

New Era of Open Innovation Toward the Creation of a New Bioindustry



Create the future

via bio-innovation



Japan Bioindustry Association



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In the latter half of the 20th century, there was an expectation that through new biotechnologies such as DNA cloning and others based on molecular biology, the world would witness the rise of new bioindustries. However, in reality, there was no appreciable industrial movement that would meet those expectations. Although it is generally accepted that a substantial time lag usually exists between the emergence of a new science and that of a new industry based on that technology, seemingly exaggerated expectations led to a situation where the enthusiasm for novel biotechnology-oriented industries was almost extinguished. After more than a decade into the 21st century, however, many people now believe that we are finally entering a new era of developing bioindustries based on these technologies.

Several achievements are already noteworthy: development of new drugs utilizing the knowledge of molecular reactions in cells, selective administration of medicines reflecting an individual's genetic background, development of agricultural plants by genetic recombination and/or novel breeding methods based on marker-assisted selection, and development of biofuels as a key to solve environmental problems. It is clear that bioindustries are finally starting to take solid strides to the future.

Fortunately, the technologies that form the foundation for new bioindustries such as fermentation and breeding technologies have already been well established in Japan. Accordingly, Japan is well positioned for the future development of bioindustries in these fields. On the other hand, we should also recognize that bioindustries have been diversified with unprecedented speed, as new technologies and business models have emerged. Therefore, needless to say, our bioindustries should not rest on their laurels in going forward. As we enter this new era, the role of JBA will become increasingly important, and because of this, I reaffirm my commitment to expand my role and to contribute in new and creative ways as chairman of the organization.

Michio Oishi
Chairman of Board of Directors
Japan Bioindustry Association

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About JBA

JBA's roots date back to Shusei Kyokai (the Distilled Spirits Institute) established in 1942.

Its name, after being changed to the Japanese Association of Industrial Fermentation, was renamed as Japan Bioindustry Association (JBA) in 1987.

Members

Corporate members—190 companies (pharmaceutical, food, chemical, cosmetic and machinery companies)

Public members—91 organizations

Individual members—775

(university and corporate researchers)

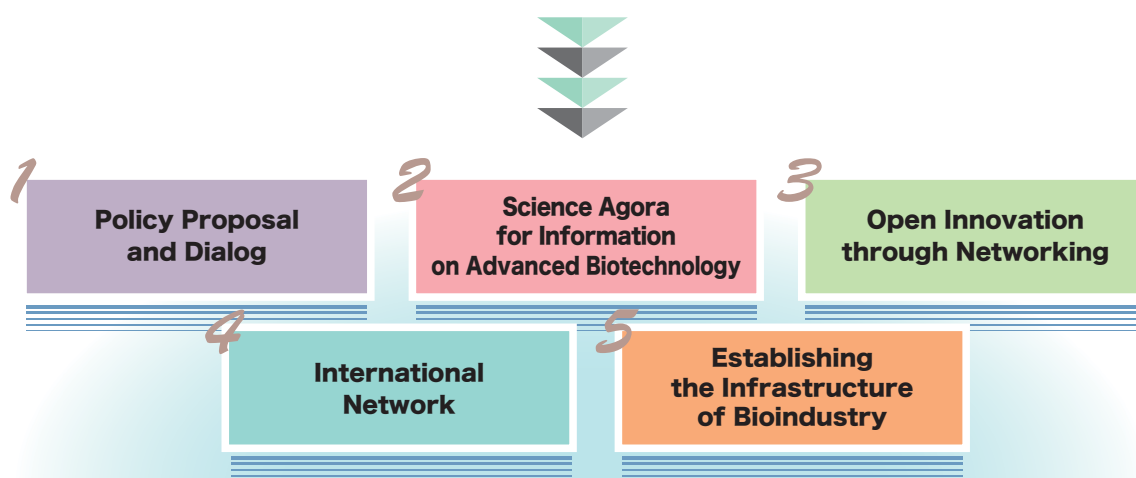
Budget: 430 million yen (2013)



Mission

**JBA contributes to bioindustry and related industries
in the fields of health, environment and food.**

Our mission at JBA is to address the imminent problems facing mankind such as those concerning climate change and biodiversity and to facilitate implementation of appropriate measures as necessary, particularly by utilizing the latest developments in biosciences in an effective manner. To that goal, one of the most important priorities of JBA is to formulate and advance specific public policies through science-based reviews of regulations as well as to craft strategies to strengthen collaboration between industry, academia and government. Furthermore, to encourage the exchange of vital data and information, we realize that cooperation and communication with like-minded organizations throughout the world is of paramount importance. We are keenly aware of the value of providing free and open access to information regarding new technologies and products to all those who are interested in opportunities for innovation. On a more local level, our mission will also be expanded to help organize and develop regional associations for bioindustries in Japan. As an example of such endeavors, we hold an annual fair called BioJapan which comprises exhibitions, seminars for academia and industry, and business to business matching.

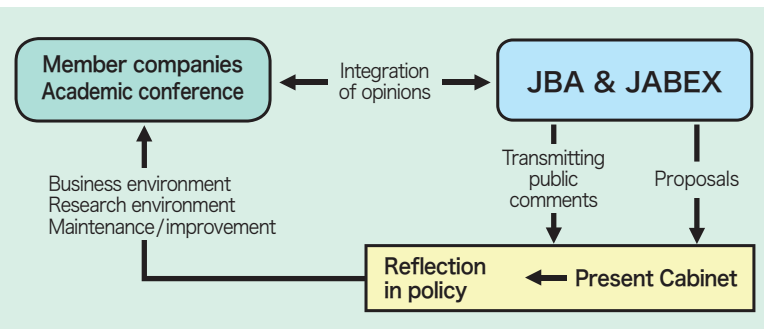


5 actions of **JBA**

Policy Proposal and Dialog

JBA has offered a variety of policy proposals and opportunities for dialog for the sound development of biotechnology and bioindustry in cooperation with member companies, universities and government bodies.

JBA cooperates in the activities of the Japan Association of Bioindustry Executives* as an organization for integrating opinions and for making effective proposals for national policies. In addition, JBA endeavors to integrate opinions from the standpoint of science by transmitting public comments, staging events and planning seminars at BioJapan.



* Japan Association of Bioindustry Executives (JABEX): Established in June 1999. The current number of JABEX members is 56. It is an extensive congregation of representatives of Japanese bioindustry-related organizations and is addressing the problems of bioindustry, making proposals and taking action for the sound development of bioindustry.

