

New Era of Open Innovation Promotion through Networking



Create the future

via bio-innovation



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Tsukamoto**

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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

JBA Activity Report 2012 contents

Mission	3
1 Policy Proposal and Dialog	4
2 Science Agora for Information on Advanced Biotechnology	5
3 Open Innovation by Networking	6
4 International Network	11
5 Establishing the Infrastructure of Bioindustry	13

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—195 companies
(pharmaceutical, food, chemical, cosmetic
and machinery companies)

Public members—92 organizations

Individual members—800

(university and corporate researchers)

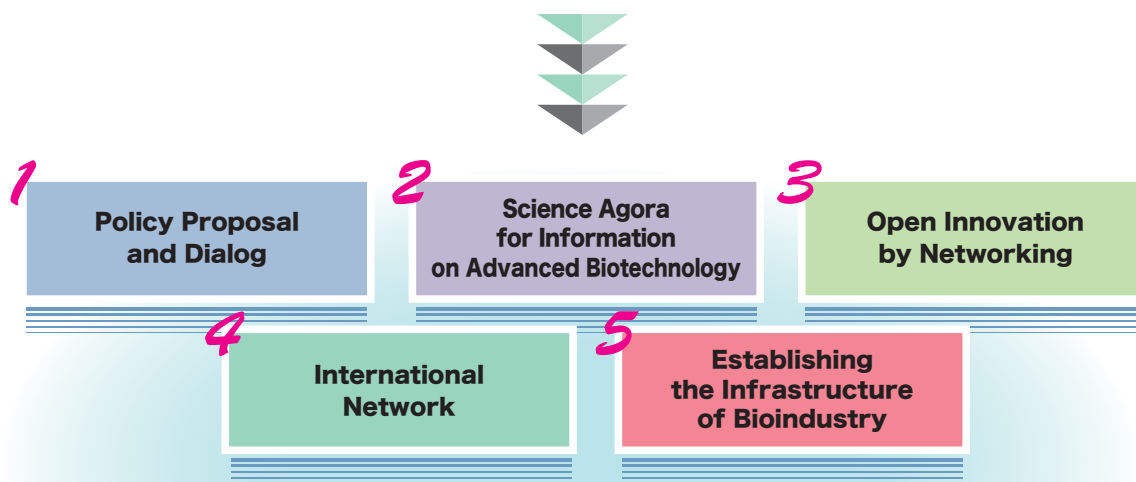
Budget: 500 million yen (2012)



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.



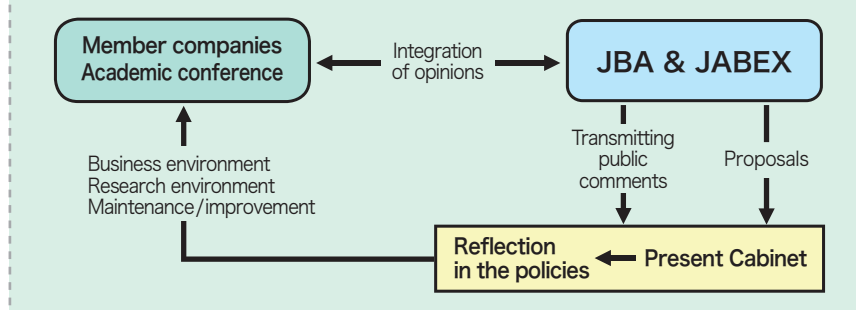
5 actions of **JBA**



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 to make 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 in 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

In the “New Growth Strategy” (cabinet decision, June 2010) and the “4th Science and Technology Basic Plan of Japan” (cabinet decision, August 2011), the promotion of two major innovations, green innovation and life innovation, was raised as growth pillars. The promotion of open innovation is considered to be an important policy to create new technologies and growing industries. JBA hosted seminars which were delivered by policy planners of the respective ministries and agencies responsible for these science and technology policy and bio-growth strategy, and facilitated the exchange of opinions. The seminars were conducted eight times in 2011.

