Two Studies Point to the Quality of Neoantigens in Determining Long-Term Cancer Survival

The quality, not quantity, of tumor neoantigens may best predict a patient's response to cancer immunotherapy and his or her chance of long-term survival. That finding was based on two groundbreaking studies co-authored by Benjamin Greenbaum, PhD, Assistant Professor, Medicine (Hematology and Medical Oncology), and Pathology, Icahn School of Medicine at Mount Sinai. Now, it is being further explored by Dr. Greenbaum and Vinod Balachandran, MD, Memorial Sloan Kettering Cancer Center, through a Stand Up to Cancer Convergence 2.0 Grant and funding from the Lustgarten Foundation.

Neoantigens, or peptides found on the surface of cancer cells, are considered promising targets for cancer immunotherapy.

“Previous research has shown that T cell immunity is linked to exceptional outcomes for the few long-term survivors of pancreatic cancer, but it wasn’t clear if neoantigens played a role,” says Dr. Greenbaum. “Our newest research shows there are particular neoantigens that seem to be driving this long-term response in patients with pancreatic cancer, and further suggests that targeting those neoantigens might be a viable therapeutic strategy.”

According to Dr. Greenbaum, who was trained as a physicist and quantitative biologist, “One of the most exciting aspects of our work is collaborating with academic teams that can combine the tools and knowledge from diverse fields like theoretical...”

Mount Sinai Doctors Long Island Celebrates New Location

Mount Sinai Doctors Long Island is expanding its reach with the opening of a new health complex in Greenlawn to better serve the northwestern communities of Suffolk County. The modern and spacious 80,000-square-foot location, at 5 Cuba Hill Road, offers primary care, 20 medical and surgical specialties, a comprehensive Women’s Center, and an infusion center, as well as onsite radiology and laboratory services. The facility consolidates the Mount Sinai Doctors Long Island practices from three separate locations in Huntington.

A ribbon-cutting for the $22 million facility, developed in conjunction with Simone Healthcare Development Group, was held on Thursday, October 18, and was attended by about 100 guests, among them Mount Sinai executives and Long Island elected officials.
Mount Sinai Doctors Long Island Celebrates New Location (continued from page 1)

including Hempstead Town Supervisor Chad Lupinacci, as well as physicians and managers from several Mount Sinai Doctors Long Island locations.

“Residents of Long Island deserve high-quality, convenient care close to home, and Mount Sinai is meeting that need,” said Kenneth L. Davis, MD, President and Chief Executive Officer of the Mount Sinai Health System. “With an expanded primary and specialty care network and a Long Island footprint that includes 200 physicians and other experts at 11 multidisciplinary practice locations, Mount Sinai is transforming care in this area. Our goal is to keep patients and communities healthy by providing health care excellence close to home and work.”

At the new Cuba Hill Road facility, 70 board certified physicians working with nurses and other medical staff are providing primary care, as well as specialty care in allergy, asthma, and immunology; cardiology; dermatology; endocrinology; gastroenterology; hematology/oncology; nephrology; neurology; obstetrics and gynecology; ophthalmology; orthopedics; pain management; general pediatrics; pediatric gastroenterology; podiatry; pulmonology; rheumatology; surgery; and urology. For patients’ convenience, the office offers extended hours, ample parking, and comfortable waiting areas.

“Mount Sinai Doctors Long Island is expanding access to specialty care with a local state-of-the-art facility that will serve as a medical hub for this community,” said Arthur A. Klein, MD, President of the Mount Sinai Health Network. “Our physician partners will work collaboratively and tirelessly to provide personalized care for each patient. We are proud to bring the renowned services of Mount Sinai to serve the residents of Suffolk County and beyond.”

