



Kumamoto Area

Development of Biocompatible Micro Sensor (Smart Micro Chip), Analysis of Biological Information by Fusing Nano Technology and Bio Technology, and Development of Biocompatible Micro Sensor with Data Sending/Receiving Functions and Individual Recognition Function

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Core Research Organization
 Kumamoto University

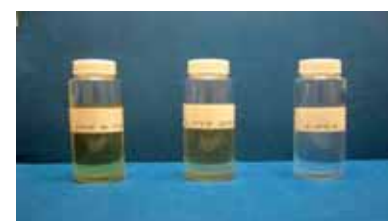
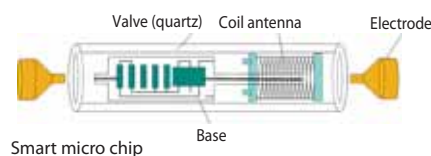
Major Participating Research Organizations
 Industry... NISSEIDENSHI CO.,LTD., Arao Corporation, CHISSO CORPORATION MIANAMATA and others
 Academia... Kumamoto University
 Government... Kumamoto Technology and Industry Foundation

Typical result of City Area Program

1. Completion of biocompatible microsensor (prototype) with functions including physiology information measurement, sending and receiving, and identification function

The biological information measurement in the animal experiment is significantly important. In particular, the measurement of animals in the state of unrestraint is a procedure for measurement that will be expected in the future as for the experimental animals. The Membrane type pressure sensor and the electrode type sensor were developed through this research and development as a sensor for the heart beat measurement. It succeeded in the development of the biocompatible microsensor among these with an electrode type heart beat sensor.

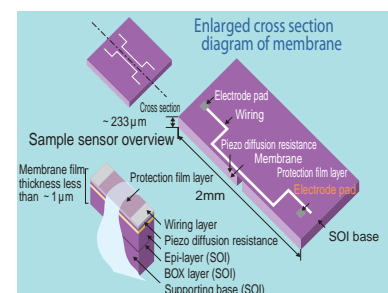
Moreover, it also succeeded to develop a biocompatible coating agent, which can be used when the microsensor is embedded in the living body of the experimental animals.



Biocompatible coating materials

2. Completion of the network type MEMS workshop

With cooperation of the institutions and the enterprises in the Kumamoto area for development of the membrane type small sized pressure sensor, "MEMS Workshop with the network of small-lot/more much variety was completed. In this area, the sensor device including ultra small pressure sensors, which would require a micro processing, is currently available to produce.



Pressure sensor

About the approach after the project

1. Development of living body adaptive type microsensor (smart microchip) with living body information analysis, sending and receiving, and identification functions

The research is still underway aiming to have the development stage adapted in 2005 for advancement from experimental animals to human, in terms of the smart microchip for integrated circuit, antenna, extracting/processing system of physiology data, instrument systems for hypodermic embedded sensor system, materials for pasting and elements for bio elements and ultra small and high sensitive sensor. By combining these technologies, it is aimed at development of the Next-generation Biological Information Processing Chip for Humans' Movement and Physiological Data.

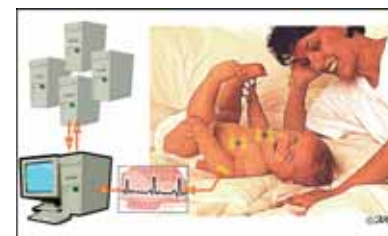


Image of Development Stage "Development of Next-generation Living Body Information Processing System"

2. Promotion of different fields, especially between engineering sciences and medical sciences.

Research for Intelligent System Technology in Kumamoto (RIST) extracts and presents medical service issues to the "Medical and Engineering Collaboration Study Conference" to inspire new technologies that may be developed by member enterprises and researchers. RIST thus plays an essential role in building a firm foundation for a sustainable academic, Industrial and governmental collaboration among various area.