

**Lifting off  
Innovative  
Applications for  
Human Wellness**

**Create  
New Hot Science for  
MESO-CONTROL**



**Human  
Wellness**

**Regenerative Medicine  
by Controlling Stem Cells  
with Smart Materials**

**Detoxication and Drug  
Synthesis in the body**

**Environmentally-Friendly  
Chemistry by Meso-Control**

**A. Stem-Cell Control  
Meso-Engineering**

**B. Cellular  
Meso-Biophysics**

**C. New Chemistry/Physics  
of Meso-Space**

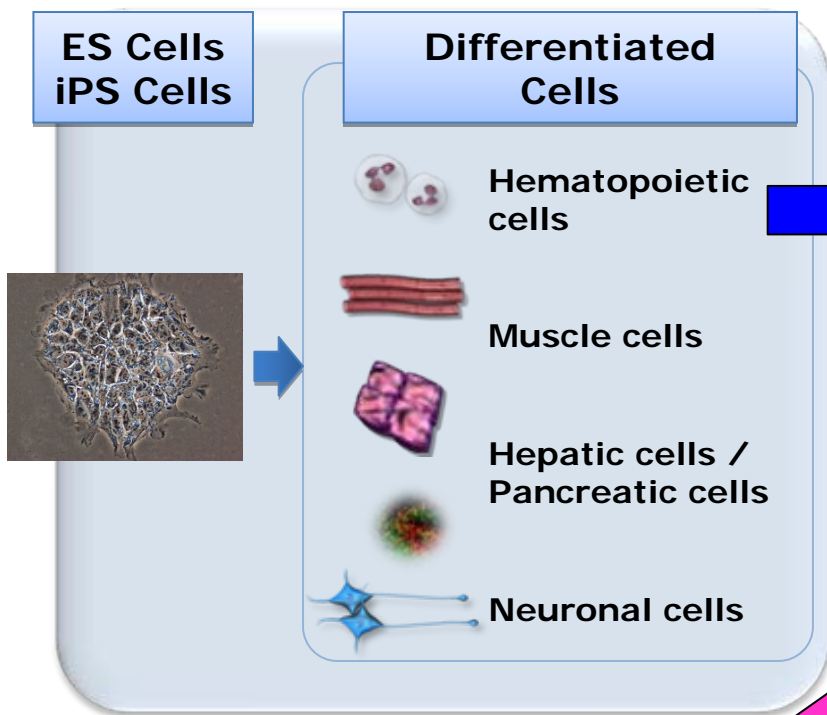
**Chemistry**

**Cell Biology**

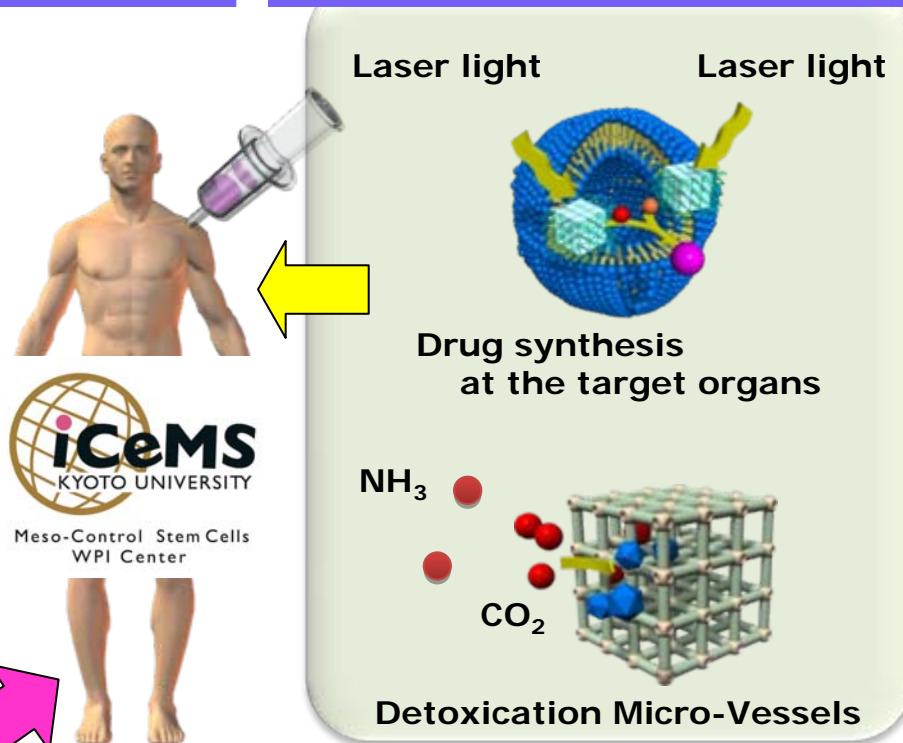
**Physics**

# Contributing to Human Wellness

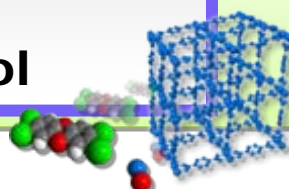
## Regenerative Medicine by Controlling Stem Cells with Smart Materials



## Detoxication and Drug Synthesis in the Body



## Environmentally-Friendly Chemistry by Meso-Control



CO<sub>2</sub> to glucose by R-type MnO<sub>2</sub>

# Founding of the Center for Induced Pluripotent Stem Cell Research and Application (CiRA)

Institute for Integrated Cell-Material Sciences (iCeMS)

