

Repertoire Immune Medicines Receives Funding From COVID-19 High Performance Computing Consortium

Repertoire will use its state-of-the-art decoding technology and services made available through the Consortium to expand the scope of vaccine development

Goal is to identify viral antigens with highest likelihood of inducing long-term immunity when delivered through vaccines

CAMBRIDGE, Mass. – June 24, 2020 – [Repertoire Immune Medicines](#), a clinical-stage biotech company tooled to decode and deploy the immune system across multiple major diseases, today announced that it has received funding from the COVID-19 High Performance Computing (HPC) Consortium, a private-public sector effort offering computing capabilities to support COVID-19 research programs. Repertoire’s research project aims to identify viral epitopes most likely to induce durable immunity to SARS-CoV-2, the virus that causes COVID-19, through induction of long-term memory in T cells. Under this grant, Repertoire will leverage the cloud computing resources of Amazon Web Service (AWS) to simulate and predict the complex immunological interactions across patient populations that lead to clearance of SARS-CoV-2.

The Consortium-supported research project will combine Repertoire’s state-of-the-art experimental platform, which measures T Cell Receptor (TCR)-antigen interactions at single-cell resolution, and then simulates these interactions on AWS. The goal is to identify those SARS-CoV-2 epitopes that have the highest likelihood of inducing long-term immunity when delivered through vaccines.

Long-term protection requires the development of T cell memory. Unlike antibodies, T cells find those cells infected by a virus such as COVID-19 by identifying virus-derived antigen molecules (epitopes) displayed on the surface of infected cells through their TCR, and then kill those cells and orchestrate a productive, long-term immune response.

“The dynamics of SARS-CoV-2 infection is yet to be fully understood, and it is unknown whether patients acquire long-term immunity to the virus following initial infection,” said Daniel Pregibon, Ph.D., SVP, Head of Platform Discovery and Technology, Repertoire Immune Medicines. “The majority of current investigations into COVID-19 vaccines focus on the B cell derived antibody responses to a handful of viral targets, typically those derived from the spike, membrane and nucleocapsid proteins. Our immune decoding capabilities have the potential to identify antigen molecules that induce a robust T cell response for inclusion in vaccines, and reveal the key to long-term immunity resulting from responses to any protein of SARS-CoV-2, or other cross-reactive coronaviruses, which will significantly expand the scope of vaccine development.”

Through prior decoding of numerous T cell receptor-antigen interactions in high-performance

computing environments, Repertoire has already operationalized the underlying experimental biology and computational infrastructure necessary to begin this project. The company intends to submit a manuscript for publication in a peer-reviewed journal shortly after project completion.

About the COVID-19 High Performance Computing Consortium

The COVID-19 High Performance Computing (HPC) Consortium is a global effort that brings together leaders from government, industry, and academia to streamline use of high-performance computing resources in support of COVID-19 research. Members offer a range of capabilities, from small clusters to some of the largest super computers in the world, and include leading technology companies like IBM, Amazon Web Services, Microsoft, and Google as well as academia like MIT and Carnegie Mellon, and federal agencies including NASA and the National Center for Supercomputing Applications (NCSA). For more information visit: <https://covid19-hpc-consortium.org>.

About Repertoire Immune Medicines

Repertoire Immune Medicines, a Flagship Pioneering company, is a clinical stage biotechnology company working to unleash the remarkable power of the human immune system to prevent, treat or cure cancer, autoimmune conditions and infectious diseases. The company is founded on the premise that the repertoire of T cell receptor-antigen codes that drive health and disease represents one of the greatest opportunities for innovation in medical science. The company harnesses and deploys the intrinsic ability of T cells to prevent and cure disease. Repertoire scientists created and developed a suite of technologies for its DECODE discovery and DEPLOY product platforms that allow in-depth characterization of the immune synapse and the ability to rationally design, and clinically develop, multi-clonal immune medicines. The company is currently conducting experimental medicine clinical trials using autologous T cells primed against cancer antigens and tethered to IL-15. To learn more about Repertoire Immune Medicines, please visit our website: www.repertoire.com and follow us on [LinkedIn](#) and [Twitter](#).

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