

Annual Report 2021

RESEARCH FOR BETTER **HUMAN HEALTH**

Our Mission

To improve health by accelerating support for medical research through recognition of research excellence, advocacy, and education

> If you think research is expensive... try disease



Advancing Lasker's Mission During the Covid-19 Pandemic

The Covid-19 virus has changed our world forever, but the long-standing mission of the Lasker Foundation remains as central and urgent as ever. As we continue to mourn the loss of more than 5 million people around the globe who have died because of the pandemic, the world turns to science for the answers that will define the path forward. Frontline health care workers and policy makers have joined community groups to raise awareness. Public health experts, academic scientists, and industry leaders have worked to harness the power of research to save lives. At Lasker, we celebrate illustrious science pioneers and advocates—highlighting the importance of our unwavering goal to increase support for medical research.

After pausing in 2020 due to the pandemic, the Lasker Awards program returned in 2021—albeit in a new format. We went virtual to announce the Awards! This innovation was well-received. We significantly increased the number of people who were able to watch the event by live-streaming the announcement. The Basic Research Award went to Drs. Oesterhelt, Hegemann, and Deisseroth for their fundamental research that opened the field of optogeneticsproviding the foundation for new approaches to understanding human behavior and potentially treating neurological and mental disorders. The Clinical Research Award was given to Drs. Kariko and Weissman for their life-saving work on mRNA technologies that enabled the development of Covid-19 vaccines, reminding us that decades of research underlie the development of new medical interventions. Dr. Baltimore was honored for his esteemed leadership in research, mentorship, and advocacy. As his decades of contributions have demonstrated, dynamic leadership is essential to the success of the scientific enterprise! Please read more about our winners in this report and on our website

Lasker's work in education continued throughout the year, as we emphasized the need to support the next generation of scientists. Due to the pandemic, young researchers face unprecedented challenges in establishing their careers and

Thank you Anthony Evnin

pursuing their laboratory and clinical investigations. We must ensure that they have the inspiration, resources and opportunities that enable them to thrive in science. From our partnerships with the NIH and the International Biomedical Research Alliance for training programs to our Essay Contest to our work with Science Communication Lab, we strive to help guide early, career scientists through these turbulent times.

Advocacy is a key pillar of Lasker's mission, and we are pleased to continue to partner with multiple organizations to spread the message about the importance of supporting medical research. Inside you can learn more about our work to grow private philanthropy (which is embracing an increasing role in research support), as well as our efforts to expand governmental funding. And in our home city of New York, we are playing an active part in responding to the pandemic and growing the life sciences ecosystem.

At Lasker, we look forward to an exciting 2022. In the coming year, we will celebrate the 75th Anniversary of the Foundation and advance our programs in research recognition, education, and advocacy. Thank you for being part of the Lasker family of supporters and thank you for joining us in improving human health by accelerating support for medical research.

Chair. Board of Directors

Claire Pomeroy

President

Awards Program

Please join us in congratulating our 2021 Lasker winners, whose research breakthroughs have had a profound impact on human health.





(From top left, clockwise) Karl Deisseroth, Stanford University; Dieter Oesterhelt, Max Planck Institute of Biochemistry; Peter Hegemann, Humboldt University of Berlin



David Baltimore, California Institute of Technology

Lasker~Koshland Special Achievement Award in **Medical Science**

As one of the premier biomedical scientists of the last five decades, he is renowned for the breadth and beauty of his discoveries in virology, immunology, and cancer; for his academic leadership; for his mentorship of prominent scientists; and for his influence as a public advocate for science.



Katalin Karikó, BioNTech (above); Drew Weissman, University of Pennsylvania

Research Award

For the discovery of a new therapeutic technology based on the modification of messenger RNA—enabling rapid development of highly effective Covid-19 vaccines



Lasker~ DeBakey Clinical Medical



Education

Lasker Essay Contest

The Lasker Essay Contest engages early-career scientists and clinicians from around the world in discussions about important questions in policy, medicine, biology, and the role of biomedical research in our society. Launched in 2014, the Contest aims to give applicants a chance to improve their skills in communicating medical and scientific issues to broad audiences.

