

JSPS Core-to-Core Program
FY2011 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 Kyoto University Tokyo Women's Medical University	Number of Cooperating Institutions
			3

○ **Partner Countries**

	Core Institution	University of Helsinki	
	Co-Chair (name and title)	Professor Ari Harjula	
	Cooperating Institutions	University of Kuopio	Number of Cooperating Institutions
			1

	Core Institution	Hannover Medical School	
	Co-Chair (name and title)	Professor Axel Haverich	
	Cooperating Institutions	University of Rostock	Number of Cooperating Institutions
			1

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

The goal of this project is to promote and enhance 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. More than 10 young researchers have been exchanged in this program. Kick-off meeting, Progress meeting, and top meeting have been held in Wien, Geneva, and Toronto. 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.jp/index.html>).

Summary of FY 2011 Exchange Plan

Joint Research

Using temperature-responsive cell sheet, autologous segment of small intestine, and mesenchymal stem cells, we try to construct a tissue engineered three-dimensional cardiac tissue, which can be transplanted into the human heart. 1) Experiments using large animal with mesenchymal stem cells is performed in Helsinki, 2) Experiments using cell sheet is done in Osaka and Hannover. 3) Experiments using autologous segment of small intestine as a scaffold of cardiac tissue is underway in Hannover.

Seminar

In August 2011, a summer seminar is done after the annual meeting of Scandinavian Association of Thoracic Surgery in Tampere, Finland. We will make Workshop for young researchers in October 2011, during the annual meeting of the Japanese Association of Thoracic Surgery (JATS), in Nagoya, Japan.

Researcher Exchanges

In order to develop international collaboration, 3 Japanese researchers from Osaka University stay in Helsinki (1 researcher) and in Hannover (2 researchers) for 3 to 6 months. One researcher from Helsinki has come to Osaka, and another from Hannover stays in Osaka for 6 months. Furthermore, 6 Japanese researchers are planned to visit Helsinki and Hannover for a week to exchange information.