●Basic Stage

(Fiscal Year 2006-2008)

Yonago and Sakaiminato Area

Construction of Evaluation System of Food for Preventing Lifestyle-related Disease with Chromosomal Engineering and Development of Food Product

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Life Sciences
IT
Environment
Nanotech Materials
Others

Project Promotion

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Core Research Organizations

Tottori University, Industrial Research Institute of Tottori Prefecture

Major Participating Research Organizations

Industry…Kirin Brewery Co., LTD, KoyoChemical Company Limited., KandaGiko.LTD., Kaisanbutu No Kimuraya, Ltd., BTS COMPANY, LIMITED., chromocenter, Daimatsu Co., LTD., ADVANTEC MFS, INC., NIPPON CHEMIPHAR CO., LTD., MARUZEN PHARMACEUTICALS CO., LTD., Japan Micro System Co., Ltd.
Academia…Tottori University
Government…Industrial Research Institute of Tottori Prefecture

Aim of research and development

The screening model using the evaluation of the functional elements for the prevention of the lifestyle-related diseases is developed with technologies of Tottori University related to medicine, veterinary medicine, and engineering, including the chromosome engineering and the technique for the use of fishery products in local companies. The technologies are used to create a functional food materials through testing on human and animals. Moreover, making use of the advantage of Yonago and Sakaiminato Cities where the marine resources are abundant, we are going to establish the business of lifestyle-related disease prevention with this evaluation model.

Contents of research

1. Development of models for evaluation of functional elements using human artificial chromosome (functional expression gene transfer)
   - A human chromosome is modified, and the evaluation systems of the functional element are established both in vivo and vitro models using the artificial chromosome vector that can insert a target gene into the specific region as a cassette.
     It also combines with the automated analyzer such as robot for efficient screening of various materials at a time.

2. Development of evaluation of functionality using animal and human clinical cases
   - The preventive effect and the therapeutic effect are confirmed with the biologically active substance obtained from marine resources orally to model animals of the human lifestyle-related disease. The biologically active substances are also provided to patients to measure the blood and urine samples once a day for clinicalevaluation in order to develop functional foods. In addition, the prompt biomarker monitoring systems are developed to identify the new effects of marine resources.

3. Development of functional food materials and foods from marine resources
   - Marine resources are categorized scientifically and confirmed the effects of improvement against lifestyle-related diseases for ingredients, which will be used for development of functional foods materials with potential to prevent the life style diseases.