This year, we asked students, post-docs, medical residents, and fellows the question that was top of everyone's mind in February 2021: **What was the most important lesson you learned from the Covid-19 pandemic, and how will that lesson impact your future career?**

We were surprised by the universality of the responses—in the 269 essays coming from 21 different countries, 5 central themes emerged: realizing the critical need for clear science communication, which was the most written-about lesson; learning how to bravely face uncertainty in science; realizing what it truly means for research and clinical care to be team sports; recognizing the importance of embracing new technology, especially in the medical field; and being awakened to the social injustices amplified by the pandemic. We conducted our first-ever video interviews of the Essay Contest winners. We were able to hear about their experiments, what rotations they were on, and the latest papers they had been reading.

> "The Lasker Foundation gave me a voice to talk about what I am deeply passionate about." — Banafsheh Nazari

Miriam Saffern is a PhD candidate at the Icahn School of Medicine at Mount Sinai, where she is using both computational and experimental approaches to study immune surveillance and cancer risk. Miriam plans to pursue a career that allows



her to combine her interests in medical writing and computational immunology. **Essay:** *My Mother Is a Layperson*

Trisha Pasricha is a third-year fellow in gastroenterology at the Massachusetts General Hospital and a physicianjournalist. She has directed two award-winning medical documentary films, and her writing has been featured in the *Washington Post*, CNN, and



ABC News. She plans to pursue a career in neurogastroenterology. **Essay:** *One More Question*

Ziad Ali is a second-year PhD candidate and Knight-Hennessy Scholar in the electrical engineering program at Stanford University. His dissertation research focuses on designing novel devices to interface with neurons at the cellular level using magnetic fields.



Ziad's goal is to create brain implants to treat chronic neurological disorders. **Essay:** *What Happens Now?*

Adina Schonbrun is a PhD candidate at Memorial Sloan Kettering Cancer Center. Born and raised in Maryland, Adina attended Yeshiva University for her undergraduate studies, where she earned a BA in biology and gained



valuable research experience. **Essay:** *The Cornerstone of Scientific Success: Unsung Frontline Heroes of the Covid-19 Pandemic*

Banafsheh Nazari has a BSc in microbiology and completed graduate studies in medical immunology at Tehran University of Medical Sciences and biomedical sciences at Tufts University School of Medicine. She is currently pursuing an MD, which she



believes is her true calling, at Morehouse School of Medicine. **Essay:** *Embracing Technology, the Pandemic's Lesson for Us*

Lasker Clinical Research Scholars

This initiative allows early-career medical researchers to carry out independent translational and clinical research for five to seven years at the NIH. Five new Lasker Clinical Research Scholars joined the program in 2021. We are thrilled to announce two great successes of program alumnae: Jessica Gill, a Scholar from the first cohort, moved to Johns Hopkins University as a Bloomberg Distinguished Professor of Trauma Recovery Biomarkers, with appointments in the School of Nursing and the School of Medicine's Department of Neurology, and Andrea Apolo, a 2014 Scholar, received tenure at the National Cancer Institute.



Robert Hufnagel National Eye Institute

Hufnagel uses genomics, stem cell engineering, and gene editing to understand the mechanisms that cause blindness in children.





Marielle Yohe National Cancer Institute

Yohe combines biochemical, epigenetic, cellular, and model organism approaches to study the role of aberrant small GTPase signaling in the development of pediatric solid tumors.



Suchitra Hourigan National Institute of Allergy and Infectious Diseases

Hourigan's research focuses on microbiome interventions to mitigate chronic inflammatory diseases, including "vaginal seeding" in babies born by C-section.



Freddy Escorcia National Cancer Institute

Escorcia designs, engineers, and tests new tumor-directed radiopharmaceuticals for imaging and therapy to improve the diagnosis and treatment for patients with gastrointestinal and hepatobiliary cancers.



Derek Narendra National Institute of Neurological Disorders and Stroke

Narendra's research focuses on the genetics of movement disorders. He is especially interested in understanding the genetics and molecular pathogenesis of Parkinson's disease.

Lectures

Karl Deisseroth

Public Lecture in Honor of Al Sommer

Neuroscientist, psychiatrist, and 2021 Lasker Laureate Karl Deisseroth gave the virtual Lasker Public Lecture, "Light-Activated Microbial Molecules: Natural Wonders and Windows into the Mind." Excited to engage with the public, Deisseroth began his talk with the history of the basic science behind the technique that he pioneered, called optogenetics, and an explanation of how it can give us insight into the brain and behavior. Because it uses genetically engineered mice that express a light-activated channel in specific neurons, optogenetics confers precise spatial (which neurons express the channel) and temporal (light on vs. light off) control. Thus, optogenetic experiments can address neuroscience questions about causality, rather than simply showing correlations between neural activity and behavior.