1. Seminar on “Strategy for research and development for the creation of new bioindustries, bio-drug discovery, medical devices, regenerative medicines, etc. and environmental industries, in the life field” (April 11, 2011)
2. Seminar on “Biological weapons convention (BWC) and its relation to the industry” (May 26, 2011)
3. Seminar on “Policy for the promotion of medical care innovation, and its problems” (June 2, 2011)
4. Seminar on “Current situation of the evaluation of medical drugs and medical devices, and their problems” (August 2, 2011)
5. Seminar on “Current situation of the utilization of biomass and its problems” (August 5, 2011)
6. Seminar on “Comprehensive economic partnership/TPP, new green revolution and policy on agriculture, forestry and fisheries” (September 1, 2011)
7. Seminar on “Advanced research and developing technologies of Overseas-BIO and their policy topics” (September 22, 2011)
8. Seminar on “Proceeding of Agriculture, Forestry and Fisheries as the 6th industry, and its problems” (January 11, 2012)

Accomplishment –2 Public comments on government policies

- ① Submitting a written opinion on the “Important Implementing Action Plans (tentative) for Science and Technology in FY 2011”
- ② Submitting a written opinion on the “Hokkaido regulation on the protection of the cross with the cultivation of the genetically

modified crops” and the “measures standards on the protection of the cross with the cultivation of the genetically modified crops” in Agricultural Policy Planning Department of Hokkaido

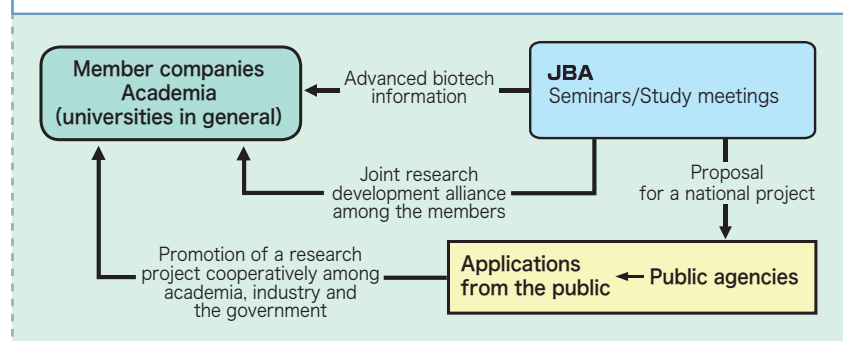
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JBA action

Science Agora for Information on Advanced Biotechnology

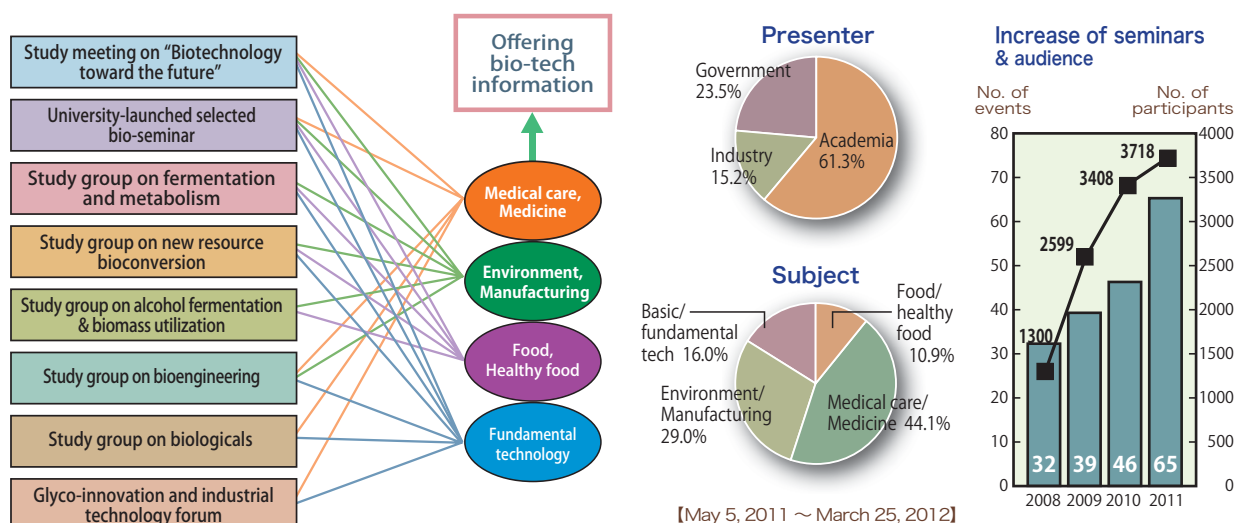
JBA is addressing the provision of biotechnology and new technical information of the industry, discovery of seeds and industrialization in cooperation with member companies, universities and government bodies.

