule, enclosing the entire wall, and the cell wall.

The group A and group C vaccines were approved by the U.S. Food and Drug Administration in 1977. They were the first vaccines to be standardized solely on the basis of physical and chemical criteria rather than on their biological activity in animals, a practice that has become increasingly the norm for modern vaccines. Billions of people have received the group A and group C vaccines, particularly in China, Egypt, Saudi Arabia (which requires all pilgrims entering the country on Hajj to be vaccinated), and in Africa when epidemic disease outbreaks occur. Recently the meningococcal polysaccharides have been linked to proteins to prepare conjugate vaccines. This markedly improves their immunogenicity in infants and now allows disease prevention at all ages.

Emil C. Gotschlich received his MD from the New York University School of Medicine (1959). He interned at Bellevue Hospital in New York before joining The Rockefeller University’s Laboratory of Bacteriology and Immunology in 1960 under the co-leadership of Maclyn McCarty and Rebecca C. Lancefield. He was promoted to professor and senior physician at The Rockefeller University Hospital in 1978. From 1996 to 2005, he served as the hospital’s vice president for medical sciences. Gotschlich’s achievements have been recognized by numerous awards and honors, including the Albert Lasker Award for Clinical Research (1978). He is a member of the U.S. National Academy of Sciences and its Institute of Medicine.



Electron-micrograph (taken by Dr. John Swanson) of a Group A meningococcus shows the capsule, enclosing the entire wall, and the cell wall.