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Japan takes major step forward in advancing autologous cardiac regenerative medicine

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Using iPS cells from I Peace, Heartseed succeeds in stable production of high purity cardiomyocytes



I Peace, Inc., specialising in induced pluripotent stem cells (iPSCs) and iPSC-derived cell therapies based in Palo Alto, CA, and Heartseed Inc. a Tokyo-based biotechnology company developing iPSC-derived cardiomyocytes for heart failure, have collaborated to generate cardiomyocytes using multiple donor-derived GMP grade iPS cell lines by I Peace, and Heartseed's proprietary cardiomyocytes differentiation and purification methods.

Heartseed has successfully produced high-purity cardiomyocytes consistently from all I Peace manufactured iPS cell lines used in this study. This achievement marks a significant step forward in the realisation of autologous cardiac regenerative medicine with I Peace's personal iPS cell banking service (My Peace), to manufacture and store iPS cells, and induce them into cardiomyocytes for use in autologous cell therapy.

A major advantage of medical treatment using autologous iPS cells is that immunosuppressive agents are not necessary because no immune reaction occurs when cells are transplanted. However, the differentiation efficiency of iPS cells into target cells varies, and to efficiently produce cardiomyocytes from different donor-derived iPS cells, it is necessary to optimise the method of cardiomyocyte production for each iPS cell. This has been a hurdle to the realization of medical treatment using autologous iPS cells.

I Peace will continue to work together with Heartseed towards establishing regenerative medicine for heart failures using patients' own iPS cells. I Peace will also collaborate with various institutions in other fields.

I Peace was founded in 2015 by Koji Tanabe, a graduate of Professor Shinya Yamanaka's lab at Kyoto University and the second author of the paper that reported the world's first successful establishment of human iPS cells.