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 has those results shared in common among the members through lectures and seminars. Furthermore, JBA takes into consideration the project concept that should be deployed in cooperation with industry, government and academia.



Accomplishment

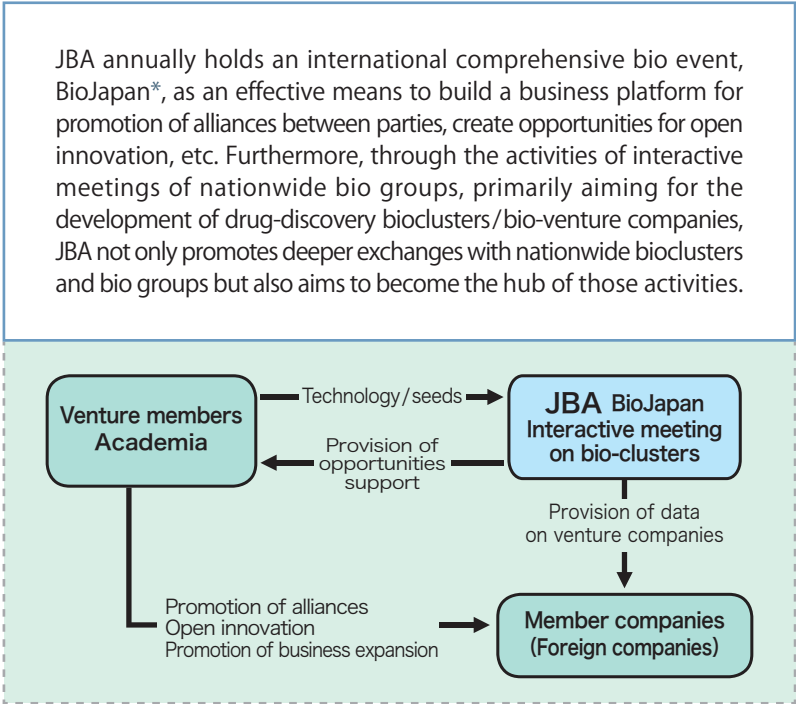
A total of 65 lectures, seminars, study meetings and visit tours were held by the study groups, and the total number of lecture subjects was 238 topics, for a year-on-year increase of 126%, consisting of pharmaceuticals, medicinal care, environment, manufacturing, foods and basic R&D, with a total of 3,718 participants. Timely and opportune subjects for lectures were selected based on the proposal of each member, and in addition the subjects of Tohoku disaster-related and the reconstruction were included. The university-originated seminars, information which promoted the utilization of the research projects of the Ministry of Education, Culture, Sports, Science and Technology, and practical experience-oriented seminars to stimulate the utilization of public institutions were fully included.





Open Innovation by Networking

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



* **BioJapan** International comprehensive bio event that contributes to the publicity of biotechnology as a whole, starting in 1986 and having the longest history in Japan. It has been held every year since 2004. It offers exhibitions, business partnering meetings, technological presentations by universities / venture companies and theme seminars

Accomplishment

BioJapan 2011 World Business Forum New Bio Growth Strategy by Japan

BioJapan 2011 World Business Forum was held at Pacifico Yokohama from Oct. 5 to Oct. 7.

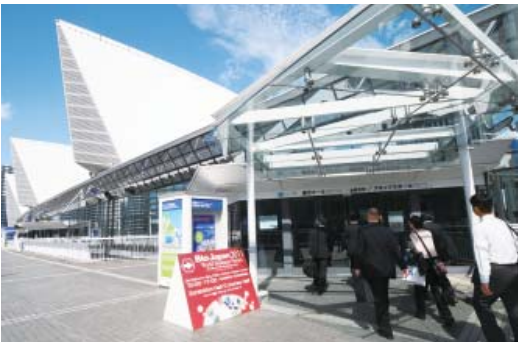
[Subjects] 1) Life, 2) Green, 3) Bioclusters & Ventures

[Organizer] BioJapan Organizing Committee (JBA and seven other organizations) and Nikkei BP Inc.

[Participants] Total number of visitors: 20,600.

[Exhibition] 327 companies and organizations from all over the world presented their products and technologies on the exhibition floor.

[Business partnering] Using a unique Web business-matching system, participants of the event could get



many chances to match their technological seeds to seeds with each other. There were 1,643 one-on-one meetings during the event.

[Academic seeds presentations] These offered opportunities for planning joint research with corporations through result presentations by 20 universities / public research institutes.



