Hiroshima Biocluster

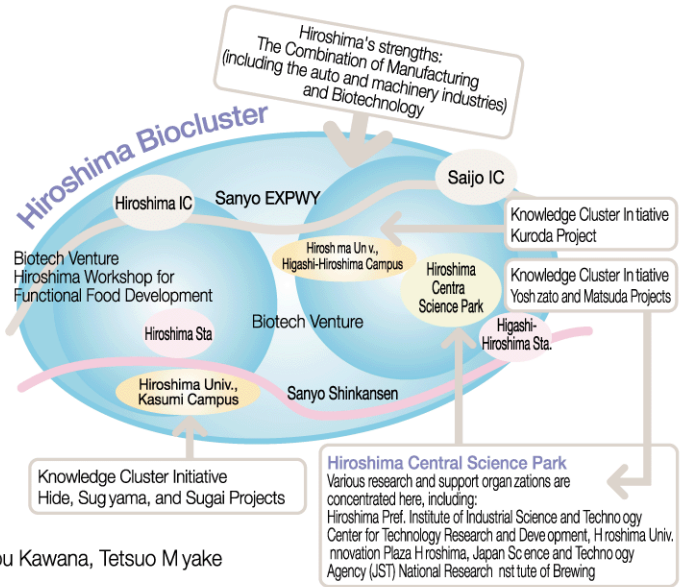
Life Sciences IT Environment Nanotech/Materials

KNOWLEDGE CLUSTER INITIATIVE

The Hiroshima Biocluster: Supporting a healthy future

Overview

The aim of this project is to create one of the leading bioclusters in the world, and to build new bio industries by combining existing technologies. The cluster wi l function as a center where ventures and research organizations from both within and outside the Prefecture can come together. Project goals will be achieved through joint research by industry, academia and government in the field of life sciences-particularly industries that support the development of med cal and pharmaceutical products-and the research will be based on biotech "seeds" produced by institutions like Hiroshima University.



Cluster Headquarters

○ Project Director ····· Shohachiro Takahashi
○ Deputy Project Director ····· Masanobu Kamada
○ Science and Technology Coordinators Yukio Matsuoka, Kichiichirou Kawana, Tetsuo M yake

Core Organization

Hiroshima Industrial Promotion Organization

Participating Research Organizations

(Bo d: Core Research Organization)

Industry···Koken Co.,Ltd., PhoenixBio Co.,Ltd., Sumika Chemical Analysis Service,ABI Co.,Ltd., ABLE Corporation, Beacle Inc., Towa Labo Co.,Ltd., Wakunaga Pharmaceutical Co.,Ltd., Tsumura&Co., Daiwabo Co., Ltd, Nishikawa Rubber Co.,Ltd., Shimizu Chemical Corporation, Nippon Laser&Electronics Lab, Toyo Advanced Technologies Co.,Ltd., Chugoku Jozo Co.,Ltd., Amano Jitsugyo Co.,Ltd., Nomura—milk Co.,Ltd., Nekoshima Syouten Co.,Ltd., Yaegaki Bio-industry,Inc., Andersen Institute of Bread and Life Co.,Ltd., Satake Corporation, Maruzen Pharmaceuticals Co.,Ltd., and others

Academia···Hiroshima Univ.: Graduate School of Science, Graduate School of Biosphere Science, Graduate School of Biomedical Science, Graduate School of Advanced Sciences of Matter
Hiroshima Prefectural Univ.: School of Bioresources
Jichi Medical School: Division of Organ Replacement Research, Center for Molecular Medicine
Nagoya Univ.:Graduate School of Bioagricultural Sciences

Government···**Hiroshima Prefectural Institute of Industrial Science and Technology**

Project Director
Shohachiro Takahashi

Hiroshima Biocluster: Supporting a Healthy Future

Chimeric mouse

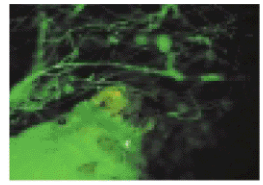
The ultimate target of Knowledge Cluster Initiative s the establishment of new ventures, and the creation of zones where there can be a joining up and concentration of human brainpower and financial capital.
Yet the road to accomplish such goals is long and steep.
What exactly should we be doing right now for 10 years, for 20 years from now?
On a day when the first spring winds were blowing (Feb. 9, 2004), we held a "Hiroshima Bioc uster Forum" to search for the best system that we should create.
The conclusion: "core creation" that would serve as the foundation for our zone. And "core creation" means engendering success in projects already underway, establishing targets for related business creation, and the launching of new business ventures.
We are steadily making progress n our research: chimeric mice that have human hepatocytes, s lkworms that produce human collagen, transgenic chickens that produce large amounts of monoclonal antibodies, user friendly pharmaceuticals for treating skin disease, such as atopic dermatitis.
In addition to such high-tech projects, useful low-tech undertakings also support the Hiroshima Cluster project, such as the early market launches of bath add t ve products, soaps, and functional foodstuffs that effective y use the saké lees from the saké wine brewing process.
n these ways, as we continue to aim for effective comb nations of both h gh and low technologies, H rosh ma is right now moving forward in reaching ts goals.

Shohachiro Takahashi *is a former vice president of Toyo Kogyo Co., Ltd. (currently Mazda Motor Corp.) and also a former president of Delta Kogyo Co., Ltd. He is now an advisor for Mazda Motor Corp.*

Outline of the Joint Research by Industry, Academia and Government

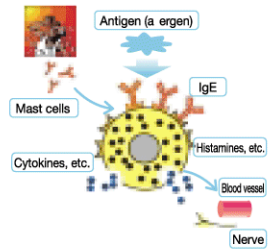
With the world level research seeds found within the life sciences fields at Hiroshima University serving as the core, on the basis of close-linked cooperation among private industry, academia, and the government, seven research projects are underway. Here, targets were selected in industrial fields that serve the medical sector and pharmaceuticals development.
From the perspective of research results linked to business creation and next to cluster creation, a thorough review will be made regarding the contents and orientation of joint research, and research will be performed so as to foster synergistic effects among different projects.

- Through the introduction of human collagen genes within silkworm eggs, safe and hygienic collagen suitable for humans are created, and such are used in cosmetics and other useful products.
- Human hepatocytes are transplanted and grown within mice, and then used in evaluation tests for new pharmaceuticals, metabolism tests, etc.
- Chickens are created for the production of a wide variety of low-cost, beneficial and useful materials for medical and treatment purposes.
- In addition, a variety of research is performed. This includes research for the fostering of diagnostic and treatment methods for allergies, research regarding the effective use of saké wine lees and lacto bacilli within bath products and functional-type foods, etc., as well as research on methods of selecting antibiotics for infectious pathogenic bacteria, and research on enzymes that dissolve pathogenic bacteria that cause dental caries.



Silkworms spinn ng cocoons with silk including human collagen.

Transgenic chicken product on site



Explanation of sweat- nduced allergy mechanism