

Northern Osaka (Saito)

(Fiscal Year 2002-2006)

Developing innovative drugs by integrating the knowledge of industry-academia-government

Core Organization Senri Life Science Foundation

Participating Research Organizations (Bold: Core Research Organization)

Industry--Dainippon Sumitomo Pharma Co., Ltd., AnGes MG, Inc., Kringle Pharma Inc., Nitto Denko Corporation, JEOL Ltd., Molecular Imaging Laboratory Inc., etc.

Academia--**Osaka University**, The Research Foundation for Microbial Diseases of Osaka University, etc.

Government--National Cardiovascular Center, Osaka Bioscience Institute Foundation, Osaka Medical Center for Cancer and Cardiovascular Diseases, etc.

Project Overview

Exploiting the remarkable concentration of leading universities, research institutes and pharmaceutical companies in the life science field in Osaka, we conducted various projects to promote the commercialization of the research outcomes applicable to the production of biomacromolecular or molecular-targeted medicines, aiming to help form a world-class biomedical cluster.

We supported a total of 24 research projects: 3 5-year research projects, 13 2-year projects, 1 project in cooperation with the Kobe region and 1 project in government and Administration related Research. Based on these research outcomes, 5 start-up companies were developed and 40 national patents and 13 PCT patents were applied for.

The main research projects were the following:

5-year research projects:

"Development of therapeutic genes to control cancer, heart disease and cerebrovascular disease" by Dr. Yasufumi KANEDA

"New anti-infective drugs that work synergistically with the human immune system - Working to cure infectious diseases by developing new technologies for creating drugs that interact effectively with the body's own defense system" by Dr. Taro KINOSHITA

"The creation of new technologies for controlling biomolecules using the photon process" by Dr. Kunio AWAZU

2-year research projects:

"The development and practical application of manifestation-specific transcriptome diagnostic technology" by Dr. Hiroshi NOJIMA, the outcomes transferred to Takara Bio Inc.

"A new ribbon-type decoy nucleic acid; research toward clinical application in human disease" by Dr. Motokuni AOKI, the outcomes transferred to AnGes MG Inc.

"Producing protein chips using a laser micro-process and evaluating protein functions using a spectroscopic method" by Hiroshi MASUHARA, the outcomes transferred to Protein Crystal Corporation

Main Results

1. Accelerating for a vibrant biomedical cluster in Osaka in the field of drug discovery

The achievements of this project, including start-up companies based on its research outcomes for drug discovery and/or supporting the same, have been accelerating efforts to form a more energetic biomedical cluster here, in close coordination with the Industrial Cluster Project of the Ministry of Economy, Trade and Industry.

2. Developments and application of a delivery system for advanced biomedical treatment, HVJ envelope vector (HVJ-E)

The HVJ-E is a vector using only the envelope of the Sendai virus and removing its genome activities and its cell fusion ability makes it a highly efficient gene-transfer tool. Development and application research have been performed for 5 years in the Academia-Industry-Government Alliance Study by the collaboration project team with Prof. Kaneda of Osaka Univ. and Genomidea Inc., and studies were also supported by the Regional Consortium Research and Development Project. Currently, HVJ-E is on the market as a reagent for the efficient introduction of genes and proteins into living cells, as well as being available as a cell fusion tool. Nowadays, the development of new cancer therapeutic agents based on immune-enhancement has been proceeding in the research project of the Knowledge Cluster Initiative (2nd Stage).

3. Crystallization for proteins and organic compounds using innovative crystal processing techniques, the business is now expanding successfully!

Based on the achievements through the Practical Application Study "Crystal processing technique of proteins", SOSHO, Inc. was founded in July 2005. The crystallization technique using a femto-second laser has achieved finished crystals from many proteins and organic compounds, with a high success rate and earning high praise, hence the increasing number of orders from pharmaceutical companies nowadays.



protein crystal

4. Realization of a tailor-made therapeutic system using a DNA-based diagnostic technique for diabetes and lifestyle related diseases

From the Practical Application Study "Identification of SNPs related to the development of arteriosclerotic disease and their application for formulating the SNP chip used to predict the diseases", the SIGNPOST Corporation, targeting a service business proposing some predictable risk information concerning the development of diabetes related diseases, was founded in September 2004. Some nationwide collaborating medical organizations are now engaged in services involving the risk assessment of disease development based on genetic factors.

5. A therapeutic method inducing regeneration of an injured tissue by a factor mobilizing bone marrow-derived mesenchymal stem cell

In the Applied Research Project "Development of control technology for bone and cartilage differentiation: the search for genes related to bone diseases", the factor was characterized, Genomix Co., Ltd was founded in October 2006 toward the realization of regeneration-inducing medicines and the business providing for regeneration-inducing technologies. Related research projects have also been adopted in the Knowledge Cluster Initiative (2nd Stage), and further development of the medicines is progressing.

6. Research and development of super-functional artificial nucleic acid analogs, BNA (Bridged Nucleic Acid), for nucleic acid medicines, diagnostic drugs, and research tools

In the Applied Research Project "Developing a comprehensive method for creating genome drugs targeted at genes, based on BNA super-functional artificial nucleic acid", some BNA analogs showing an efficient ability to hybridize with mRNA and genomic DNA and strong nuclease-resistant properties have been developed. BNA Inc. was founded in May 2008 through the support of the Regional Consortium Research and Development Project, and targets the development of nucleic acid medicines.