Opening Ceremony

Welcome Address

Michio Oishi Chairman JBA

With a network of national and international biotechnology participants gathered in BioJapan, we hope for further development of the industry.



Michio Oishi
Chairman JBA

The guests who attended the ceremony included Keiro Kitagami, vice-minister of Economy, Trade and Industry ; Yuji Kuroiwa, governor of Kanagawa Prefecture ; Fumiko Hayashi, mayor of the city of Yokohama ; and Atsushi Miura, deputy mayor of the city of Kawasaki. They expressed their expectations for the growth of industries based on biotechnology and life innovation and BioJapan.



Keiro Kitagami



Fumiko Hayashi



Yuji Kuroiwa



Atsushi Miura

Keynote Speeches

The keynote speakers were Yasuchika Hasegawa, president and representative director, Takeda Pharmaceutical Company Limited, and Stephan Tanda, chairman, EuropaBio, and a member of the Managing Board of Directors, Royal DSM N.V., Holland. Mr. Hasegawa gave a speech titled "The Growth Strategy in Japan" and proposed that Japan should promote growth strategy based on innovation. Mr. Tanda gave a speech titled "Life Sciences and Material Science-Building a Bio-Based Economy: A Bird's Eye View of Biotech Trends and Markets," explaining the strategy of DSM and the status of biotechnology industries in Europe and appealing for building a bio-based economy founded on life science and materials science.



Yasuchika Hasegawa



Stephan Tanda

Exhibitions



Business Partnering

Business partnering presentations were held as one of the means for achieving open innovation, the largest objective of BioJapan. This year, 88 presentations were given by companies to introduce their excellent new technologies and ideas. Individual meetings using the Web Matching System were also actively held. The system is used to search for business seeds and alliance partners and helps arrange meeting times in accordance with the schedules of both parties on the web. The number of meetings held in business meeting areas was 952, and the total number of meetings including those held in individual booths was approximately 2,000.



Academic Seeds Presentations

These presentations are given to leading and large companies in Japan and foreign countries 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 20 universities and institutes presented the latest achievements in healthcare/drug discovery, food, metabolomics, cleaning soil contaminated with radioactivity, bioenergy, biorefinery, biodevice, disease model organisms, etc. through a total of 59 sessions.





Seminars Given by the Sponsor

Life Innovation Summit

Partnerships among Pharmaceutical Companies, Bioventures, and Academia in Asia

Speakers & Panelists

Tatsumi Yamazaki (Chairman of Steering Committee, JBA)
Mr. Yamazaki explained pharmaceutical development in the future and JBA's commitment.

Greg Wiederrecht (Vice president & head, Merck & Co. Inc.)
Mr. Wiederrecht spoke of the importance of open innovation in pharmaceutical development and alliance in the future.

Hao Yan (President & CEO, EPS Corporation)
Mr. Yan explained the activities of EPS Corporation.

Jonghoon Choi (Chief researcher, Korea Bio-Economy Research Center)
Mr. Choi spoke of changes in healthcare in Asia.



Moderator Isao Teshirogi

(President, Japan Pharmaceutical Manufacturers Association)

Mr. Teshirogi explained the objectives of the seminar and the present state of pharmaceutical industries. In the United States, many drugs originate from academic ventures. Although it is acknowledged that Japan and Europe are competent in basic studies, they are definitely behind in commercialization.



Tatsumi Yamazaki



Greg Wiederrecht



Hao Yan



Jonghoon Choi

Cluster Summit

Global Collaboration among Bioclusters

Speakers & Panelists

Ulf Åberg (Denmark: Senior business development manager, Invest in Skane)
Mr. Åberg spoke of Medicon Valley (MV) located on the border between Denmark and Sweden.

Karimah es Sabar (Canada: SVP Business & Strategic Affairs, Center for Drug Research and Development)
Ms. Sabar explained the Center for Drug Research and Development (CDRD).

Andy Gearing (State of Victoria, Australia: CEO, Biocomm Squared)
Mr. Gearing explained the strengths of Australia in biotechnology, which is backed by a thriving Australian economy.

Mario Pennisi (State of Queensland, Australia: CEO, Life Science Queensland Limited)
Mr. Pennisi explained the Queensland Clinical Trials Network for supporting clinical trials and Life Science Queensland.

Takashi Miki (Bureau director general, City of Kobe)
Mr. Miki explained the status of the rapidly developing Kobe Biomedical Innovation Cluster.

