Sanofi, Sema4, Mount Sinai Collaborate on Largest Asthma Study of Its Kind

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Five-year multiscale study will follow 1,200 patients using advanced network modeling to make new discoveries

Stamford, CT, and New York, NY — December 4, 2018 — Sema4, a patient-centered predictive health company, and the Mount Sinai Health System today announced the launch of a five-year collaborative study with Sanofi designed to provide new insights into the biological mechanisms and other factors implicated in asthma. The project will follow nearly 1,200 people with asthma and collect a range of data — from traditional clinical data to genomics, immunological, environmental, and sensor data from mobile devices — to enable sophisticated analysis and advanced network modeling of this complex disease.

Asthma is the most prevalent chronic respiratory disease, affecting more than 350 million people worldwide and causing approximately 400,000 deaths worldwide annually.[1] Evidence shows that the prevalence of asthma is increasing, and along with it both direct healthcare costs as well as indirect costs from loss of productivity and early disability.

“Despite advances in recent years, we still see many patients struggling with asthma, so there is still a tremendous need for innovation to reduce the burden of this disease,” said Linda Rogers, MD, Associate Professor and Clinical Director of the Adult Asthma Program at the Mount Sinai – National Jewish Health Respiratory Institute. “With one of the largest asthma programs in the region, caring for patients across the spectrum of severity of asthma, the Mount Sinai – National Jewish Health Respiratory Institute will play a crucial role in this partnership to advance our understanding of asthma and develop personalized therapies for our patients.”

The study will generate real-world data about patients through innovative molecular profiling of biological samples and digital monitoring of the environment. Clinical research teams from all three organizations will deploy advanced analytics on this information to better understand how the disease functions, what triggers asthma attacks, which patient segments are most likely to respond to certain therapies, why the disease affects people differently, and more. Researchers hope these insights will help pinpoint new therapeutic targets as well as more effective treatment recommendations for patients.

“Understanding how to develop new treatments for asthma starts with a better understanding of the disease,” said Frank Nestle, Global Head of Immunology and Inflammation Research and Chief Scientific Officer, North America, at Sanofi. “Our goal is to develop a holistic view of each patient in the study, which is why we’re excited to add digital technology to the traditional types of medical examinations conducted in this study. It’s a new way to approach this enormous problem, connecting real world clinical and scientific data, that we hope will translate into new ways to treat asthma.”

“Asthma is an incredibly complex condition associated with genetics, environmental factors, activity levels, the immune system and more,” said Eric Schadt, PhD, Chief Executive Officer of Sema4. “We believe the only way to fully understand asthma is by using sophisticated modeling tools to mine the rich, multi-dimensional data set we aim to generate in this study. This approach could reveal entirely new avenues for alleviating and more effectively treating asthma.”

“Mount Sinai has incredible clinicians who care for a diverse patient population and is backed by world-class data science and multiscale biological modeling capabilities,” said Andrew Kasarskis, PhD, Vice Chair, Department of Genetics and Genomic Sciences. “In this groundbreaking collaboration with Sanofi and Sema4, we are thrilled to leverage the Mount Sinai ecosystem and build on our experience with another immune condition, inflammatory bowel disease. Together, we will define asthma subtypes clinically, then understand the molecular basis of disease in each subtype in order to discover new therapies and better manage asthma in all our patients.”

“We’re pleased to partner with Sanofi and Sema4 on this exciting new study,” said Erik Lium, PhD, Executive Vice President of Mount Sinai Innovation Partners. “We believe this collaboration may ultimately lead to the identification of novel targets and the development of groundbreaking therapies to benefit patients with asthma.”

Reference

1. GBD 2015 Chronic Respiratory Disease Collaborators. “Global, regional, and national deaths, prevalence, disability-adjusted life years, and years lived with disability for chronic obstructive pulmonary disease and asthma, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015.” *Lancet Respir Med.* 2017; 5: 691–706. http://dx.doi.org/10.1016/S2213-2600(17)30293-X.