Deisseroth's dream is to use this powerful technology to understand psychiatric disorders to better help patients. He has used optogenetics to find the brain region that regulates dissociation, a mental state in which the patients feel



Title slide from the 2021 Lasker Public Lecture given by Karl Deisseroth

detached from what is happening around them, and to parse out the separate emotional and physiological contributions of complex psychological states, like anxiety.

Optogenetics has been adopted by neuroscience labs around the world and has been used to gain insight into many behaviors, from parenting to aggression.

This event was co-hosted by Secret Science Club, a non-profit that promotes public engagement in science. The lecture was supported by an anonymous donation made in honor of Lasker Foundation Board member Alfred Sommer, recipient of the 1997 Albert Lasker Clinical Medical Research Award and dean emeritus at Johns Hopkins Bloomberg School of Public Health.

Max D. Cooper

APSA Lecture

Lasker Laureate Max D. Cooper delivered the 2021 Lasker-APSA Lecture at the virtual annual meeting of the American Physician Scientists Association (APSA) on April 8. Cooper shared how he and his colleagues studied the evolution of the adaptive immune system. All jawed vertebrates, including fish, make B and T cells. But can this system be traced back even further along evolutionary lines? Cooper asked this question by studying a jawless vertebrate, the sea lamprey. He found that the sea lamprey does, in fact, have prototypic T and B lineage cells, meaning that the genetic program of the adaptive immune system was present in the last shared ancestor of jawless and jawed vertebrates. Though the exact genes have changed from sea lampreys to humans, this evolutionarily ancient system has always



Sea lamprey, the model organism that Max D. Cooper used to study the evolution of the adaptive immune system

been complex. The lymphocytes of the sea lamprey have the potential to make 10¹⁴ different "antibodies" (called VLRs in lampreys), similar to the potential that our B cells have.

This lecture was produced in partnership with the American Physician Scientists Association, with the goal of providing mentorship and inspiration for the next generation of clinical researchers.

iBiology

The Lasker Foundation sponsors iBiology's Share Your Research competition—a program designed to develop the communication skills of early-career scientists. The eight winners of the 2021 competition (Christina Cho, Yale University; Mia Howard, Indiana University; Maiko Kitaoka, University of California, Berkeley; Julia Nepper, University of Wisconsin-Madison; Karena H. Nguyen, Emory University; Takahiro Ohara, Washington University School of Medicine in St. Louis; Brandon A. Yates, Indiana University School of Medicine; Edriss Yousuf, InStem, Bangalore, India) attended a virtual communication workshop and then recorded seminars, which are currently in post-production.



Cynthia Kenyon

of college for a short time.

Lasker Lessons in Leadership

In collaboration with the International Biomedical Research Alliance and the US National Institutes of Health (NIH) Oxford-Cambridge Scholars Program, the Lasker Foundation hosted a virtual Lasker Lessons in Leadership. On March 30, Cynthia Kenyon (Vice President, Aging Research, Calico Labs) gave her talk "Life Lessons from a Small Creature," to an audience of 100 people. She shared stories from her research on *C. elegans* and from her personal life, including the rather surprising start to her career: she hated biology and dropped out

Throughout her talk, Kenyon emphasized that an unestablished approach is not necessarily an incorrect approach and that keeping an open mind—even studying things that are considered boring by others has greatly contributed to her success in science.

The NIH Oxford-Cambridge Scholars enjoyed the talk and the student-led discussion that followed. The virtual format also made it possible for students in the United Kingdom and at satellite NIH sites to participate.



Share Your Research, formerly Young Scientists Seminars (YSS), announcement



views on leadership and how she approaches team management. I also loved that she shared very real stories of her going against the grain and succeeding!"

— Marya Sabir, OxCam Scholar

"Great advice, both for science and for life!"

Allison Meadows, OxCam Scholar

Communications

This year, we launched a new website, released our first ever Essay Contest-inspired podcast, and celebrated two 100th birthdays.