Yoshifumi Ikeda (Bio Project producer, Kurume Research Park Co. Ltd.)
Mr. Ikeda explained the 10 years of the history of Kurume Research Park.



Moderator Tsuneaki Sakata

(Visiting professor, Osaka University)

In reference to four bioclusters in foreign countries and Kobe and Kurume, the present state, method, and issues of cooperation between bioclusters and the industry in Japan were explained.



Ulf Åberg



Karimah es Sabar



Andy Gearing



Mario Pennisi



Takashi Miki



Yoshifumi Ikeda

Green Innovation Summit



Moderator Hideaki Yukawa

(Director, Research Institute of Innovative Technology for the Earth, a Public Interest Incorporated Foundation)

Mr. Yukawa explained that biofuels are in the phase of commercialization.

Speakers & Panelists

Kenji Fujiyoshi (Chairman, Japan Chemical Industry Association)

Mr. Fujiyoshi explained the commitment of the Japan Chemical Industry Association.

Shigeki Suzuki (Managing officer, Toyota Motor Corporation)

Mr. Suzuki explained the commitment of Toyota Motor Corporation to achieving a green society.

Colin Michinson (Genencor Biomass Applications director)
Mr. Michinson explained the situation of the research and development of biocatalysts that enable the production of biofuels on an industrial scale.

Steen Riisgaard (Novozymes A/S president and CEO)
Mr. Riisgaard explained the inevitability of shifting to biorefinery and the role of enzyme catalysis.



Kenji Fujiyoshi



Shigeki Suzuki



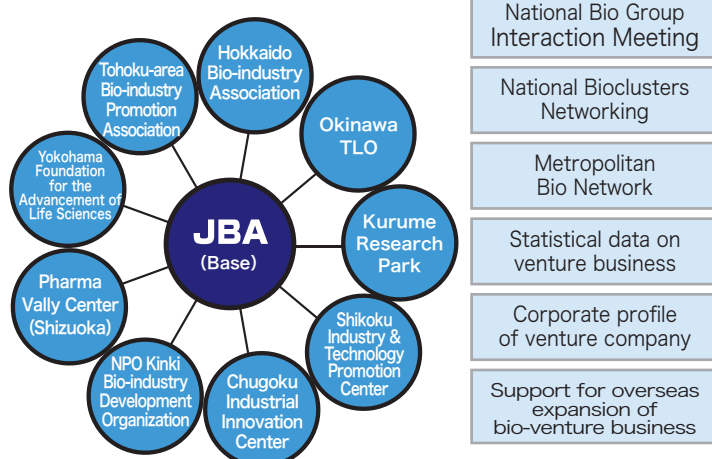
Colin Michinson



Steen Riisgaard

Support for Bio-venture Companies and Bioclusters

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.



As part of the operations to form a bioindustry network that serves for local revitalization, JBA has been convening the National Bio Group Interaction Meeting. The network has been formed with nationwide bio groups as a means for consultation of "All Japan," and JBA has been playing a role in activity reports and information exchange and as a facilitator for bio-clusters of blocs around Japan. JBA, whose activities are diversified, works out new bio-related projects and enhances the relationships between the blocs. In addition, JBA has also been promoting interactive activities with overseas bio-organizations in recent years and continuously sponsors the cluster summit as a means to exchange opinions and promote interactions with worldwide bio-clusters in BioJapan.

Accomplishment

The 7th Biocluster Interaction Meeting (Cosponsor : JBA)

JBA held the National Biocluster Interactive Meeting to promote industrialization of research results and business seeds of each region that is taking a progressive approach nationwide.

[Date] October 6, 2011

[Participants] 62 Biocluster-related persons participated from throughout Japan

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

The exchange of opinions and opportunities for interaction with worldwide bioclusters 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 bioclusters, JBA supports the matching of bio-venture companies and foreign corporations. Furthermore, in order to multilaterally and effectively lead the activities to the 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. In addition, the tie-up of activity in the JETRO BIOLINK held concurrently with BioJapan is another example, where a complementary relationship is being established through mutual activities.





Metropolitan Bio Network activity

Management system of the Metropolitan Bio Network

JBA sponsors activities in cooperation with members in charge of business promotion consisting of member venture companies, pharmaceutical companies, support organizations (National Institute of Advanced Industrial Science, JETRO, Tokyo Small and Medium

Business Investment & Consultation. Organization for Small & Medium Enterprises and Regional Innovation, Japan, KPMG AZSA LLC, and Japan Pharmaceutical Manufacturers Association) and also with the members of the operating committee consisting of representatives of member companies.



