Mass Production of Cardiomyocytes Derived from Human iPS Cells
- Takara Bio Inc. works toward practical use of the novel technology developed at Kyoto University’s CiRA –

Average cost of bringing a new drug to market is around ¥100 billion. During clinical development which accounts for the most of the entire cost of drug development, cardiotoxicity is a major cause of drug attrition accounting for about 20% of drug discontinuation. For these reasons, it is important to accurately predict the risk of drug-induced cardiotoxicity before entering clinical trials.

NEDO has therefore launched the project for the development of technology for mass production of cardiomyocytes (cardiac muscle cells) derived from human iPS (induced Pluripotent Stem) cells for detecting drug-induced cardiac toxicity such as arrhythmia.

In this project, based on the method to induce the differentiation of human iPS cells into cardiomyocytes developed by Prof. Jun Yamashita of the Center for iPS Cell Research and Application (CiRA) at Kyoto University, Takara Bio Inc. aims to establish a manufacturing process for the mass production of cardiomyocytes with little fluctuation of quality from lot to lot, and with a quality required by the new assay to assess cardiotoxicity of drugs.

Takara Bio Inc. plans to start commercial production of the cardiomyocytes based on the results and methodologies developed in this project by the end of FY 2015. As a result, the market for cardiomyocytes used for the prediction of drug-induced side effects is expected to grow to ¥10 billion in 5 years.
Establishment of the Manufacturing Process Enabling the Mass Production of Cardiomyocytes Derived from Human iPS Cells

Research group led by the National Institute of Health Sciences

E-mail: nedo_press@ml.nedo.go.jp