Accomplishment -1 Proposal on the Comprehensive Strategy for Bio-Innovation

JBA has been working as a secretary of JABEX. After several months of discussions by the committee of New Strategy for Bio-Growth Strategy, in August 2010 JABEX released and posted to the JABEX website the "Proposal on the Comprehensive Bio-Growth Strategy", and held dialogues with top government officials, politicians, and top leaders of bioindustry. Subsequently, from October 2012 JABEX re-organized the working committee, discussed the growth strategy from new aspects over several months, and completed its Proposal on the Comprehensive Strategy for Bio-innovation, which it released and posted online in March 2013 as a strategy for the new government administration. JABEX promoted and submitted its proposal following briefings for the Executive Members of Council for Science and Technology Policy, key persons such as the government members of committees and leading politicians, and leaders of bioindustry such as Keidanren, the Japan Pharmaceutical Manufacturers Association (JPMA), and Japan Association for Techno-innovation in Agriculture, Forestry and Fisheries (JATAFF).

Proposal on the Comprehensive Strategy for Bio-Innovation (main points)

— The global bioindustry through collaboration of the bioindustry, academia, and the growth in Japan —

- Aim to be the top in the world, by leading Asian countries with All-Japan structure and securing a firm presence
- Achieve innovation through global science and technology strategy
- Contribute to economic revitalization and disaster reconstruction through biotechnology

I Promotion of innovation through science and technology strategy

1. Strengthening of the function as headquarters to promote scientific and technical innovation
2. Promotion of regulatory reform
3. Establishing the preparation of a bio-venture support structure
4. Human resource development to support the growth of biotechnology

II Comprehensive strategy for innovation through biotechnology

1. Promotion of medical-related innovation
2. Energy and environment
3. Agriculture and food production
4. Improvement of health

Accomplishment - 2

The promotion of two major areas of innovation — Green innovation and Life innovation — were put forth as pillars for growth in the New Growth Strategy adopted by the Cabinet in June 2010 and the 4th Phase of the Science & Technology Basic Plan adopted by the Cabinet in August 2011. The promotion of open innovation is considered a key policy leading to the creation of new technologies and growth industries. JBA, receiving information concerning these science and technology policies and bioindustry growth strategies directly from the responsible parties behind their proposal in relevant government bodies, arranged seminars for the exchange of ideas. In fiscal 2012, nine seminars were held:

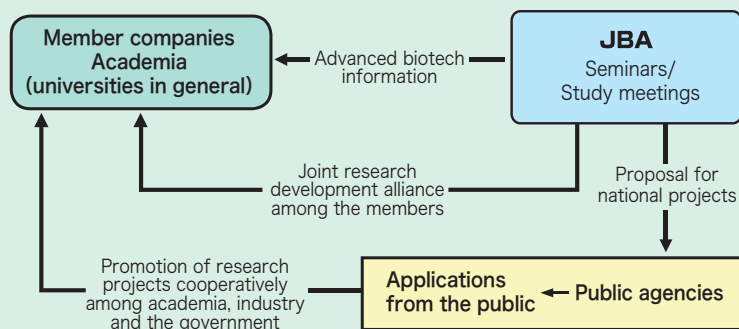
1. Promotion of and issues related to measures concerning food labeling and food safety and security
2. Initiatives concerning international strategic special districts related to life sciences
3. Policy measures concerning the promotion of renewable energy and biomass usage
4. Policies and issues under the 5-year strategy for medical innovation
5. Policy measures concerning science and technology innovation
6. Integrated promotion of life innovation
7. Clinical research and clinical trial vitalization initiatives
8. Agriculture, Forestry and Fisheries Research Council initiatives
9. Current state of and issues in Japan's health care industry

Science Agora for Information on Advanced Biotechnology

Activity Report 2013

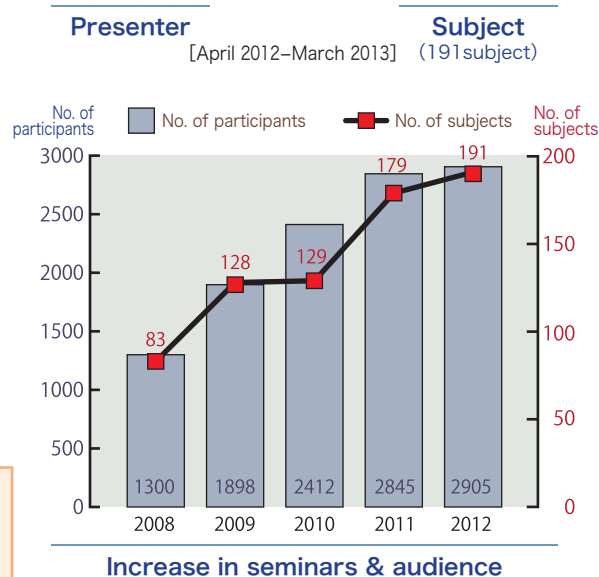
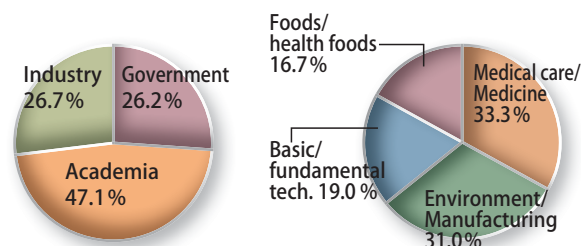
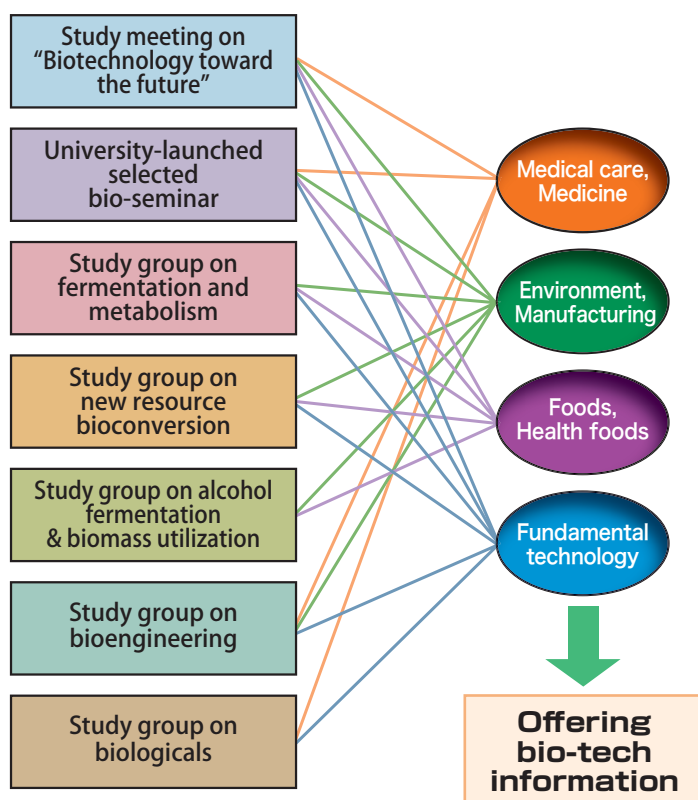
JBA is addressing the provision of biotechnology and new technical information on the industry, along with the discovery of seeds and industrialization, in cooperation with member companies, universities and government bodies.

