

JSPS Core-to-Core Program
FY2009 Implementation Plan (Project No. :19004)

Research Theme Center for Magnetic Resonance Molecular Imaging of In Vivo Redox System
 Duration of Project 2009/4/1-2012/3/31 (36 months)
 Core Institution in Japan (Co-Chair) Kyushu University
(Hideo UTSUMI, Vice President/Professor)

Implementing Organizations

○ **Japan**

Japan	Core Institution	Kyushu University	
	Co-Chair (name and title)	Hideo Utsumi, Vice President/Professor	
	Cooperating Institutions	Hokkaido University Nagasaki University Kumamoto University Sojo University National Institute of Radiological Sciences	Number of Cooperating Institutions 5

○ **Partner Countries**

USA	Core Institution	The Ohio State University	
	Co-Chair (name and title)	Periannan Kuppusamy, Professor	
	Cooperating Institutions	NIH/NCI University of Chicago	Number of Cooperating Institutions 2

UK	Core Institution	University of Aberdeen	
	Co-Chair (name and title)	David J. Lurie, Professor	
	Cooperating Institutions		Number of Cooperating Institutions 0

Germany	Core Institution	Martin Luther University of Halle-Wittenberg	
	Co-Chair (name and title)	Karsten Mäder, Professor	
	Cooperating Institutions	University of Applied Sciences TFH Berlin University of Kaiserslautern	Number of Cooperating Institutions 2

Australia	Core Institution	Monash University	
	Co-Chair (name and title)	Harald Schmidt, Professor	
	Cooperating Institutions	University of Queensland The Heart Research Institute	Number of Cooperating Institutions
			2
China	Core Institution	Chinese Academy of Science	
	Co-Chair (name and title)	Baolu Zhao, Professor	
	Cooperating Institutions		Number of Cooperating Institutions
			0

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

With addition of Germany, Australia, and China to the "Strategic Research Networks", we will create international network of magnetic resonance molecular imaging for *in vivo* redox. This program aims at the cultivation of next leaders, the establishment of magnetic resonance molecular imaging technique for *in vivo* redox, and finally standardized protocol of magnetic resonance imaging directed to health for human. It is expected that the establishment of molecular imaging technique will contribute to the construction of new academic field "Spin Biology" and health and medicine for human.

Results to the present

At the kick off meeting, which was held in Chicago, the fundamental plan of collaborative research among Japan, USA, and UK, the holding of international symposium, and the education of young researchers were fixed because of creation of redox research core in the world during the "Integrated Action Initiative". As a result of strong promotion of the core-to-core activity, objectives of research exchange by the end of FY 2008 were almost achieved. The protocol of *in vivo* redox study has been discussed by core-to-core members since the start of this program, and will have been summarized by the end of this program.

Summary of FY 2009 Exchange Plan

Joint Research

In FY 2009, the following collaborative researches will be carried out.

1. Development of MRI and redox imager
2. Synthesis of *in vivo* redox probe
3. Imaging of redox status *in vivo* in disease
4. Standardization of research protocol on magnetic resonance molecular imaging for *in vivo* redox

In order to encourage scientific activities, quarterly meeting will be held at institutes of coordinators in order. The homepage of redox core will be rearranged and expanded, and new information on collaborative research, seminar, and young exchange visitors will be posted on the homepage of redox core and International EPR Society (IES).

Seminar

In July or August, Winter School will be held in Australia (Organizer: Prof. H. Schmidt, Coordinator in Australia), and this seminar aims at the improvement of ability to have a presentation and discussion in English, and to communicate with young foreign researchers. In November, the *in vivo* redox meeting will be held in USA, and at the meeting discussion on the research technique of imaging application such as redox imaging of tumor in small animals with magnetic resonance imager will be carried out. Furthermore, at the end of FY2009, Oxygen Club of California (OCC) 2010 World Congress will be held in California, USA, and recent results of redox imaging will be presented and discussed each other.

Researcher Exchanges

In the young exchange program, the selected visitors can visit to the laboratories in USA, UK, Germany, Australia, and China for 1-3 months. They will be awarded "JSPS Core-to-Core Young Investigator Award 2009". After the completion of exchange program, all report articles written in both English and Japanese will be compiled as a report of JSPS Core-to-Core exchange visitors and delivered to core-to-core members.

Winter School for young researchers in July or August will be held in Australia.

The financial support for attending international workshop for doctoral course students or postdoctoral fellows will be scheduled.