Awards

The virtual announcement of the 2021 Lasker Award winners was a resounding success. The Awards were covered in over 100 news outlets in 20 countries. On the day of the announcement, over 1100 viewers tuned in to the livestreamed video. After the announcement, we posted to Twitter three short media clips made from winner interview footage. The three videos received over 30,000 views and continued to be shared by our followers in the weeks after the announcement.



The 2021 virtual announcement of the Lasker Award winners took place on September 24. The announcement video, made in collaboration with Podium Arts. was live-streamed from our website.



Podcast

In 2020, we asked Essay Contest applicants to write about their scientific heroes. We were so inspired by the responses that we partnered with Flora Lichtman to produce the podcast Dial an Idol, in which early-career researchers and physicians called their scientific heroes for guidance. They got advice on how to silence the naysayers and manage self-doubt, and learned that there might be an upside to failure. The podcast was released in February 2021.

Celebrations

2021 marked the 100th birthday of two Lasker Laureates: Evelyn Witkin and Aaron T. Beck. We featured Witkin in our March newsletter, and in July, we made a feature website page for Beck. Evelyn Witkin won the Lasker Award for discoveries concerning the



Evelyn Witkin



Aaron T. Beck (left) with Lasker Jury

DNA-damage response in 2015. Aaron T. Beck was recognized with the 2006 Lasker Award for the development of the theory and practice of cognitive therapy. His work transformed the way psychological disorders are treated. Beck passed away in November.

This year is also the 50th anniversary of the National Cancer Act, legislation that would not have been possible without the tireless advocacy of our founder, Mary Lasker. Lasker Foundation President Claire Pomeroy was featured on NPR and in a USA Today article to discuss Mary's visionary role in the passage of the Act. The



Mary Lasker

Foundation also collaborated with the National **Cancer** Institute in their yearlong digital celebration.



Newsletter

Our monthly newsletters continued to feature Lasker Laureates (such as E. Blackburn shown above) for the commemoration of the Foundation's 75th anniversary. The articles spotlighted breakthroughs in cancer, the landmark revelation that DNA is the genetic material, advances in the understanding and care of cardiovascular disease, and discoveries of the inner workings of the nervous system. We have over 2200 subscribers from around the globe.

Social Media

The Lasker Foundation uses Twitter to bring the latest research, facts about our Laureates, and updates on Lasker programming to scientists all over the world. We now have over 5500 followers, and our engagement has increased by more than sixfold in the last year. Lasker has also begun to use LinkedIn on a regular basis, where we are able to share longer stories about our Laureates' discoveries.

Advocacy

Fact Sheets

The Lasker Foundation continued its partnership with Research!America to develop fact sheets that highlight the benefits of medical research to improve health. Their power as advocacy tools was highlighted in our June newsletter. In our October newsletter, we released a report titled, "Then. Now. Imagine. An A-to-Z look at diseases conditions, and disorders that impact our lives". It reviews over 60 diseases that affect people around the globe. Originating from our fact sheet series, the report focuses on how medical research has improved outcomes and holds potential for further progress.

Science Philanthropy Alliance

PHILANTHROPY ALLIANCE The Lasker Foundation is proud to be a member of the Science Philanthropy Alliance and honored to have President Claire Pomeroy on its Board of Directors. The Alliance is dedicated to increasing philanthropic support for basic scientific research. This year, the Bill & Melinda Gates Foundation became the newest Alliance member, bringing membership to 34 organizations.

The Alliance published "Covid-19 Basic Science Prequels," a series that reviews milestones in basic science that allowed the Covid-19 vaccines to be designed and deployed in record time, and "Issues in Science and Technology," which explore the next 75 years of science policy.

President's Initiatives

Claire Pomeroy spread the Foundation's message through public speaking and op-eds throughout the year. She was interviewed by KNBC to discuss her opon "long Covid-19."

