



Merck Serono Enters into Research Agreement with Pfizer and Broad Institute

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Your Contact:

Dr. Andrea Marquart

Phone +49 6151

72-6517

Agreement aims to identify biomarkers relevant to future therapies in the area of Systemic Lupus Erythematosus and Lupus Nephritis

Darmstadt, Germany – Merck Serono, the biopharmaceutical division of Merck, announced today that its U.S. affiliate EMD Serono has signed a research agreement with Pfizer Inc. and the Broad Institute in Cambridge, Massachusetts, U.S. The collaboration is focused on the genomic profiling of Systemic Lupus Erythematosus (SLE) and Lupus Nephritis (LN) patients. The research project will be jointly funded by Merck Serono and Pfizer.

SLE is a systemic autoimmune disease, and can cause LN, an inflammation of the kidney. In SLE patients, in addition to the kidney, other tissues and organs can be affected, including the skin, the nervous system, or joints.

As part of the collaboration, the Broad Institute will investigate clinical samples obtained from SLE and LN patients, applying biochemical and next-generation sequencing technologies. They will also analyze immune cell subpopulations. The goal is to identify biomarkers to better define target patient populations for future therapies. In addition, through computational modeling approaches, the project aims to identify key molecular drivers of SLE and LN kidney flares, and thereby to discover potential novel drug targets as the basis for innovative therapies.

Merck KGaA

Frankfurter Strasse250

64293 Darmstadt

Germany

Hotline +49 6151 72-5000

www.merckgroup.com

Merck Serono is a division of Merck.

www.merckserono.com

Phone +49 6151 72-6517

andrea.marquart@merckgroup.com

Under the terms of the agreement, Merck Serono and Pfizer, as sponsoring members, will receive real-time access to all data and analysis. In addition, both companies will have the ability to send a research scientist to the Broad Institute to foster exchange of technology expertise in the area of computational and experimental genomic profiling.

"We are thrilled to align with Merck Serono and Pfizer on an innovative project to stratify SLE patients and identify candidate immune pathways underlying lupus nephritis," said Prof. Nir Hacohen, Associate Professor at Massachusetts General Hospital and Harvard Medical School, and Senior Associate Member at the Broad Institute. "Technical advances now make it possible for us to sequence RNA in very small numbers of cells, enabling us to be more comprehensive in our analysis of cell types and states in Lupus patients. We will collect millions of unbiased measurements from lupus patients over many time points along with key clinical variables. We will use this dataset to infer active biological pathways in these patients and develop novel dynamic models of Lupus pathogenesis."

"The research group of Prof. Nir Hacohen from the Broad Institute is a pioneer in the field of systems immunology and has developed a unique strategy to dissect Lupus and Lupus Nephritis," said Harsukh Parmar, Head of the Translational Innovation Platform Immunology & Neurodegenerative Diseases at Merck Serono. "Combined with the Broad Institute's technical know-how, we see this collaboration aiming for a significant contribution to potential future innovative treatments of Lupus and Lupus Nephritis. This is in line with our concept to integrate genomic profiling and system biology approaches

throughout our preclinical and clinical programs.”

"We are pleased to collaborate with Merck Serono and the Broad Institute on research designed to enhance our understanding of the molecular and cellular underpinnings of Lupus, a debilitating disease that has long been a mystery to the scientific community," said Johan Lund, Senior Vice President and Chief Scientific Officer of Immunoscience at Pfizer. "This collaboration builds on Pfizer's patient-centric and precision medicinebased approach to autoimmune disease research, applying cutting edge technologiesand a wealth of patient level data with a goal of advancing our understanding of disease in order to develop innovative therapies."

About Merck Serono

Merck Serono is the biopharmaceutical division of Merck. With headquarters in Darmstadt, Germany, Merck Serono offers leading brands in 150 countries to help patients with cancer, multiple sclerosis, infertility, endocrine and metabolic disorders as well as cardiovascular diseases. In the United States and Canada, EMD Serono operates as a separately incorporated subsidiary of Merck Serono.

Merck Serono discovers, develops, manufactures and markets prescription medicines of both chemical and biological origin in specialist indications. We have an enduring commitment to deliver novel therapies in our core focus areas of neurology, oncology, immuno-oncology and immunology.

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