Preparation of statistical data on bio-venture business and directories

Statistical research on bio-venture business

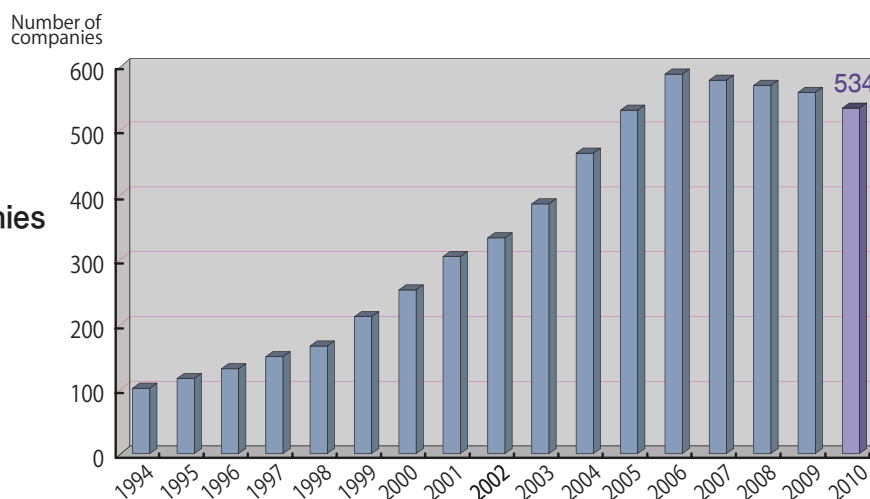
JBA annually conducts questionnaire-based research on nationwide bio-venture companies and carries out classification and statistical analysis of bio-venture companies by prefecture and category. As a result in January 2011, the number of bio-venture companies reported on in Japan was 534.

In addition, JBA conducted research partnership with Hitotsubashi University in an analysis based on JBA's "Statistical research on bio-venture companies (2011)."

Preparation of directories

Under open innovation policy, directories on the organization and latest information on bio-venture companies are an important means to share information. JBA will continue to not only update the Metropolitan Bio information but also prepare directories on nationwide bio-venture companies effectively capitalizing on its own function as a base of activities. JBA is going to organize the drug discovery-related bio-venture information.