Opinion Pieces:

- "Biden's Revamped Cancer Moonshot Doubles Down on Advancing Cures," published in The Hill on April 14
- "A Tsunami of Disability Is Coming as Result of 'Long Covid'," published in Scientific American on July 6

Pomeroy was sought out to serve on th LifeSciNYC Advisory Council. LifeSciN a 10-year plan to invest \$1 billion to ma New York City a hub for life sciences resea

Chair Joseph Goldstein





Talks:

ed	Equity in Academic Medicine" (with
	Valerie Montgomery Rice, MD), Association
	of University Cardiologists, January 14
	• "Women Leaders in STEM," panel
	discussion, Indiana University School
	of Public Health, February 15
	• "Impact of Covid-19 on Early-Career
	Physician Scientists," panel discussion,
a	AAP/ASCI/APSA, April 10
	• "Covid-19, Core Values, and Catalyzing
	Health Equity," Academy of Consultation-
	Liaison Psychiatry, November 10
е	• "Core Values and Leadership: Paying It
YC is	Forward," 2021 Legacy of Leadership
ake	Lecture, Office of Research on Women's
rch.	Health, NIH, December 13

• "Looking in the Mirror: Striving for Racial

Leadership



In the Spotlight: Margaret Hamburg

Margaret Hamburg, who joined the Lasker Foundation Board of Directors in 2020, says that she long knew about Mary Lasker's advocacy, but she was first exposed to the Foundation through the Awards luncheon. When invited to attend several years ago, Hamburg was "just dazzled" by the people in the room and the intense thoughtfulness of the comments from presenters and awardees alike. At the end of the luncheon, she felt as though she had received a first-class education in the winners' work.

This is high praise coming from such a distinguished public health figure. Hamburg has held numerous leadership positions, including New York City health commissioner and US Food and Drug Administration (FDA) commissioner. After that, Hamburg became the first vice president for biological programs within the Nuclear Threat Initiative, served as the foreign secretary of the National Academy of Medicine, and was president/ chair of the American Association for the Advancement of Science. Like Mary Lasker herself, Hamburg's driving force is her "deep appreciation for science but wanting to harness the fruits of the advances to better serve the public and humanity." This is exemplified in Hamburg's legacy as FDA commissioner, where she served in office for over twice the average length of her predecessors. While in office (2009–2015), Hamburg realized that the process of turning good ideas into real-world products could be streamlined if regulatory science was integrated into research and development (R&D) from the earliest stages. She became a staunch advocate for regulatory science, and she takes great pride in the collaborations that she helped forge between the FDA and academia by creating Centers of Excellence in Regulatory Science at academic institutions.

Hamburg explains that having regulatory science embedded in R&D helps ensure that the right questions about safety, efficacy, quality, and performance are asked before a clinical trial starts: "We saw with Covid-19, for example, that having the regulators at the table [during vaccine development]... enabled the clinical trials process to be undertaken more swiftly... and enabled some new thinking about preclinical regulatory requirements. It really does make a difference."

Because health is central to all our lives, Hamburg feels that the Lasker Foundation has a very special role to play as it advances its critical mission. "Without a doubt," she says, "this is an incredibly exciting time for science and biomedical research, and it is equally clear that directing the power of those research advances toward the challenges before us is vital... By spotlighting the value of biomedical research and advocating for biomedical research, the Lasker Foundation can continue to make a real and enduring difference in health for all."

Hamburg is currently working on the intersection between climate change and health, driven by her mission to highlight the importance of science and to use that science to make the world a better, safer place.

HONORED

President Claire Pomeroy was honored with the President's Award from AABB (Association for the Advancement of Blood and Biotherapies) for her "exceptional leadership of The Fight Is In Us, which was critical in advancing



the collection of Covid-19 convalescent plasma and providing critical therapeutic options for patients in need." She and Board Chair Tony Evnin were recognized among The Life Sciences Power 50 by City & State New York, a list of the scientists, investors, and entrepreneurs who are driving New York's biotech boom.

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The Lasker Society accepts deferred gifts through estate planning.

Saraleah and Marshall W. Fordyce

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Looking Ahead:

LASKER AWARDS

The 2022 Lasker Award winners will be celebrated in September 2022.

ESSAY CONTEST

The 2022 Lasker Essay Contest will open on February 9, 2022. Winners will be announced in early July.

LESSONS IN LEADERSHIP

Kenneth Frazier, executive chairman of Merck's board of directors will give a lecture on June 7, 2022. On November 14, 2022, Michelle McMurry-Heath, president and CEO of Biotechnology Innovation Organization, will be our speaker.

75th ANNIVERSARY

We will continue to celebrate the 75th Anniversary throughout 2022.





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