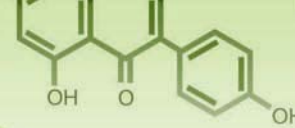
JBA collects advanced biotechnology information in Japan and overseas, conducts research on the latest development trends and discovers technical seeds that may lead to new industries. JBA shares the results among the members through lectures and seminars. Furthermore, JBA considers project concept that should be deployed in cooperation with industry, government and academia.



Accomplishments

In fiscal 2012, JBA hosted a total of 42 workshops, seminars, lectures, symposiums, and study tours. This schedule equated to some sort of event held nearly every week, covering 191 subjects and drawing 2,905 participants. Looking at events in technology fields, medical/pharmaceutical-, environmental-, and manufacturing-related subjects were greatest in number, followed in order by subjects related to fundamentals/infrastructure- and foods/health foods. The percentage of subjects in the field of foods/health foods was 16.7%, up from 10.9% in the previous fiscal year. For its corporate members, JBA conducted four surveys on drug repositioning, food engineering research, safe drug discovery research, and intellectual infrastructure development planning during the fiscal year, with the results reflected in seminars and policies. In addition, proposals from corporate members and other academic societies are on the rise. During the fiscal year, JBA made particular efforts in activities oriented toward the proposal of new projects, and conducted eight seminars with the aim of creating projects or establishing consortiums. As a result, JBA contributed to the establishment of the Highly-Functional Gene Design Technology Research Cooperative and to preparation for the establishment of the Next-Generation Biopharmaceutical Production Technology Research Cooperative.



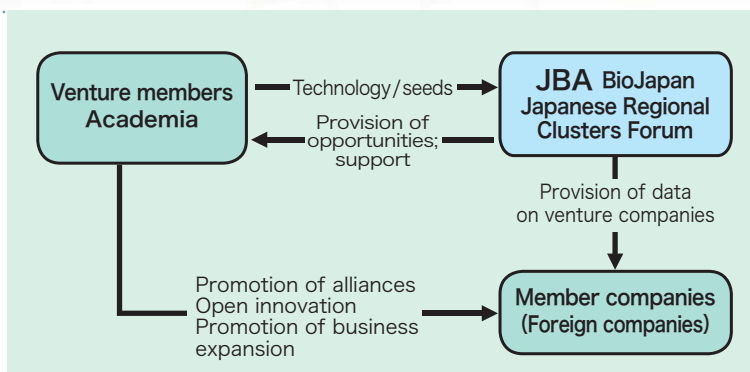


3

Open Innovation through Networking

In alliance with member companies, universities and the government, JBA provides opportunities to help the development of biotechnology and industry

JBA annually holds an international comprehensive bio event, BioJapan*, as an effective means to build a business platform for the promotion of alliances between parties, to create opportunities for open innovation, etc. Furthermore, through the activities of interactive meetings of nationwide bio groups, primarily aiming for the development of drug-discovery bioclusters/bio-venture companies, JBA not only promotes deeper exchanges with nationwide bioclusters and bio groups but also aims to become the hub of those activities.



* **BioJapan** An international comprehensive bio event that contributes to the publicizing of biotechnology as a whole. Launched in 1986 and held every year since 2004, BioJapan boasts the longest history of similar events in Japan. It offers exhibitions, business partnering meetings, technological presentations by universities / venture companies and themed seminars

Accomplishments

BioJapan 2012

World Business Forum

New Era of Open Innovation in Asia

Oct. 10 to Oct. 12, 2012 Yokohama

Subjects 1) Life, 2) Green, 3) Bioclusters & Ventures

Organizer BioJapan Organizing Committee (JBA and seven other organizations) and ICS Convection Design Inc.

Participants Visitors: 12,369 visitors

Exhibition 510 companies and organizations from around the world presented their products and technologies on the exhibition floor.

Business partnering Using a unique Web businessmatching system, event participants enjoyed many opportunities for matching their technological seeds. There were approximately 3,400 one-on-one meetings during the event.

Academic seeds presentations These offered opportunities for planning joint research with corporations through result presentations by 18 universities / public research institutes.

Pacifico Yokohama



Exhibitions



Opening Ceremony

Welcome Address

Michio Oishi Chairman JBA

With representatives attending from 22 countries around the world, I am also particularly delighted that the Nobel Prize in Physiology or Medicine was recently awarded to Professor Shinya Yamanaka of Kyoto University, who has worked closely with this field. There is no doubt that biotechnology is an industry with great future potential.

The special guests who attended the ceremony included **Ikuro Sugawara**, Director-General of the Manufacturing Industries



Michio Oishi



Ikuro Sugawara



Kiyotaka Mitsuda



Takao Abe

Bureau at the Ministry of Economy, Trade, and Industry; **Kiyotaka Mitsuda**, The Director of the City of Yokohama Economic Affairs Bureau; and **Takao Abe**, the Mayor of the City of Kawasaki. They expressed their expectations for the growth growth of BioJapan and of industries based on biotechnology and life innovation.

Keynote Speeches

The keynote speakers were **Isao Teshirogi**, President, Japan Pharmaceutical Manufacturers Association; **Andrew C. von Eschenbach**, President, Samaritan Health Initiatives, Inc.,

Former Commissioner of the United States Food and Drug Administration; and **Yoshimitsu Kobayashi**, President & CEO, Mitsubishi Chemical Holdings Corporation.



