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## Research Collaboration by Chugai, the University of Tokyo and RIKEN on Functional Genome Database Published in Cell

- Research collaboration by Chugai, the University of Tokyo, and RIKEN published online in the U.S. scientific magazine Cell
- Created the world's largest functional genome database ImmuNexUT and analyzed the relationship between the onset of immune-mediated diseases and the genomic polymorphisms based on Asian genomic data

TOKYO, May 6, 2021 -- [Chugai Pharmaceutical Co., Ltd.](#) (TOKYO: 4519) announced that the research collaboration by Chugai (Forerunner Pharma Research), Department of Allergy and Rheumatology at the University of Tokyo Hospital, and RIKEN on a functional genome database was published online in the U.S. scientific journal Cell on April 29, 2021.

“Dynamic landscape of immune cell-specific gene regulation in immune-mediated diseases”

(<https://www.sciencedirect.com/science/article/pii/S0092867421004293>)

“Chugai’s innovation is generated by its own scientific and technological capabilities. For the maintenance and improvement of state-of-the-art sciences, open innovation including collaboration with academia is essential. I am very proud that one of these efforts to understand disease biology has obtained the world's highest level of scientific appraisal through the publication in Cell,” said Dr. Osamu Okuda, Chugai’s President and CEO. “TOP I 2030, our growth strategy announced in February, places open innovation as one of its key drivers. We will continue expanding our collaboration with external networks to create innovative new drugs.”

This study constructed a large-scale functional genome database “ImmuNexUT” (Immune cell gene expression atlas from the University of Tokyo) that significantly outperforms previous reports in the number of cases of immune-mediated diseases, the variety of clinical cases, and the types of immune cells, and clarified the relationship between gene polymorphisms and gene expression levels in each cell type involved in the onset of various immune-mediated diseases. A total of 9,852 samples of 28 immune cells were obtained from 416 peripheral blood samples from 10 representative patients with immunological diseases and healthy individuals, and these samples were used to quantify gene expression and to analyze the association between gene expression and gene polymorphisms. As valuable data showing the genomic functions of Asians, this database is expected to be applied to genomic studies of various disease states involving immunity, leading to the elucidation of disease states and the identification of therapeutic target molecules and biomarkers for pharmaceuticals.

Chugai participated in this collaborative study with the purpose of elucidating the disease state of autoimmune and autoinflammatory diseases and creating therapies through an integrated understanding of

immunology and functional genomics. In promoting research, Chugai's research subsidiary Forerunner Pharma Research which terminated its operation in March 2021 made significant contributions to building ImmuNexUT through acquisition by utilizing its strong immunology research infrastructure with clinical samples.

Chugai, which aims at becoming a top innovator in the healthcare industry, will promote open innovation including collaboration with academia to contribute to patients around the world through innovative drugs.

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