

JSPS Core-to-Core Program
FY2013 Implementation Plan (Project No. : 21003)

Research Theme Construction of cardiac tissue using integrated gene, cell, and tissue engineering technology and its application for the treatment of cardiac failure

Duration of Project 4/1/2011 - 3/31/2014 (36months)

Core Institution in Japan (Co-Chair) Osaka University Graduate School of Medicine
(Yoshiki Sawa)

Implementing Organizations

○ **Japan**

Japan	Core Institution	Osaka University Graduate School of Medicine	
	Co-Chair (name and title)	Professor Yoshiki Sawa	
	Cooperating Institutions	Osaka University	Number of Cooperating Institutions
			1

○ **Partner Countries**

Finland	Core Institution	University of Helsinki	
	Co-Chair (name and title)	Professor Ari Harjula	
	Cooperating Institutions	Kuopio University AIV institute Tampere University Finnish Red Cross Blood Service	Number of Cooperating Institutions
			3

Germany	Core Institution	Hannover Medical School	
	Co-Chair (name and title)	Professor Axel Haverich	
	Cooperating Institutions	Rostock University Düsseldorf University Heidelberg University German Tissue Bank	Number of Cooperating Institutions
			4

Objectives of Research Exchange (including the five years after the project finishes)

The goal of this project is to promote and enhance an international research activities for cardiac tissue engineering and to apply the tissue engineered cardiac tissue to clinical use in patients with severe heart disease. In order to develop this consortium, international collaboration of young scientists of each country is one of the most important activities. Annual seminar and workshops are planned. We will start international multi-center clinical study of three dimensional cardiac tissue in patients with severe heart failure between Finland, Germany, and Japan. International hub formation is the final goal of this program.

Results to the present

We have established academic agreement between Osaka, Hannover, and Helsinki. 16 young researchers have been exchanged in this program. 8 meetings have been held in Wien, Geneva, Toronto, Tampere, Nagoya, Yokohama, Hannover, and Helsinki. The results of joint research have been presented in international conferences and have been published in peer-reviewed journals. The activities and research informations are always up-dated in our home page (<http://jsps-osaka-u.jpn.org/jp/index.html>). International multi-center clinical trial of tissue engineered heart valve has started between Europe and Japan.

Summary of FY 2013 Exchange Plan

Joint Research

Using temperature-responsible cell sheet, bio-artificial cardiac tissue (BCT), and iPS cells, we try to construct a tissue engineered three-dimensional cardiac tissue, which can be transplanted into the human heart. 1) Experiments using small animal with iPS cells is performed in Hannover, 2) Experiments using small animal for constructing vascular network is done in Osaka and Helsinki. 3) Experiments using cell-sheet is underwent in Osaka.

Seminar

In August 2013, the summer seminar is done in Helsinki University, Finland. We will make international symposium and seminar for young researchers in December 2013 in Osaka University, Japan.

Researcher Exchanges

In order to develop international collaboration, 4 Japanese researchers from Osaka University stay in Helsinki (1 researcher) and in Hannover (3 researchers) for 3 to 6 months. Furthermore, 6 Japanese researchers are planned to visit Helsinki and Hannover for a week to exchange information.