

Basic Stage

(Fiscal Year 2005-2007)

Chiba/Tokatsu Area

Dual Approach for Preventing Lifestyle Disease by Genome Health Science

Chiba Industry Advancement Center
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Project Promotion

Science and Technology Coordinators... Toshio Suganuma
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Major Participating Research Organizations

Industry...(DYNACOM Co., Ltd, SKYware Corporation, BIO MATRIX RESEARCH, INC., POST GENOME INSTITUTE CO., LTD., SUMMIT GLYCORESEARCH CORPORATION, BML, Inc., Precision System Science Co., Ltd.,
Academia...Chiba University (Graduate School of Medicine, Graduate School of Pharmaceutical Science, Reseach Center for Frontier Medical Engineering, Hospital), Tokyo University of Science (Faculty of Industrial Science and Technology, Faculty of Science and Technology, Faculty of Pharmaceutical Sciences), Graduate School of Frontier Sciences, The University of Tokyo
Government...Public Health Promotion Center - Health Department - Health and Welfare Bureau, Chiba City Government, International Medical Center of Japan

Core Research Organizations

Chiba University, Tokyo University of Science
 The University of Tokyo

Aim of research and development

The development of new instruments for the early diagnosis and the prevention of the lifestyle diseases and the construction of a predictive diagnostic system and a health support network system become an important issue as the lifestyle diseases now represent a major part of the disease in Japan. Chiba /Tokatsu area is a center of life science in Chiba Prefecture as major research oriented institutes and powerfullcompanies accumulate in this area, that include Chiba University, The University of Tokyo, Tokyo University of Science, Research Center for Innovative Oncology-National Cancer Center Hospital East, National Institute of Radiological Sciences, and the bio-venture companies, etc. In this project, major goal is to establish new business that contributes health care support in the next generation and health promotion of the public in Chiba by employing the basic technical results previously obtained in the Infrastructure type projects and collaborative research achievements in a variety of fields like medicine, pharmaceutical, genome science, engineering and IT in the area. Thus, these two large industry-academia-government joint projects are proceeded.

Contents of research

Joint research 1)

Development of personalized health care support system and devices that use combined technologies towards overcoming metabolic syndrome and lifestyle diseases.
 An effective bidirectional health care support system is developed to overcome metabolic syndrome.
 An equipment for evaluation of the arteriosclerosis status over time based on the minimal artery changes of fundus is made.
 These programs are proceeded by the participation of 3 companies and Chiba University.

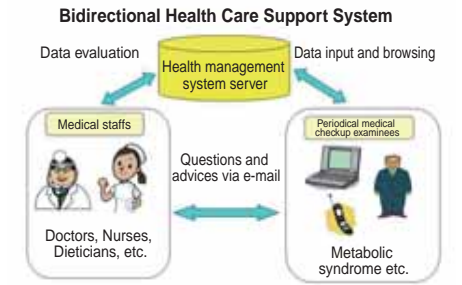
Joint research 2)

Development of a innovative and noninvasive expectation diagnostic system and new drug discovery target against lifestyle diseases by novel antibody microarray and protein synthesis system
 With the industry- academia -government cooperation and by utilizing advanced nanotechnology and biotechnology, this projects are being performed aiming the discovery of the early diagnosis serum marker for the lifestyle diseases as well as serum markers for incurable cancer of early stage. The key technologies of this project are an epoc-making comprehensive and prompt antibody preparation technique, and the development of antibody microarray systems which will revolutionize conventional proteome analytical method. Three university-oriented venture companies of Tokyo University of Science and The University of Tokyo participated to this project.

The main study results

Joint research 1)

- (1)In the bidirectional health care support system, the prototype of the diet evaluating system by the image transmission was established to see its availability. Educational lectures about health promotion to the public were conducted periodically.
- (2)A prototype of sensitive and accurate arterial sclerosis evaluation system by the use of electrocardiogram synchronized fundus camera appropriate for medical checkup was made.
- (3)In the personalized health status prediction system, the model of application to hyperlipemia was made based on the medical checkup data in Chiba City.
- (4)For the effective bidirectional communication between staffs and participants, an educational system and materials mainly for dietician was constructed.



Joint research 2)

- (1)In the search and identification of the diagnostic marker with high specificity, the development of removal system of major proteins of plasma, that became an obstruction factor for searching new markers in plasma, has been mostly developed. The trial to identify diagnostic markers for pancreas cancer has been carried out using samples fractioned by the electrophoresis-based spot analysis.
- (2)To upgrade the in vitro translation system to be highly effective system for producing post translational modified proteins as well as for antigen preparation, a synthesis of the membrane protein has been performed and a basic technologies of the antibody selection procedure were developed.
- (3)As a technological development for the noninvasive diagnostics, the lectin library to monitor the changes of sugar-chain moiety with cancer development and high sensitive labeling method for the antibody microarray have been developed. One patent application was conducted.