A very special guest at the event was 8-year-old patient Elly Arabadjief. She and her family were honored for their efforts to raise awareness for Wilson disease, a rare inherited disorder that was diagnosed in Elly in August 2017 by her Mount Sinai Doctors Long Island pediatrician, Steven J. Brunner, MD. Elly’s father, Justin Arabadjief, gave an emotional speech as he expressed the family’s profound gratitude for Dr. Brunner’s astute diagnosis and credited him with saving his daughter’s life. Individuals with Wilson disease lack an enzyme, which causes copper to accumulate in the liver and other vital organs. The disease can be fatal if not discovered early.

Recalling the Wilson Disease Association conference he attended in 2018, Mr. Arabadjief said he met patients of all ages, at varying stages of their illness. “We heard horror stories of missed diagnoses, but we only met a small handful like Elly, who were lucky enough to have had this disease discovered early enough to have every chance at a long, happy, healthy life.”

Dr. Brunner said, “I always say pediatrics is not just about colds, coughs, and sore throats. There’s always that needle in the haystack that you have to be on the lookout for, and this case was definitely a needle in the haystack.” It was Dr. Brunner who immediately referred Elly to Joanne Lai, MD, Assistant Professor of Pediatrics (Pediatric Gastroenterology), who is based in Manhattan and practices at Mount Sinai Doctors Long Island on a sessional basis, and to Jaime Chu, MD, Assistant Professor of Pediatrics (Pediatric Hepatology), who practices at Mount Sinai Kravis Children’s Hospital in Manhattan.

“We were fast-tracked with several specialists to review Elly’s symptoms and help with the diagnosis,” said Mr. Arabadjief. “We are thankful for all of the kind, compassionate people at various Mount Sinai locations we have met along the way to help get us through one of the scariest things that can happen to a family.”
Two Studies Point to the Quality of Neoantigens (continued from page 1)

Earlier research formed the basis of the team’s efforts. In the first of two back-to-back studies published in *Nature* (November 2017), researchers described a mathematical model they developed—the first of its kind—to predict how a cancer patient would benefit from certain immunotherapies. Dr. Greenbaum was the senior author on this work with first author Marta Luksza, PhD, Assistant Professor of Oncological Sciences, Icahn School of Medicine at Mount Sinai. By capturing aspects of a tumor’s evolution and ways in which it interacted with the underlying immune system, the new model appeared to offer an approach beyond previous biomarkers.

Going forward, it also has the potential to uncover new therapeutic targets within the immune system, and help in the design of vaccines for patients who do not respond to immunotherapy.

The second study, whose first author was Dr. Balachandran, applied the modeling framework in order to better understand immune response in patients with pancreatic cancer and, more specifically, the unique role of neoantigens.

As part of the broad initiative, the Mount Sinai researchers are focused on better understanding what makes a neoantigen a good immune target, and the role of the microbiome in neoantigen recognition. By advancing the core science behind developing a vaccine for pancreatic cancer, the research could eventually improve treatment prospects for patients with this deadly form of the disease.

As they investigate the immune system’s response to cancers, the Convergence 2.0 team will be encouraged to draw upon the knowledge of Microsoft Research experts in machine learning and artificial intelligence. In addition to Dr. Luksza, the research team includes Nina Bhardwaj, MD, PhD, from the Icahn School of Medicine at Mount Sinai; and Eileen M. O’Reilly, MD; Taha Merghoub, PhD; and Jedd D. Wolchok, MD, PhD, from Memorial Sloan Kettering Cancer Center.
Public Health Organization Honors Raja M. Flores, MD

The Collegium Ramazzini, an international organization that limits membership to a select few who are recognized for scientific discoveries that protect public health, recently elected Raja M. Flores, MD, Chair of the Department of Thoracic Surgery at the Mount Sinai Health System, as a Fellow. The organization, based in Italy, was named for Bernardo Ramazzini, an 18th-century physician considered to be the father of occupational medicine. Membership is limited to no more than 180 Fellows from around the world.

