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ASIA EDITION

Takeda, Kyoto University research collaboration develops further

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iCART program advances the potential for a highly scalable, lower cost, off-the-shelf CAR T-cell therapy to treat cancer



The Center for iPS Cell Research and Application (CiRA) at Kyoto University and Takeda Pharmaceutical Company Limited ("Takeda") have announced that a novel induced pluripotent stem (iPS) cell-derived chimeric antigen receptor (CAR) T-cell therapy (iCART) has been transferred from their T-CiRA research collaboration to Takeda as the program begins process development toward clinical testing.

Under the terms of the T-CiRA agreement, Takeda has the global rights to develop and commercialize the iCART product and CiRA will receive development and approval milestones. The teams will continue to collaborate as they prepare the iCART program for a clinical trial in 2021.

Autologous CAR T-cell therapy is a type of immunotherapy that uses a patient's own genetically modified T-cells to find and kill cancer cells. Because first-generation autologous CAR-T therapies are created from the blood of each individual patient, it is a slow and expensive process.

Developed by CiRA's Shin Kaneko, M.D., Ph.D., who will remain involved as a Takeda advisor, the iCART program uses a clonal master iPS cell bank to create off-the-shelf CAR-T therapies that can be tailored to each patient on demand. The goal is to develop a process that is highly scalable – capable of creating very large quantities of homogenous doses from a single master cell bank – and less costly than first generation CAR-Ts. In vivo pre-clinical studies demonstrated robust antitumor efficacy with a CD19-targeted iCART.

T-CiRA was established in 2015 as a 10-year joint research program between CiRA and Takeda. Under the direction of Dr. Yamanaka Takeda is providing 20 billion yen in collaborative funding and is jointly running multiple projects led by researchers invited from CiRA, and other research institutes. As part of the ongoing collaboration, T-CiRA conducts cutting-edge research in the clinical application of iPS cells in areas including immuno-oncology, heart failure, diabetes mellitus, neuro-psychiatric disorders, and intractable muscle diseases at Takeda's Shonan Health Innovation Park.