Isao Teshirogi



Andrew C. von Eschenbach



Yoshimitsu Kobayashi

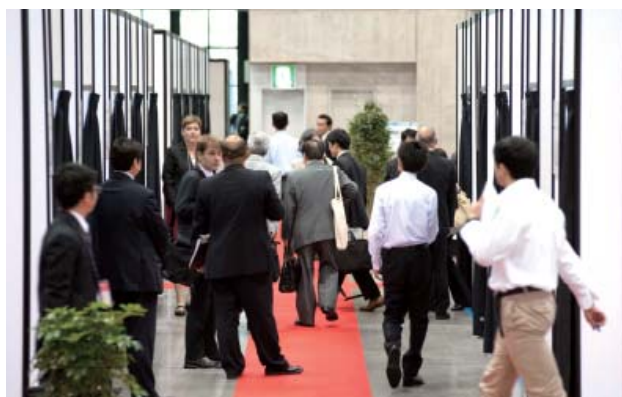
Mr. Teshirogi gave a speech titled "Bio-Innovation from Asia", explaining the importance of the Asian market including Japan, in near future.

Mr. Eschenbach gave a speech titled "Creating Solutions in the 21st Century of the Life Sciences", describing how 21st-century society will enjoy great benefits resulting from investment in the life sciences.

Mr. Kobayashi gave a speech titled "Life Science and Green Innovation of Mitsubishi Chemical Holdings", introducing his company's strategies in bioindustry fields.

Business Partnering

This was the largest business matching event in Asia, with 868 partnering participants. Registrants for the matching system numbered 627 persons from 22 countries and regions, with about 3,400 business matching discussions held. For the event, JBA drew on its past experience to develop and offer a completely new web-based matching system featuring high usability. In addition, through the new introduction of fees for usage of the system, the event was able to attract enthusiastic and serious participants, and garnered considerable praise from these.



Academic Seeds Presentation

These presentations are given to leading and large companies in Japan and foreign counties in order to rapidly develop prominent technological seeds at major universities and research institutes in Japan into educational-industrial joint studies or technology transfers. A total of 18 universities and institutes presented the latest achievements in healthcare/drug discovery, foods, biorefinery, biomass, model organisms, etc.



Organizer's Seminar

Life Innovation Summit

Construction and Global Promotion of Japan as an Innovative Problem-Solving Country

Coordinator: **Tatsumi Yamazaki**

Chairman of the Steering Committee, Japan Bioindustry Association

Based on the title above, Mr. Yamazaki invited five panelists to discuss the following subjects.

Speakers & Panelists

1) **Yoichiro Matsumoto** Secretary General, Cabinet Secretariat Office of Medical Innovation, Government of Japan

Mr. Matsumoto explained the health innovation and national growth, and the role of The Office of Medical Innovation.

2) **Naoki Okamura** Executive Member, Council for Science and Technology Policy

Mr. Okamura explained the role of the system of three strategy committees in the creation of action plans.

3) **Ryoji Chubachi** Co-Chairman, Committee on Industrial Technology, Keidanren (Japan Business Federation)

Mr. Chubachi explained the factors which inhibit the creation of innovation in Japan

4) **Masafumi Nogimori** Vice President, Japan Pharmaceutical Manufacturers Association



Tatsumi Yamazaki



Yoichiro Matsumoto



Naoki Okamura



Ryoji Chubachi



Masafumi Nogimori



Osamu Nagayama

Mr. Nogimori explained the importance of collaboration and alliances involving industry, government, and academia at all stages, from basic research to clinical applications, in the aim toward New Medical Innovations.

5) **Osamu Nagayama** President, Japan Bioindustry Association

Mr. Nagayama explained the importance of construction and global promotion in overcoming issues in Japanese medical care.

Green Innovation Summit

Coordinator: **Hideaki Yukawa**

(Director, Research Institute of Innovative Technology for the Earth (RITE))

This session was conducted by Mr. Yukawa and the following four panelists, who presented a broad range of measures aimed at resolving resource, environmental, and energy issues that have swelled to a global scale.



Hideaki Yukawa



Tamotsu Saito



Kozaburo Nakaseko



Michio Shinohara



Ching-Gang Charles Peng

Speakers & Panelists

1) **Tamotsu Saito** President & CEO, IHI Corporation

IHI Programs for Using Technology to Resolve Global Environmental Problems

2) **Kozaburo Nakaseko** Senior Executive Officer, Sumitomo Rubber Industries, Ltd.

Tire Material Development Technologies for Contributing to a Sustainable Society

3) **Michio Shinohara** General Manager, Environment and Safety Planning Office, Business Planning Division, Honda Motor Co., Ltd.

Achieving the "Joy of Free Movement" and an "Affluent and Sustainable Society"

4) **Ching-Gang Charles Peng** Associate Director, R&D – Safety, Regulatory, Technical Relations, and Sustainability, P&G Japan K.K. P&G Sustainability Overview

Cluster Summit



Tsuneaki Sakata

Moderator: **Tsuneaki Sakata**

Visiting Professor, Osaka University Cybermedia Center

At this summit, representatives of four clusters reported on their operating strategies and the unique strengths of their individual clusters.



Horst Domdey



James Cameron



Kevin Lai



Bill Bullock



Daiya Miyazato

Speakers & Panelists

1) The Munich Biotech Cluster m⁴

Horst Domdey CEO, BioM Biotech Cluster Development GmbH

2) Bio Clusters - Strategic Development and Scientific Focus

James Cameron Sales Director, Scottish Development International, Edinburgh BioQuarter

3) Biomedical Sciences in Singapore - A Springboard into Asia and Beyond

Kevin Lai Director, Biomedical Sciences Group, Singapore Economic Development Board

4) Biotechnology in North Carolina

Bill Bullock Vice President, Bioscience Industrial Development, North Carolina Biotechnology Center

5) Current Status and Opportunity for Health-Bio Cluster in Okinawa

Daiya Miyazato

Special Associate Professor, Integrated Innovation Center for Community, University of the Ryukyus

Functional Food Summit

Speakers & Panelists

Coordinator: Toshio Shimizu

Professor, Faculty of Health and Human Life, Nagoya Bunri University

Mr. Shimizu explained the classification of functional food products in Japan, and the perspectives of the Codex, EU, US, and Chinese systems.



Toshio Shimizu



Albert Flynn



Reiko Yonekura



Ken-ichi Kosuna

1) Albert Flynn Chairman, EFSA Health Claims Evaluation Committee

Mr. Flynn explained the role of the European Food Safety Authority (EFSA) in regard to EU regulations on health claims, and examples of EFSA health claims.

2) Reiko Yonekura Health Inspector, Food Labeling Division, Consumer Affairs Agency

Ms. Yonekura focused on organizing the points of argument from the Health Food Investigative Commission regarding functional claims in Japan.