Raising Awareness About Lung Health

An estimated 1,000 visitors stopped by a “Lungs for Life” event on Monday, November 12, in Guggenheim Pavilion hosted by the Mount Sinai Lung Screening team. The event, held during Lung Cancer Awareness Month, featured faculty and staff who helped raise awareness about lung health and the benefits of low-dose lung screening for current and former smokers. Thirty participants signed up to schedule a lung screening. The lung screening program, which was created to detect and diagnose early lung cancer when it is highly curable, is renowned internationally and has established collaborations with hospitals around the world to train clinicians from afar. Natthaya Triphuridet, MD, left (see photo), a visiting physician from Thailand, joined Mount Sinai Lung Screening team member Tsering Lhamo, NP, at this year’s screening event. To learn more, go to www.mountsinai.org/lungscreening.

Holiday Fun for Pediatric Patients

More than 200 Mount Sinai Beth Israel pediatric patients, joined by patients affiliated with the Children’s Brain Tumor Foundation, enjoyed live entertainment from a musician, magician, and face painters at a carnival-style holiday party on Sunday, December 9, in the atrium of Mount Sinai Union Square.

The event was sponsored by Andy and Elaine Pesky of the global travel agency Protrav International, who brought 100 volunteers from the organization to help oversee the festivities. Throughout the day, children played at game booths, created holiday-themed arts and crafts, and stopped by a popcorn machine and hot dog cart for snacks. The highlight of the event was a special visit from Santa Claus and the delivery of gifts.
FREEDOM Follow-On Study Confirms Therapy for Patients With Diabetes and Heart Disease

A long-term international study led by researchers at Mount Sinai Heart is helping to establish an optimal standard of care for patients with diabetes and advanced multivessel coronary artery disease—a group at high risk for heart attack and stroke. The FREEDOM Follow-On Study found that patients in this group who are treated with coronary artery bypass grafting (CABG) survive significantly longer than those treated with percutaneous coronary intervention (PCI) with drug-eluting stents.

Over a period of seven and one-half years, mortality from all causes was 18.7 percent for the CABG group and 23.7 percent for the PCI cohort. The study found that younger patients fared the best, with the difference most significant for those under age 65. “These data support current recommendations that CABG be considered the preferred strategy for patients with diabetes and multivessel disease,” says the study’s principal investigator, Valentin Fuster, MD, PhD, Director of Mount Sinai Heart, and Physician-in-Chief of The Mount Sinai Hospital.

During CABG, a healthy artery or vein from the body is connected, or grafted, to the blocked coronary artery, providing a bypass around the blocked portion of the coronary artery. In PCI—a minimally invasive procedure also known as angioplasty—a catheter is threaded through the body to a blocked or occluded vessel in the heart. The occlusion is removed and a drug-eluting stent is often inserted to maintain flow within the blood vessel.

The FREEDOM Follow-On Study, published in the Journal of the American College of Cardiology in November 2018, is the successor to the FREEDOM (Future Revascularization Evaluation in Patients with Diabetes Mellitus: Optimal Management of Multivessel Disease) trial, which randomized 1,900 patients with diabetes. That original study, which concluded in 2012, found that individuals who have diabetes and advanced coronary artery disease live longer and are less likely to suffer a nonfatal heart attack when treated with CABG instead of PCI with drug-eluting stents. The median follow-up time of that trial—just under four years—was considered relatively short, however, because of the prolonged nature of atherosclerotic cardiovascular disease. Consequently, Mount Sinai developed a longer-term follow-up study, and 25 of the original international centers agreed to participate, tracking data on the mortality of 945 patients from the original FREEDOM trial.

Adults with diabetes are two to four times more likely to die from heart disease than those without it, according to the American Heart Association. In addition to confirming a standard of care for such patients, the study’s results underscore the importance of aggressive medical treatment and prevention to keep them from reaching advanced stages of diabetes, hypertension, and high cholesterol—forestalling the need for either CABG or PCI, Dr. Fuster says. “We have to pay attention to how we can prevent this late stage of disease by taking care of obesity,” he says. “About 70 percent of these patients were obese, and we can do a lot to prevent this.”

