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Announcement of the commencement of T cell receptor (TCR) analysis business

OncoTherapy Science, Inc. (President & CEO: Masaharu Mori; hereinafter, “OncoTherapy”) announces that OncoTherapy has decided at the Board meeting to introduce a T cell receptors (TCR) method using the next-generation sequencer (*1) that was developed by Professor Yusuke Nakamura’s laboratory at Department of Medicine, the University of Chicago, for applying it to OncoTherapy’s vaccine development program. We will also start a TCR analysis services business to customers including pharmaceutical companies and academic institutions.

Cancer immunotherapy has been developed as the fourth cancer therapy in addition to surgery, radiotherapy, and chemotherapy. For example, immune checkpoint antibody therapies (*2) developed by domestic and foreign pharmaceutical companies were approved in the United States and Japan. Furthermore, a cancer vaccine therapy against prostate cancer developed by a U.S. pharmaceutical company was approved in the United States. However, detailed molecular mechanisms of action of immunotherapy, including how cancer cells are attacked and eliminated, have not been fully clarified yet. In addition, since these treatments are extremely expensive, it is important to select patients who are likely to respond well to the treatment or to monitor immune responses in patients for the decision making process to or not to continue the therapy.

The high-throughput TCR analysis method that OncoTherapy introduces can monitor changes in T cells in blood, cancer tissues, ascites and pleural effusion, and rapidly provide the information of TCRs from a few to more than ten million T cells. The method is also applicable to B cell receptors (BCR) analysis (*1) and to various disease conditions including autoimmune diseases, drug hypersensitivity, food allergies and infections.

OncoTherapy, in collaboration with the University of Chicago, will develop world’s most advanced TCR analysis techniques to apply them to selecting patients for vaccine therapies and monitoring the course of treatment. OncoTherapy will thus conduct the research and development of the TCR analysis and its commercialization to contribute to medicine.

(*1) Methods for studying characteristics of T cells (or B cells) by determining DNA sequences of T cell receptors (or B cell receptors) that recognize antigens.

(*2) Therapies that activate T cells to attack cancer cells by inhibiting the functions of immune checkpoint molecules that play roles of suppressing immune responses to protect cancer cells.

References

(1) H. Fang, R. Yamaguchi, X. Liu, Y. Daigo, P.Y. Yew, C. Tanikawa, K. Matsuda, S. Imoto, S. Miyano, and Y. Nakamura: Quantitative T Cell Repertoire Analysis by Deep cDNA Sequencing of T Cell Receptor α and β Chains using Next-Generation Sequencing (NGS). *OncoImmunology*, DOI: 10.4161/21624011.2014.968467, 2014

(2) X. Liu, G. Venkataraman, J. Lin, K. Kiyotani, S. Smith, M. Montoya, Y. Nakamura, and J. Kline: Highly clonal T cell receptor repertoire among regulatory T cells in follicular lymphoma tissues – correlation with the CD8⁺ T cell receptor repertoire. *OncoImmunology*, DOI:10.1080/2162402X.2014.1002728, 2015