3) Ken-ichi Kosuna President, Hokkaido Association for Bio-Business

Mr. Kosuna explained the history and future of health food development in Hokkaido.

Support for bio-venture companies and bio-clusters

Accomplishments

Through networking with nationwide bio groups and clusters, JBA actively promotes interaction among industry, academia, and government to support and foster bio-venture companies and form bio-clusters.

Metropolitan Bio Network

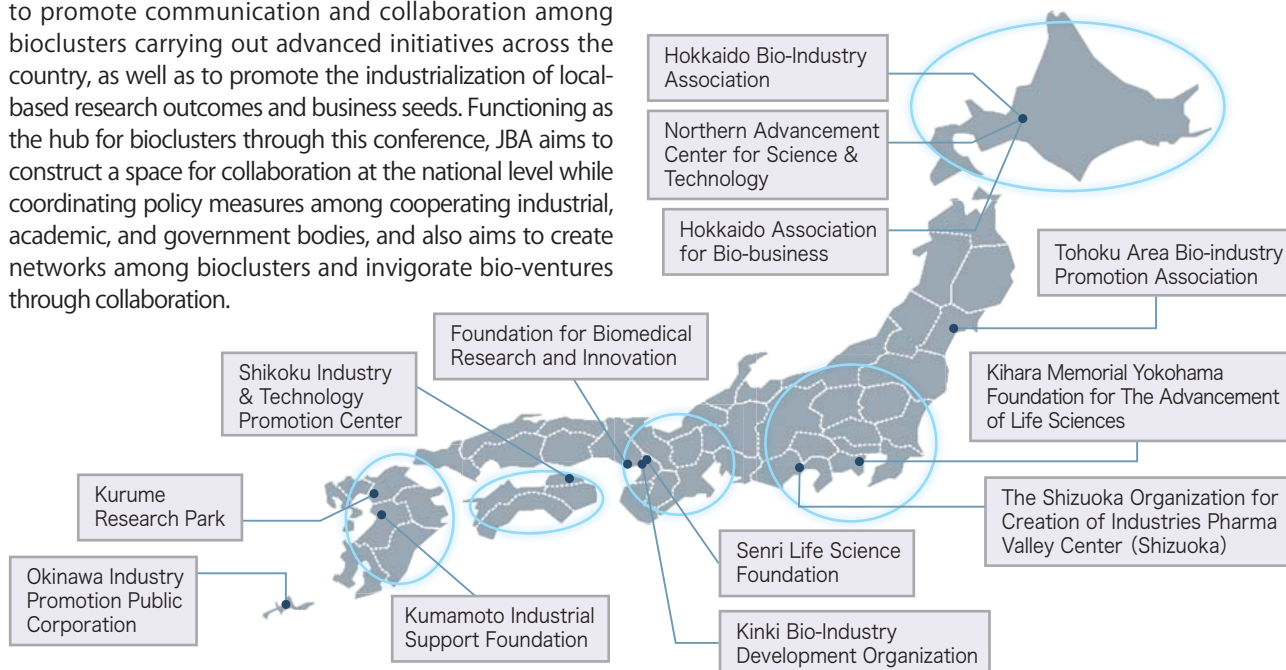
Japanese Regional Clusters Forum

Support for overseas expansion of bio-ventures

BioVenture Directory

Statistical data on venture business

In 2013, JBA launched the Japanese Regional Clusters Forum to promote communication and collaboration among bioclusters carrying out advanced initiatives across the country, as well as to promote the industrialization of local-based research outcomes and business seeds. Functioning as the hub for bioclusters through this conference, JBA aims to construct a space for collaboration at the national level while coordinating policy measures among cooperating industrial, academic, and government bodies, and also aims to create networks among bioclusters and invigorate bio-ventures through collaboration.



Japanese Regional Clusters Forum (supported by Japan Pharmaceutical Manufacturers Association)

JBA held the Japanese Regional Cluster Forum to promote industrialization of research results and business seeds from regions that are taking a progressive approach nationwide.

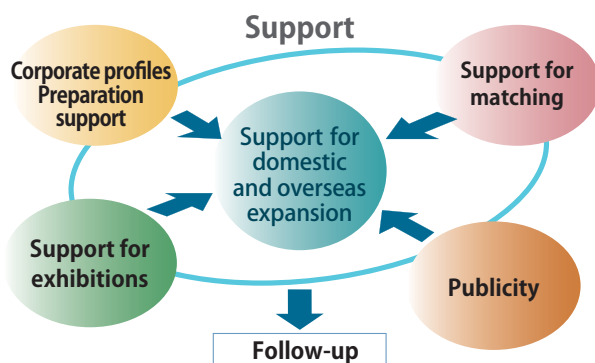
[Date] October 11, 2012

[Participants] 62 Bio-cluster-related persons participated from throughout Japan

[Subject] The New Wave of Open Innovation: Enhancing Collaboration to Promote Alliances

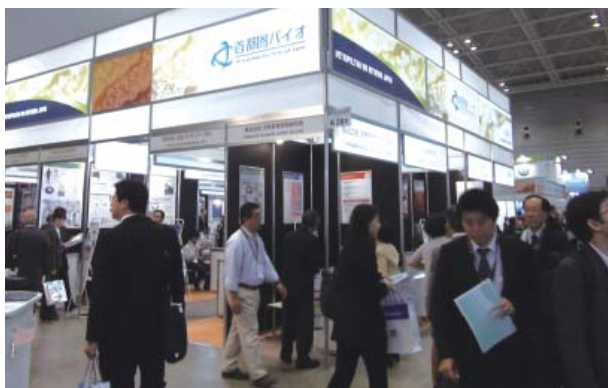
Support for overseas expansion of bio-venture business and cooperation with JETRO

The exchange of opinions and opportunities for interaction with worldwide bio-clusters can be an effective means to break through the bio-venture business environment that tends to be occluded. Therefore, by endeavoring to promote cooperation with overseas major bio-clusters, JBA supports the matching of bio-venture companies and foreign corporations. Furthermore, in order to multilaterally and effectively lead the activities to results, JBA has promoted further cooperation through its activities with JETRO. JBA has a close relationship with JETRO and supports bio-venture companies by participating in Bio-Europe Spring, etc. The tie-up of activity at JETRO BIOLINK, held concurrently with BioJapan, is another example of the establishment of a complementary relationship through mutual activities.