A New Leader for Emergency Management

The Mount Sinai Health System recently recruited Don R. Boyce, JD, to fill the newly created position of Vice President of Emergency Management. Mr. Boyce brings considerable professional experience to this critical new role. He will oversee the development and implementation of the Health System’s emergency response plans and activities, and ensure they address the needs of all Mount Sinai locations. Mr. Boyce also will work to establish the Mount Sinai Health System as a regional and national leader in emergency management.

Prior to joining Mount Sinai, Mr. Boyce, who received his JD from Brooklyn Law School, served for six years as Deputy Assistant Secretary and Director of the Office of Emergency Management within the U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. In this position, he led a workforce comprising 10 divisions, 10 regional offices, and more than 300 federal employees throughout the nation. He was responsible for executing the collaborative effort responsible for public health and medical oversight on behalf of all federal agencies, and in support of state and local partners. He also served as the primary point of contact for the Department of Defense, Defense Support for Civil Authorities, and the Defense Threat Reduction Agency during civilian responses for domestic medical emergencies and mass fatality operations.

Mr. Boyce’s more than 30-year career has included additional leadership roles in health care and emergency management, including his positions as Corporate Director of Emergency Management at Continuum Health Partners, Director of the Massachusetts Emergency Management Agency, and Regional Administrator for the Department of Homeland Security/Federal Emergency Management Agency.
Honoring Excellence in Patient Communication

Recipients of the 2018 Cullman Family Award for Excellence in Physician Communication were honored at a reception held Tuesday, October 30, at the Corporate Services Center. For the past three years, this annual award has honored Mount Sinai Health System physicians and advanced practice providers who demonstrate exceptional communication in clinical practice.

Recipients of this year’s award were ranked in the top one percent nationally in provider communication for 2017, as measured by the Centers for Medicare & Medicaid Services’ Clinician and Group Consumer Assessment of Healthcare Providers and Systems patient experience survey. Of the 35 recipients, 12 have received the honor multiple times.

Making the presentations were Vicki LoPachin, MD, Chief Medical Officer and Senior Vice President of the Mount Sinai Health System, along with Mount Sinai Trustees Edgar M. Cullman, Jr., and Susan R. Cullman. Dr. LoPachin said patients had used words such as “awesome,” “best,” “thoughtful,” and “excellent” when describing the honorees, adding: “As the Health System reinforces its goal of putting patients at the center of all that we do, we are proud that you have been leading the way.”

The recipients are:

- Aliza Ben-Zacharia, DrNP
- Carolyn Brockington, MD
- Rachel Brozinsky, MD
- Michael Buckstein, MD, PhD
- Jillian Capodice, MS, LAC
- Kelly Cassano, DO
- Lori Croft, MD
- Sandra Delapenha, Audiologist
- Christopher DiMaio, MD
- David Dunkin, MD
- Lori Garjian, MD
- Sunil George, MD
- Paul Ginelli, MD
- Thomas Goldman, DPM
- Marsha Gordon, MD
- Jessica Grant, MD
- Vishal Gupta, MD
- Carolyn Iocolano, FNP-BC, PhD
- Tonia Kim, MD
- Jason Kindt, DO
- Jason Kovacic, MD, PhD
- Stephen Krieger, MD
- Alefiyah Malbari, MD
- Stuart Morduchowitz, MD
- Thomas Nicosia, MD
- Lauren Pecoraro, MD, MPH
- Kalmon Post, MD
- Elliott Rosch, MD
- Kenneth Rosenzweig, MD
- Prantik Saha, MD, MPH
- Vicki Shanker, MD
- Rajesh Shenoy, MD
- Shubhika Srivastava, MBBS
- Marla Stern, MD
- Paul Thodiyil, MD