Number of bio-venture companies



4

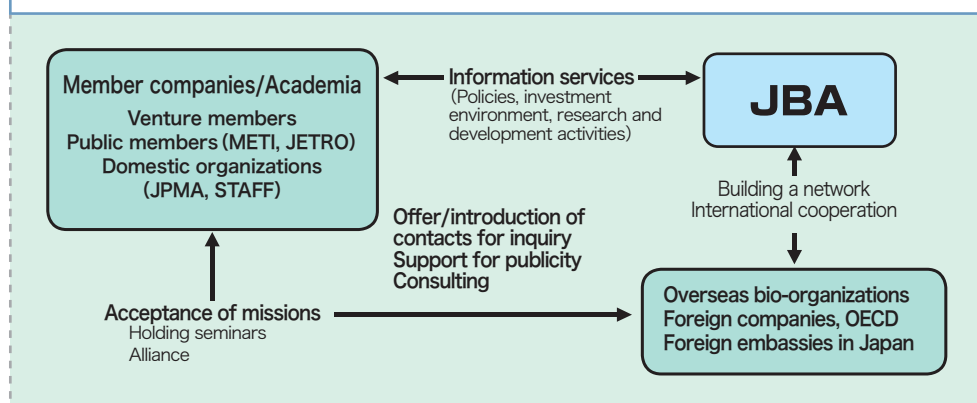
JBA action

International Network

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



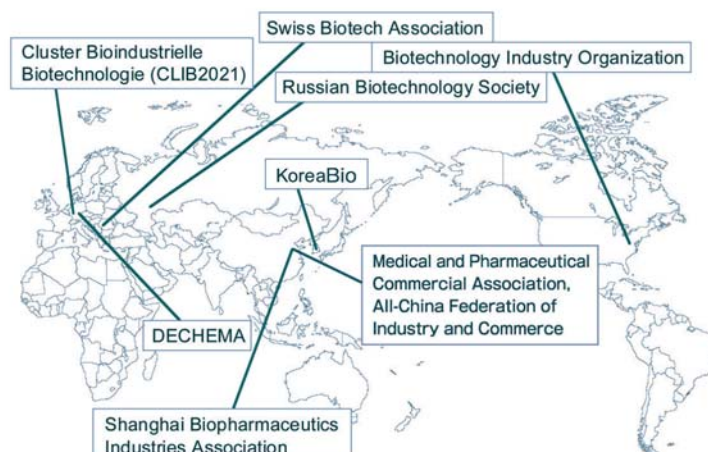
Accomplishment

Creation of International Network

Written agreements with overseas bio-organizations

- BIO (U.S.)
Mutual cooperation in the U.S. BIO, BioJapan and BioAsia (since 2004)
- Swiss Biotech Association
Mutual cooperation (since 2005)
- Shanghai Biopharmaceutics Industries Association
Mutual cooperation (since 2005)
- Russian Biotechnology Society
Mutual cooperation with no obligation (since 2009)
- CLIB2021 (Bioclusters of the Rhein Region) /Cluster Bioindustrielle Biotechnologie
Mutual cooperation with no obligation (since 2009)

- DECHEMA
Mutual cooperation with no obligation (since 2010)
- KoreaBio
Mutual cooperation with no obligation (since 2010)
- Medical and Pharmaceutical commercial Association
Federation of Industry and Commerce (since 2012)





JBA events and activities for Open Innovation in 2011

- Participation in the 5th China Summit Forum on Industrial Biotechnology Development (Chintao, May 25-27).
- Participation in Global Bio & Medical Forum 2011 (Seoul, June 8-9)
- MOU conclusion with Korea BIO (Seoul, June 9)
- Participation in BIO International Convention 2011 (Washington, June 27- July 2)
- Participation in Bio-Europe 2011 (Düsseldorf, October 31-November 2)
- Participation in the 15th Beijing International Health-care Industry Forum (Beijing November 1-3)
- Participation in BIO-Asia (Osaka, January 31-February 1)
- Participation in BIO-Europe Spring (Amsterdam, March 19-21)

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 relating to research and development to 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 of Western and Asian countries. JBA provides information about overseas policies, investment environment, industrial trends and the research and development situation to its members through its journal "B&I", etc.

Members of Foreign Embassies • Area • State Governments, etc. / 31 Agencies

United States, England, Estonia, Australia, the Netherlands, Canada, Korea, Switzerland, Sweden, Spain, Chile, Denmark, Germany, New Zealand, Finland, Malaysia, US • Iowa, US • Ohio, US • Georgia, US • North Carolina, US • Pennsylvania, US • Missouri, Australia • Queensland, Australia • Victoria, Canada • Alberta, Canada • Ontario, Canada • Quebec, Canada • British Columbia, Scotland, Belgium • Flanders, Belgium • Wallonia



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

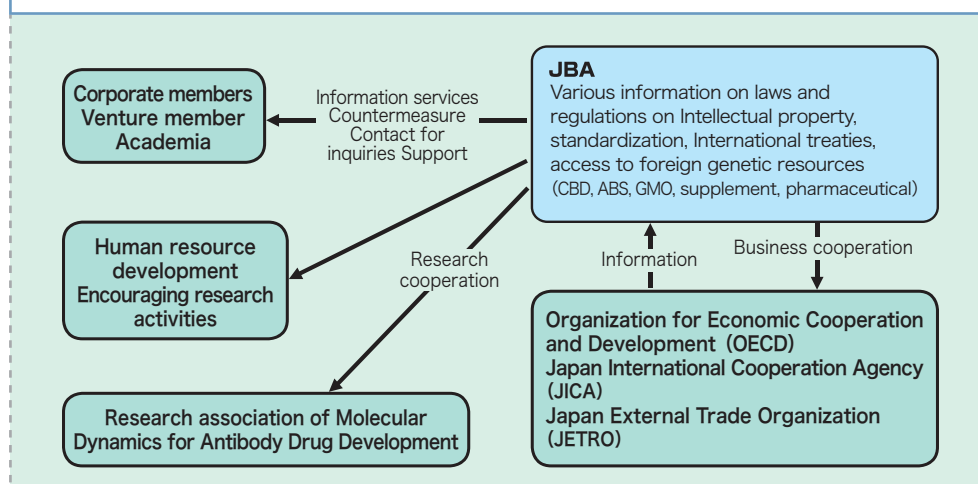


Establishing the Infrastructure of Bioindustry

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 various infrastructures 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, fostering of promising young human resources and awarding research prizes.