Metropolitan Bio Network activity

The Greater Kanto region is Japan's nexus for bio-related industries, with over half of the nation's bio-venture firms as well as research institutions and universities possessing advanced technologies. As a component in industrial cluster planning, and with the aims of promoting collaboration among players in diverse fields and constructing rich personal networks to contribute to the development of bio-ventures, JBA has been active as the secretariat of Metropolitan Bio Network Japan, which was launched in July 2002. At present, JBA is focusing on



technology transfer, encouraging expansion overseas, and promoting alliances with major companies and bio-ventures. It is undertaking activities such as seminars to support alliances and to resolve issues faced by venture companies, and is advancing policy measures to foster research and development and commercialization in areas including drug discovery.

Preparation of a Bio-venture Directory

In conjunction with open innovation, JBA is collaborating with bio organizations nationwide to aggregate and release basic information online concerning the nation's increasingly-watched bio-ventures, with the aim of accelerating alliances among clusters and companies in Japan and overseas.

Preparation of directories and statistical data on bio-venture business

■ In January 2012, JBA conducted a questionnaire survey of bio-ventures across Japan and performed classification and statistical analysis of these according to prefecture and category. The results were gathered in the 2012 Survey of Bio-venture Statistics and Trends.

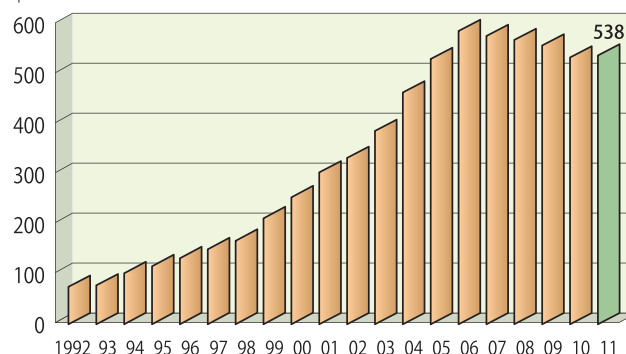
■ The number of bio-ventures was 538, continuing a downward trend from the previous year. While 54 ventures were newly identified during the year (including new identification of companies established in 2011 or earlier), 13 ventures were subject to dissolution or merger, and 37 ventures were newly excluded from the bio-venture category under the survey's definitions, leaving an overall increase of 4 companies.

■ Trends surrounding bio-ventures include joint research and licensing agreements between bio-ventures and large and medium-sized enterprises, as well as rapid growth in tie-ups among bio-ventures from 2007 and the appearance of high-monetary-value agreements.

■ JBA is also continuing joint research with Hitotsubashi University, leading to the release of the working paper "Issues in the Growth of Bio-ventures: Taking Note of Scientific Origins" (January 2013) on the Hitotsubashi University Institute of Innovation Research website.

Number of companies

Number of bio-venture companies



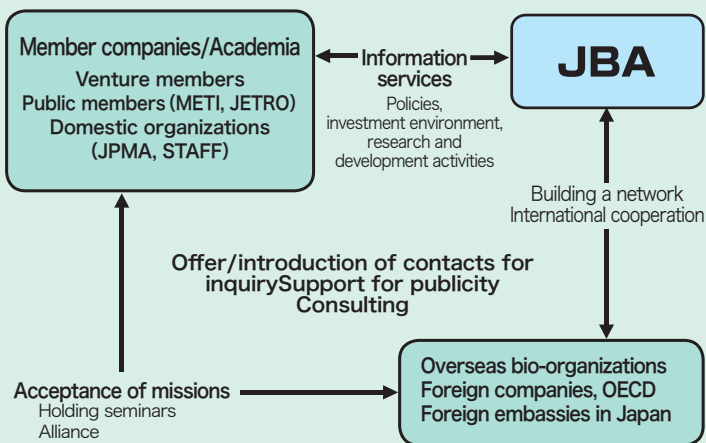
International Network

Activity Report 2013

JBA provides international information on biotechnology and bioindustry in cooperation with member companies, universities and the government.

International activities of JBA include:

- (i) Introduction/transmission of overseas bio-related information and events to members
- (ii) Transmission of information on Japanese bioindustry
- (iii) Transmission of opinions on international issues as a Japanese bio-organization
- (iv) Interaction with overseas bio-organizations through participation in international bio-events
- (v) Requesting participation in BioJapan and, taking into consideration the wishes of member companies, carrying out operations that are difficult for a single individual or corporation to accomplish

