

Main Results

Hokkaido Area(with Sapporo as the core) Sapporo Biocluster "Bio-S" Fiscal Year 2007-2011

"Development of an ESR system to measure anti-oxidative activity"

The achievements of the "Development of an ESR system to measure anti-oxidative activity" are as follows:

- ①Development of elementary technologies as below:
 - A trial kit (reagent package) for simple and easy measurement
 - A standard protocol
 - Automation system
 - Supporting software for anti-oxidant measurement
- ②Utilizing these developed technologies to measure anti-oxidative activity for food ingredients, clinical samples.



Greater Sendai Area Advanced Preventive Health Care Services Cluster Fiscal Year 2007-2011

"Development of an advanced preventive healthcare service model"

Start of applying an integrated service model to establish a fitness habit in the Sendai Area

We developed a preventive healthcare service model using advanced knowledge of health science, and started the field trial with the participation of the health insurance unions, medical check-up providers and distributors in the City of Sendai. Aiming to encourage citizens to maintain their health, the service model offers the Health Level Check Plus Service, which adds fitness habit-related and arteriosclerosis process-related check items to those in the ordinary medical check-up, and unique fitness guidance. We will provide our service based on the service model to several hundred citizens by the end of this fiscal year. On receiving the result, including consideration of the issues and needs of our providing services, we will continue to improve them.



Nagano Prefecture region Shinshu Smart Device Cluster Fiscal Year 2007-2011

"Expanded market of the practical application technology of carbon nanotube (CNT)"

Establishment of commercialization and supply systems

With the Shinshu University Faculty of Engineering as the core, collaborative research with local companies has advanced the technological development of practical application of CNT. While its market has been growing, local companies actually launched a new division to supply CNT-resin composite materials and started sales of composite material pellets and molded products. Regarding CNT composite plating technology, many local plating companies have tackled the development and started to form clusters. Previous studies show that CNT composite materials have excellent characteristics in electro-conductivity, thermal conductivity, and tribological properties as well as other various functions. Plating on power outlet parts has already been commercialized since its beneficial effects such as sulfur resistance have already been proven. In the future, this technology is expected to be used in various fields.

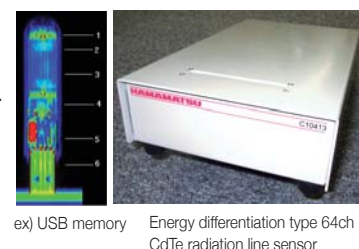


Hamamatsu Hamamatsu Optronics Cluster Fiscal Year 2007-2011

"Solid-state Imaging Device for X-rays and Gamma-rays"

Commercialization of x-ray imaging devices with energy differentiation

We distinguished the energy of the photon from the Res. Inst. of Electronics, Shizuoka Univ. using Photon Counting technology as a collaborative result of the participation in the planning company, with colors able to indicate the difference of "materials" which were previously non color-codable. Sales of the product with energy differentiation type 64ch CdTe radiation line sensor with 1 mm pitch commenced in October 2006, and future applications are anticipated in security and the field of Non Destructive Inspection.



Tokai Region Tokai Region Nanotechnology Manufacturing Cluster Fiscal Year 2008-2012

"Development of Autonomic Nano-Etching Devices"

A Major Innovation in Semiconductor Dry Etching Devices

Previously, radicals in plasma could only be measured using bulky optical spectroscopy equipment. However, with the development of new light sources and other devices, we have miniaturized the light source diameter down to a few millimeters, and succeeded in commercializing a radical monitor that provides simple and highly-accurate measurement of atomic radicals.

Thanks to this radical monitor, we have succeeded in creating a prototype system for optimized plasma nano-etching. In this system, radical concentrations and other factors are measured and feedback is provided to the system in real time, allowing autonomic control that maintains continually optimal conditions in the process space. The system will result in energy- and resource-saving due to the significant increase of a nano-fabrication yield.



Toyama/Ishikawa Hokuriku Innovation Cluster for Health Science Fiscal Year 2008-2012

"Development of the system for collecting nucleated RBC & fetal DNA diagnosis from maternal Blood(FDD-MB3.0)"

Success in developing and prototyping a biotechnology equipment

A prototype for the FDD-MB 3.0 Platform (SC Autodetector NRBC Search Device, SC Microcontroller: NRBC Collection Device) was developed, which can perform high-speed, high-precision searches for fetus-derived cells (NRBC) contained only in infinitesimal amounts in maternal blood, and the reliable collection of searched cells. This Platform was developed with the aim of providing a non-invasive method of fetal DNA diagnosis, in contrast to the conventional invasive procedure. Development of this system, which should enable fetal DNA diagnosis without exposing the mother and child to risk, is expected to result in a significant contribution to perinatal and DNA-related medical care in future.



Kyoto and Keihanna Kyoto Environmental Nanotechnology Cluster Fiscal Year 2008-2012

"Development of an atmospheric purification technology to which metal nanoparticles are applied"

Development of CO room-temperature oxidation catalyst

A Kyoto-based venture business manufacturing metal nanoparticles, and aiming to apply them to atmospheric purification technology, undertook joint R&D with Kyoto University. Through these efforts, we produced a CO room-temperature oxidation catalyst on a commercial basis; capable of safely detoxifying carbon monoxide without using any heat source. Since the catalyst comprises nano-size metal particles, it can be easily applied as a filter in CO-generating appliances such as water heaters and fan heaters. The development of products using this catalyst has been ongoing since 2009.



KANSAI (Saito & Kobe) Biomedical Cluster Kansai Fiscal Year 2007-2011

"Development of a new screening system for OA drug discovery using human stem cells and novel three dimensional cultured tissue"

Drug screening by the illness model of human cells

This is technology developed by the Osaka University Graduate School of Medicine. This evolutionary tissue culture device applies Z-axis constructs to cultures and mimics real human tissue. Unlike monolayer culture, CLS's computer controlled head exposes culture tissues to a load and simulates stress which might occur during the actual growth of real tissue. The system involves the use of CLS to simulate real human tissue, and provide a better assay to drug development. With 96 well plates, an effective illness model evaluation by many specimens is possible. The system has been commercialized since 2008 and has attracted a great deal of interest through exhibiting at conferences of the American Academy of Orthopaedic Surgeons and of the Japanese Orthopaedic Association. The number of patients suffering from arthritis deformans is increasing with the aging of the population. This system is attracting attention not only because it promotes research on the disease, but also because it enables screening of its therapeutic drugs.



Fukuoka Kitakyushu Iizuka Fukuoka Cluster for Advanced System LSI Technology development Fiscal Year 2007-2011

"Next generation key-infrastructure equipment research and development for materialization of a real ubiquitous broadband mobile communications society"

Micromini wireless Mesh Station "PicoMesh LunchBox" that is palm-sized and easily expandable within the domain of high-capacity wireless LAN communications

A prototype of the "PicoMesh LunchBox" micromini wireless mesh station has been completed by the MIMO-MESH point development team, led by Dr. Hiroshi Furukawa, Associate Professor at Kyushu University. Its self-configurable mesh networking capability immediately ensures a broadband communications area upon its installation. Based on the results of the latest development, they launched a venture company, PicoCELA in August 2008 in Fukuoka. The project was highly acclaimed by the review board, and won "The Third MONODZUKURI Manufacturing Award" (MONODZUKURI means manufacturing) hosted by a business & technology daily called the Nikkan Kogyo Shimbun in 2008.

