April 21, 2026

Press Release

C4U Corporation

Development of Next-Generation T-Cell Gene Editing Technology Using CRISPR-Cas3
~ Demonstrating Improved Safety and Potential Application
to Allogeneic CAR-T Therapy ~

C4U Corporation (“C4U”) is pleased to announced that, in our collaborative study with Noile-Immune Biotech Inc. (“Noile-Immune”) and a team led by Professor Tomoji Mashimo of the Division of Animal Genetics, Laboratory Animal Research Center, Institute of Medical Science, the University of Tokyo (IMSUT), the novel genome editing technology CRISPR-Cas3 system has successfully applied to human T cells, achieving clinically relevant genetic modifications. This achievement represents a key technological advancement toward the development of next-generation allogeneic T cell therapies. The results of this study have been published in NAR Cancer.

■ Background

CRISPR-Cas9 has been widely adopted as an efficient genome editing technology; however, safety concerns such as off-target mutations and chromosomal abnormalities, including translocations and inversions, remain challenges for clinical application. CRISPR-Cas3, a Class 1 CRISPR system characterized by its unidirectional DNA degradation activity, has recently attracted attention as a novel genome editing platform with the potential for reduced off-target effects.

■ Overview of research achievements

In this study, CRISPR-Cas3 was applied to human T cells, successfully achieving knockout of clinically important genes TRAC (T cell receptor alpha constant) and B2M (beta-2 microglobulin):

- TRAC knockout: Reduction of graft-versus-host disease (GVHD) risk
- B2M knockout: Reduction of rejection by host immune responses
- Off-target mutations: Not detected in CRISPR-Cas3-edited cells
- CAR-T functionality: Retained tumor antigen-specific cytotoxic activity

These findings demonstrate a possibility that Cas3-mediated T cell editing enables the development of "off-the-shelf allogeneic CAR-T cells" with enhanced safety profiles, without compromising antitumor efficacy.

■ Future outlook

CRISPR-Cas3 has the potential to become a safer T cell engineering platform compared with conventional genome editing technologies. Through joint research and development with Noile-Immune, C4U aims to leverage this technology to advance the development of next-generation allogeneic CAR-T therapies, as well as other gene-modified immune cell therapies, with the goal of providing safer and more durable treatment options.

※This announcement relates to research-stage results and does not guarantee future clinical development.

<Reference>
Journal: NAR Cancer
Title of original paper: Efficient gene disruption with CRISPR-Cas3 in human T cells
DOI: 10.1093/narcan/zcag009
URL: https://academic.oup.com/narcancer/article-lookup/doi/10.1093/narcan/zcag009

[C4U Corporation]
C4U is a privately held biotech company based in Osaka, Japan, and is focused on the development of safe and efficient gene therapies utilizing its proprietary next generation CRISPR-Cas3 gene editing platform. In comparison to the CRISPR-Cas9 platform, CRISPR-Cas3 presents the distinct benefits of: 1) no off-target by the higher selectivity of deletion site (improved safety); 2) efficient knockouts by the larger deletion of gene sequences; and 3) an entirely independent patent portfolio. C4U has been granted a worldwide exclusive license to CRISPR-Cas3 by the University of Osaka for use in eukaryotic cells thus simplifying sublicensing transactions which is in sharp contrast to the complex and heavily litigated CRISPR-Cas9 patent landscape.
https://www.crispr4u.jp/en/

[Noile-Immune Biotech Inc.]
Noile-Immune Biotech Inc. (TSE: 4893) is a biotech company, an academia start-up, and is committed to the practical application of next-generation immunotherapy for solid cancers by utilizing PRIME CAR-T cells which incorporate Noile-Immune's proprietary PRIME technology, an innovative approach to enhance the therapeutic effects of immune cell therapy. As PRIME technology can be combined with various chimeric antigen receptors (CARs) to create novel drugs and applied to a broad range of modalities, it is expected to develop many anti-cancer therapeutic approaches in combination with other technologies in the future. Through our business activities, Noile-Immune aims to contribute to the creation of a society that can overcome cancer.
For more information, please visit https://www.noile-immune.com/en.html.

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