## Regenerative Medicine by Controlling Stem Cells with Smart Materials

ES Cells  
iPS Cells

Differentiated  
Cells

Hematopoietic  
cells

Muscle cells

Hepatic cells /  
Pancreatic cells

Neuronal cells

## Detoxication and Drug Synthesis in the Body

Laser light

Laser light

Drug synthesis  
at the target organs

$\text{NH}_3$

$\text{CO}_2$

Detoxication Micro-Vessels



## Environmentally-Friendly Chemistry by Meso-Control

$\text{CO}_2$  to glucose by R-type  $\text{MnO}_2$

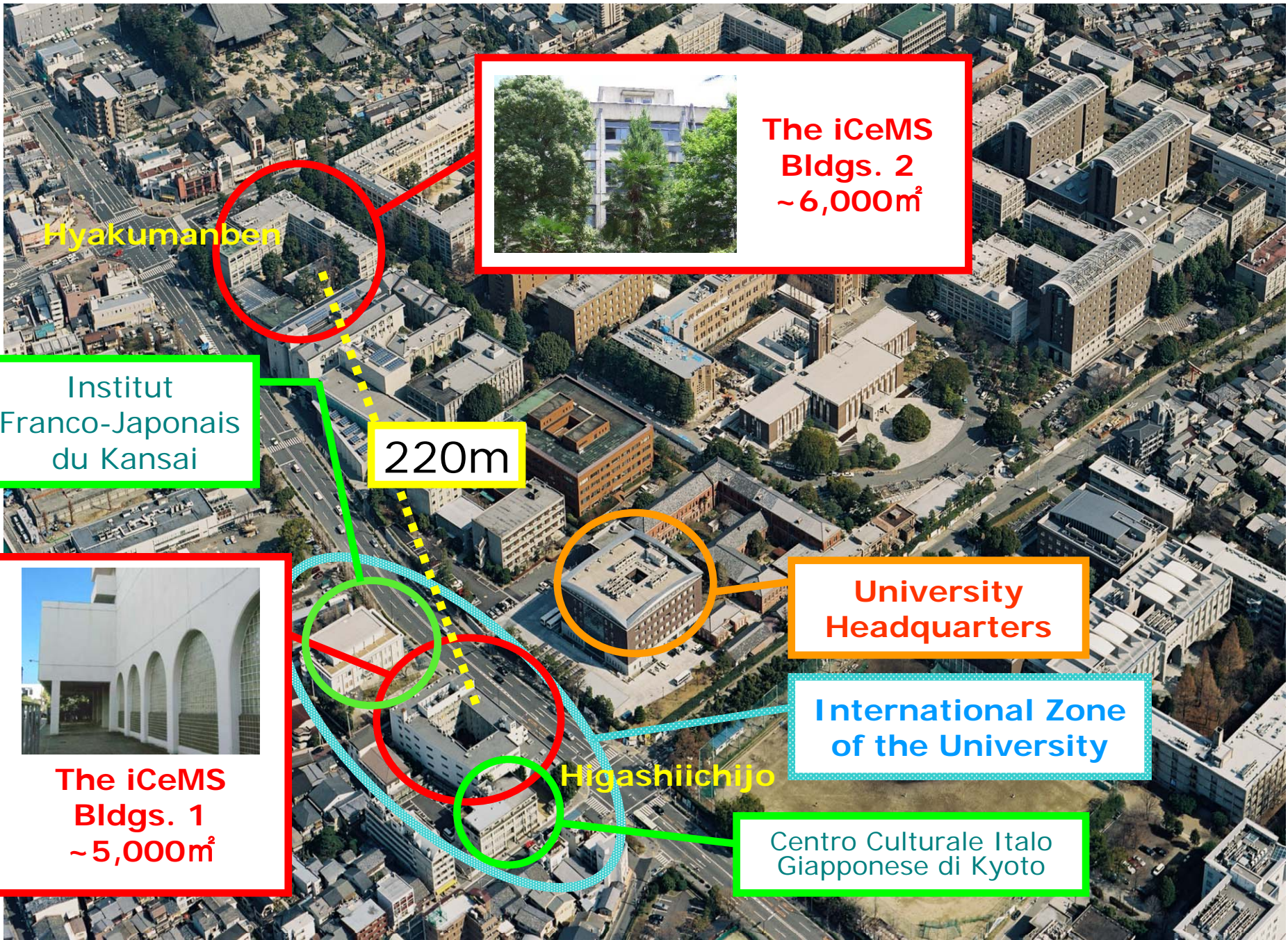
# CiRA

Center for Induced  
Pluripotent Stem Cell  
Research and Application

Founded on  
Jan. 22, 2008

Shinya YAMANAKA  
Director of CiRA  
PI & Prof. of iCeMS





Hyakumanben



The iCeMS  
Bldgs. 2  
~6,000m<sup>2</sup>

Institut  
Franco-Japonais  
du Kansai

220m



The iCeMS  
Bldgs. 1  
~5,000m<sup>2</sup>

University  
Headquarters

International Zone  
of the University

Higashiichijo

Centro Culturale Italo  
Giapponese di Kyoto