I Provision of information on laws and regulations

JBA held an “explanatory meeting on the utilization of the Cartagena Law”
(May 19-20, 2011)

An explanation on the important points on the Industrial Use of Type 2 substances based of the Cartagena law, the conduction of on-site inspections, the interpretation of GILSP announcement and procedures for obtaining confirmation abd permission of the Minister was conducted by The Ministry of Economy, Trade and Industry. In particular, the process for the confirmation and permission of the Minister was improved, and

a speed-up of the process is expected. Individual consultations were held after the explanatory meeting.

JBA held an “explanatory meeting on the risk evaluations of the Cartagena Protocol and the utilization of the Cartagena Law”
(Jan. 24, Feb. 1-2, 2012)

An explanation on risk evaluations on living modified organisms, the mindset for risk management and the tendency of international discussion on risk evaluation of the Cartagena law was conducted by the Ministry of Economy, Trade and Industry and the collective opinion of the members was consolidated. Individual consultations and an explanation on the important points on the industrial use of the Cartagena law were also held.

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 the 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)

II

Biological resources measures

Support for international negotiations of CBD and ABS

JBA continuously has participated as a member of the government delegation 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 inquiry about ABS

JBA set up a Help Desk in April 2005 where the issues and problems relating to access to foreign resources can be consulted.

Consultations are conducted in a confidential manner and the number of consultations conducted as of the end of FY2011 exceeded 380.

2012 Update of Guidelines on Access to genetic Resources for Users, based on 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.



III

Intellectual property

Based on the opinion of JBA members (interview, questionnaire, etc.), JBA annually offers opinions to the Intellectual Property Strategy Headquarters or Japan Patent office (JPO). JBA discussed the issue of intellectual property (bio-field) with Japan Patent Attorneys Association (JPAA).

In addition, under the co-sponsorship with JBA organizes the "Life Science Intellectual Property Forum" every year and holds discussions on the issues of intellectual property related to life science and bioindustry.

- Submitted opinions on the formation of the "Intellectual Property Strategic Program to the Cabinet Office" (January 2011, January 2012).
- Survey of companies as to cooperation with universities and patent application of their results (January to April 2011).
- Publication of the results above; MedU-net General Meeting (March 2011 and March 2012; Intellectual Property Association of Japan (June 2011).
- Submission of opinions to the Patent Office on "Invention of Foods specified by Function" (In cooperation with JAFBIC, November 2011 (Observer-participation in Japan Patent Attorneys Association, March 2012).



IV Human resource development

JBA Bio-Leaders course

Three-day intensive biotech venture leadership course for graduate students and young researchers in member companies across the country, was held from Aug. 1, 2011.

Top lecture

"R&D strategy through the global network and required human resources"

Tatsumi Yamazaki

Executive Vice President of Chugai Pharmaceutical Co., Ltd



Dr. Tatsumi Yamazaki



Discussion in groups about the assigned subjects



Completion Certificate

V Award and grants

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

The Grant for Research on Chemical and Biological Materials in 2011

"Development of highly sensitive detection system for C-reactive protein based on nano-structural change of enzyme-aptamer complex"

Kazunori Ikebukuro Professor, Tokyo University of Agriculture and Technology

"Development of a platform technology for the preparation of highly efficient biocatalysts using thermostable enzymes"

Ryuichi Hirota Assistant Professor, Hiroshima University

"Protein crystallization in semi-solid agarose gel for the development of medicines"

Hiroyoshi Matsumura Associate Professor, Osaka University

"Cell sorting on photo-cleavable PEG-lipid surfaces"

Satoshi Yamaguchi Assistant Professor, The University of Tokyo



JBA Award in 2011

"ASPEX technology (Fission yeast-based protein expression system) and its business development"

Hiromichi Kumagai

Asahi Glass Co., Ltd. ASPEX Division

Dr. Hiromichi Kumagai



Fermentation and Metabolism Research Grant in 2011

"Actinomycetes secondary metabolism for innovation in natural medicines"

Shigeru Kitani Assistant Professor, Osaka University

"Rapid construction of unusual peptide libraries by integrating in vitro translation system and post-translational enzymes"

Yuki Goto Assistant Professor, The University of Tokyo

"Clarification of tolerance mechanisms to environmental stress in industry yeast and application to food and environmental industries"

Jun Shima Professor, Kyoto University





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