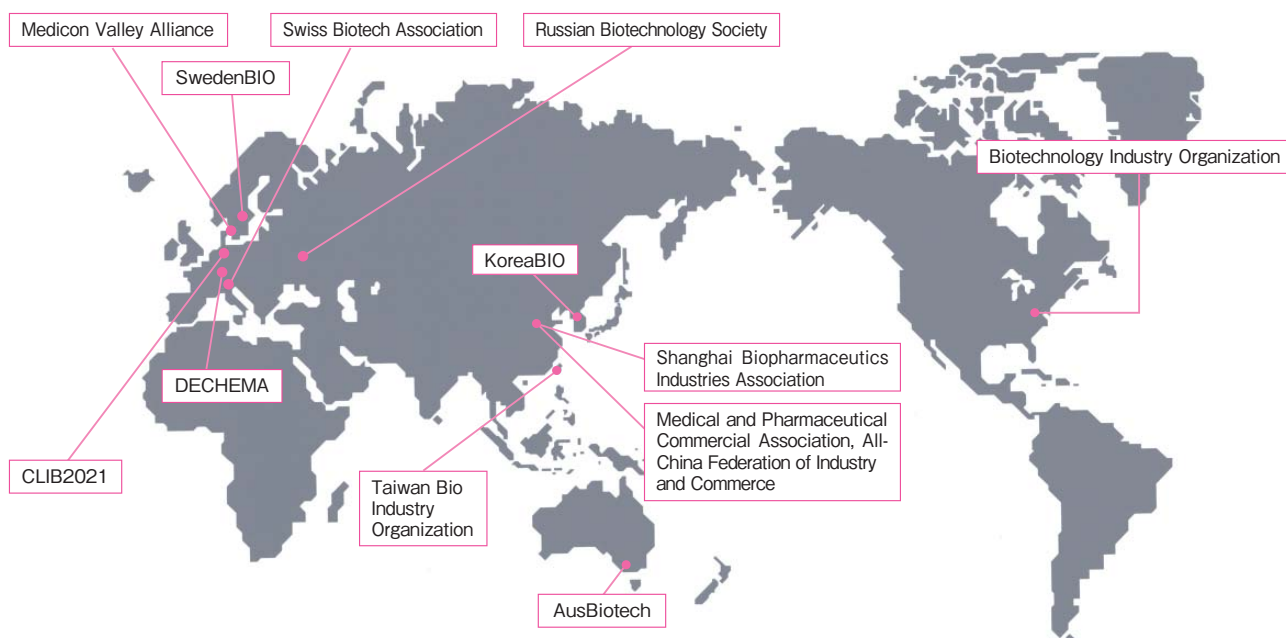


Creation of international network

Accomplishments

Overseas bio-organizations having agreements with JBA

- BIO (U.S.) (since 2004)
- Swiss Biotech Association (since 2005)
- Shanghai Biopharmaceutics Industries Association (since 2005)
- Russian Biotechnology Society (since 2009)
- CLIB2021 (Bioclusters of the Rhein Region) /Cluster Bioindustrielle Biotechnologie (since 2009)
- DECHEMA (since 2010)
- KoreaBio (since 2010)
- Medical and Pharmaceutical Commercial Association (since 2012)
- Medicon Valley Alliance (Denmark/Sweden) (since 2012)
- Taiwan Bio Industry Organization (Taiwan) (since 2012)
- SwedenBIO (since 2013)
- AusBiotech (since 2013)



JBA events and activities for open innovation in 2012

- Dispatch of bioindustry investigative team to Shanghai (Shanghai, May 8-11)
- Participation in the 2nd Symposium of WFCC-MIRCEN (Beijing, June 7-8)
- Participation in Global Bio & Medical Forum 2012 (Seoul, June 13-14)
- Participation in BIO International Convention 2012 (Boston, June 18-22)
- Participation in International Union of Biological Science (Suzhou, July 5-9)
- Participation in the 11th Bio Business Asia Conference, The 2012 Bio Taiwan (July 24-27)
- Participation in BIO-Europe 2012, MEDICA (Hamburg, November 11-17)
- Participation in Biotech Showcase 2013 (San Francisco, January, 5-11)
- Visit to Estonia and participation in CEBR (February 17-22)
- Visit to Taiwan (with JPMA) (March 4-6)
- Participation in BIO-Europe Spring 2013 (Barcelona) and visit to the Alsace BioValley (France, March 10-15)

Cooperation in OECD activities

The Working Party on Biotechnology (WPB) under the Committee for Scientific and Technological Policy of the OECD (Organization for Economic Cooperation and Development) examines policy issues spanning research and development to industrialization, through industrialization through life science and biotechnology applied to a wide range of areas from medical care and pharmaceutical products to industry, environment, energy,

agriculture and food.

JBA has participated in WPB's regular meetings and related conferences to support the government, and provides the status of discussions on a wide range of policy issues to its members. Recently, JBA helped disseminate its provisional translation of "OECD Guidelines on Human Biobanks and Genetic Research Databases" which was adopted as an OECD council recommendation (March 2010).

Collection/provision of overseas bio-information

Collection and provision of overseas bio-information in cooperation with embassies, regional clusters, etc.

JBA exchanges information with embassies, bio-organizations and regional clusters in Western and Asian countries. JBA provides information about overseas policies, the investment environment, industrial trends, and research and development to its members through means including its journal *B&I*

29 members representing foreign agencies (embassies, regions, state governments, etc.)

Ireland, United States, England, Estonia, Australia, the Netherlands, Canada, Switzerland, Sweden, Spain, Chile, Denmark, Germany, France, Malaysia, Georgia(US), North Carolina(US), Pennsylvania(US), Missouri(US), Queensland (Australia), Victoria(Australia), Alberta(Canada), Ontario(Canada), Quebec(Canada), British Columbia(Canada), Scotland, Flanders(Belgium), Wallonia(Belgium), Medicon Valley Alliance (Denmark/Sweden)



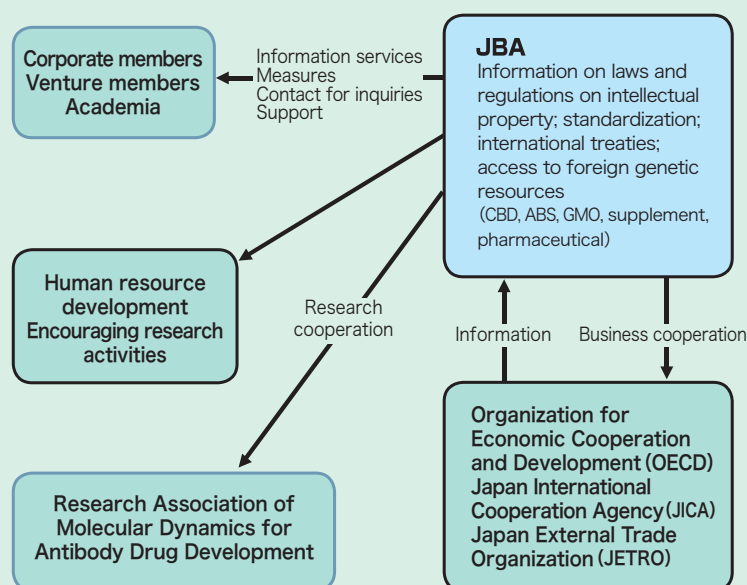
Transmission of overseas policies and industrial trends through the journal *B&I*

Establishing the Infrastructure of Bioindustry

JBA is addressing the improvement of infrastructure for biotechnology and industrial development in cooperation with member companies, universities and government.

With regard to the enactment process and management of various laws and regulations on bioindustry in the fields of food and environment, JBA collects and provides related information, and also holds explanatory meetings to collect and submit opinions from the industry.

In addition, JBA establishes infrastructure for the development of bioindustry, such as support for human resource development in developing countries through JICA, promotion of national research projects through the management of research associations, the fostering of promising young human resources, and the awarding of research prizes.



Science/technology and laws/regulations

JBA hosted an overview from the Ministry of Economy, Trade and Industry on the Act on the Conservation and Sustainable Use of Biological Diversity through Regulations on the Use of Living Modified Organisms (the Cartagena Act), as well as relevant points of note in situations such as industrial Type 2 use and an explanation of GILSP notification revisions. JBA also hosted a briefing by the National Institute of Technology and Evaluation on application procedures for confirmation of approvals by competent ministries. The briefings were made easy to understand through specific examples of the latter applications and approvals, and incorporated Q&A and post-briefing individual consultations.

■ Submission of written opinions concerning implementation of the Cartagena Act to "The Voice of Nation" of the Cabinet Office

Acting upon requests from members, JBA submitted opinions and a petition to "The Voice of Nation" of the Cabinet Office, requesting simpler and speedier applications for confirmation of dispersal prevention measures in Type 2 use under the Cartagena Act.