About Sema4

Sema4 is a patient-centered predictive health company founded on the idea that more information, deeper analysis, and increased engagement will improve the diagnosis, treatment, and prevention of disease. A Mount Sinai Health System venture based in Stamford, Connecticut, Sema4 is dedicated to transforming healthcare by building more dynamic models of human health and

defining optimal, individualized health trajectories, starting with reproductive health and oncology. Our innovative Sema4 Health Intelligence Platform is enabling us to generate a more complete understanding of disease and wellness and to provide science-driven solutions to the most pressing medical needs. Sema4 believes that patients should be treated as partners, and that data should be shared for the benefit of all.

For more information, please visit sema4.com and connect with Sema4 on Facebook, Twitter and YouTube.

About the Mount Sinai Health System

The Mount Sinai Health System is New York City's largest integrated delivery system encompassing eight hospital campuses, a leading medical school, and a vast network of ambulatory practices throughout the greater New York region. Mount Sinai's vision is to produce the safest care, the highest quality, the highest satisfaction, the best access and the best value of any health system in the nation. The Health System includes approximately 7,480 primary and specialty care physicians; 11 joint-venture ambulatory surgery centers; more than 410 ambulatory practices throughout the five boroughs of New York City, Westchester, Long Island, and Florida; and 31 affiliated community health centers. The Icahn School of Medicine is one of three medical schools that have earned distinction by multiple indicators: ranked in the top 20 by *U.S. News & World Report's* "Best Medical Schools", aligned with a *U.S. News & World Report's* "Honor Roll" Hospital, No. 12 in the nation for National Institutes of Health funding, and among the top 10 most innovative research institutions as ranked by *the journal Nature in its Nature Innovation Index*. This reflects a special level of excellence in education, clinical practice, and research. The Mount Sinai Hospital is ranked No. 18 on *U.S. News & World Report's* "Honor Roll" of top U.S. hospitals; it is one of the nation's top 20 hospitals in Cardiology/Heart Surgery, Gastroenterology/GI Surgery, Geriatrics, Nephrology, and Neurology/Neurosurgery, and in the top 50 in six other specialties in the 2018-2019 "Best Hospitals" issue. Mount Sinai's Kravis Children's Hospital also is ranked nationally in five out of ten pediatric specialties by *U.S. News & World Report*. The New York Eye and Ear Infirmary of Mount Sinai is ranked 11th nationally for Ophthalmology and 44th for Ear, Nose, and Throat. Mount Sinai Beth Israel, Mount Sinai St. Luke's, Mount Sinai West, and South Nassau Communities Hospital are ranked regionally.

For more information, visit mountsinai.org or find Mount Sinai on Facebook, Twitter, and YouTube.

About the Mount Sinai – National Jewish Health Respiratory Institute

The Respiratory Institute brings together leading expertise in diagnosing and treating all forms of respiratory illness. Specialized programs are committed to multidisciplinary consultation, advanced diagnostics, and coordinated, collaborative care for the full range of lung conditions. Treatment plans designed by our teams of specialists incorporate the newest therapies tailored to the personal needs of each patient, enhanced by the implementation of genetics and genomics into disease management approaches. Through the integration of research advances, clinical skill and patient-focused processes and protocols, the Respiratory Institute offers a model for the state-of-the-art delivery of multidisciplinary, outcomes-driven care, and for the application of personalized medicine for the treatment of respiratory disease.

For more information, visit therespiratoryinstitute.org or find the Respiratory Institute on Facebook and Twitter.

About Mount Sinai Innovation Partners (MSIP)

MSIP is responsible for driving the real-world application and commercialization of Mount Sinai discoveries and inventions, and the development of research partnerships with industry. Our aim is to translate discoveries and inventions into health care products and services that benefit patients and society. MSIP is accountable for the full spectrum of commercialization activities required to bring Mount Sinai inventions to life. These activities include evaluating, patenting, marketing and licensing new technologies building research, collaborations and partnerships with commercial and nonprofit entities, material transfer and confidentiality, coaching innovators to advance commercially-relevant translational discoveries, and actively fostering an ecosystem of entrepreneurship within the Mount Sinai research and health system communities. For more information, visit www.ip.mountsinai.org.

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