■ Seminar on biosecurity" Addressing dual-use issues in bio research" seminar held

■ Advanced biotechnology regulation and policy "Current State of the Technological Development of New Plant Breeding Techniques, and Issues in their Industrial Use" seminar held

JBA hosted a seminar by front-line researchers in this area of technology, which is attracting attention as a fast and efficient new plant breeding method that does not leave traces of genetic manipulation in succeeding generations. Research trends, safe handling of the technology, and ideals for regulation were discussed at the seminar. JBA also launched a series of articles in its in-house publication *B&I*, explaining new plant breeding technologies.

■ JBA held a "Seminar on the Biological Weapons Convention (BWC)"

Before the international congress of Biological Weapons Convention (WBC), JBA held related seminars to consolidate the collective opinions of members for the induction of a verification system, and to enlighten and collect opinions of the participants.

- 1) "Present state around the Biological Weapons Convention and its relation with industry" (May 26, 2011)
- 2) Seminar on "The Security Export Control from the View of Biosecurity" (August 4, 2011)

3) "Risk management of dual use technology in the research of life science"

■ Regulation and policy for advanced biotechnology

1) Seminar on "The Present State of Advanced Bio-

Research and Technology Development, and their Political Issues" (September 22, 2011)

2) Seminar on "The Technology Development in Environmental Microbe Use and its Control and Issues" (October 25, 2011)

Science communication

■ Publication of "A Future Society Pioneered through the Contributions of Bio"

JBA launched this series in its in-house publication *B&I* to reveal a multi-faceted vision (covering science and technology, lifestyles, and bioindustry development trends) for future society achieved through bio.

- 1) The current state and future of the biorefinery industry
- 2) The popularization and development of bioplastics
- 3) The current state of and outlook for functional food systems
- 4) Ever-evolving antibody pharmaceuticals

■ Communication of bio risks

"Corporate and media communication and issues in the event of incidents or risk" seminar (using bio in case studies) (Nov. 8, 2012)

Biological resources and measures

■ Support for international negotiations of CBD and ABS

JBA has continuously supported the government as a member of delegations in international negotiations such as the Conference of the Parties to the Convention on Biological Diversity (CBD) and the meetings of working groups on access to genetic resources and benefit sharing (ABS) in order to support the government.

■ Help desk for inquiries about ABS

JBA set up a help desk in April 2005 for consultation on issues and problems related to access to foreign resources.

Consultations are conducted in a confidential manner and the number of consultations conducted as of the end of FY2012 exceeded 440.

■ 2012 Update of guidelines on access to genetic resources for users, based on the Nagoya Protocol

Based on the CBD and the principles of the Bonn Guidelines, JBA published METI-JBA guidelines in March

2005 for Japan's overseas genetic resource users. And based on the Nagoya Protocol of CBD, 2nd edition of the guidelines (in Japanese) was issued in March 2012. JBA has held open seminars in major cities throughout Japan on a continuous basis to enhance public awareness and understanding of CBD-ABS.

■ Summary of the bioindustry's requests concerning domestic implementation of the Nagoya Protocol

JBA collected the requests of industry with regard to implementation of the Nagoya Protocol, and submitted these to the METI Bio-Industry Division in 2012.



Intellectual property

Toward the advancement of open innovation based on industry/academic collaboration and the promotion of research and development in bioindustry, JBA operates through working groups (WGs) to conduct its activities

concerning research and countermeasures for the strengthening of intellectual assets and intellectual property rights in the bio domain.

- 1) Fiscal 2011 Intellectual property committee briefing
- 2) "Seminar on Patent Practice in the Bio and Life Sciences Domain and U.S. Patent Law Reform"
- 3) "Seminar on the Handling of Intellectual Property at The University of Tokyo"



Human resource development

JBA Bio-Leaders Course 2012

A three-day intensive biotech venture leadership course for graduate students and young researchers in member companies across the country was held from Aug. 29, 2012.



Group discussion on assigned subjects

Completion Certificate

Award and grants

JBA promotes scientific research that contributes to the growth and development of bioindustry by offering award and grants.

Fermentation and Metabolism Research Grant in 2012

"Useful lipid production through molecular breeding of oleaginous fungus *Mortierella alpina*"

Akinori Ando Assistant Professor, Kyoto University

"Development and experimental verification of an *in silico* platform for metabolic flux prediction"

Chikara Furusawa Team Leader, RIKEN

"Analysis of genes responsible for high fermentation ability of sake yeast"

Daisuke Watanabe Researcher, National Research Institute of Brewing



JBA Award in 2012

"Studies on microbial metabolism and their application to industrial production"
Michihiko Kobayashi

Professor, The University of Tsukuba

Prof. Michihiko Kobayashi



The Grant for Research on Chemical and Biological Materials in 2012

"Integration of semiconductor and biotechnology using the intrinsically disordered protein Si-tag as an interface"

Takeshi Ikeda Assistant Professor, Hiroshima University

"Implantable drug release system for treating retinal disorders"

Hirokazu Kajii Associate Professor, Tohoku University

"*Staphylococcus aureus* sortase A mutants-mediated protein ligation in the cytoplasm"

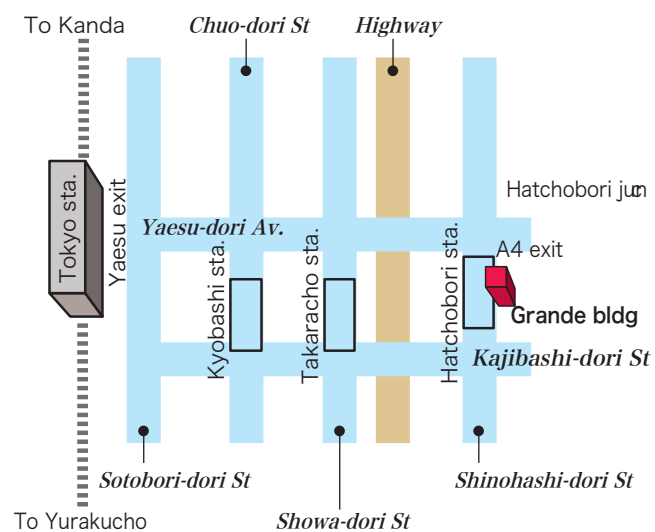
Hidehiko Hirakawa Assistant Professor, The University of Tokyo

"A bacterial platform for fermentative production of plant alkaloids and novel bioactive compounds"

Hirofumi Minami Assistant Professor, Ishikawa Prefectural University



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