# The Report

## The Second Advisory Council Meeting of the RIKEN BioResource Center

## April 17-19, 2006

**Dr. Brown Dr. Guenet Dr. Kuroki Dr. Paigen Dr.Takahata**
**Dr. Eguchi Dr. Sugano Dr. Nagai Dr. Watanabe**

**April 17-19, 2006**
**RIKEN Tsukuba Institute**

Two Council Members, Drs. Koornneef and Old were absent from the picture but participated in the meeting through mail review and discussion. A Specialist Dr. Okada was also absent from the picture.

# Contents

# List of the RIKEN BioResource Center Advisory Council Members

| | |
|---|---|
| Dr. Stephen D.M. Brown | Director<br>Mouse Genome Center, Medical Research Council,<br>U.K. |
| Dr. Goro Eguchi | President<br>Educational College of Shokei,<br>Japan |
| Dr. Jean-Louis Guenet** | Director<br>Unite de Genetique des Mammiferes, Institute Pasteur,<br>France |
| Dr. Maarten Koornneef | Professor<br>Laboratory of Plant Genetics, Wageningen University,<br>Netherlands |
| Dr. Toshio Kuroki | President<br>Gifu University,<br>Japan |
| Dr. Yoshitaka Nagai* | Professor Emeritus<br>The University of Tokyo,<br>Japan |
| Dr. Lloyd J. Old | Chairman of the Board<br>Ludwig Institute for Cancer Research,<br>U.S.A |
| Dr. Kenneth Paigen | Former President<br>The Jackson Laboratory,<br>U.S.A |
| Dr. Haruo Sugano | Institute Director Emeritus<br>The Cancer Institute<br>Japanese Foundation for Cancer Research,<br>Japan |
| Dr. Naoyuki Takahata | Vice President<br>The Graduate University For Advanced Studies,<br>Japan |

* Chairperson
** Vice Chairperson

## Specialists Appointed by the Chairperson

Specialist for Experimental Plants

| | |
|---|---|
| Dr. Kiyotaka Okada | Professor<br>Kyoto University,<br>Japan |

Specialist for Microorganisms

| | |
|---|---|
| Dr. Makoto Watanabe | Professor<br>University of Tsukuba,<br>Japan |

# The Report

# The Second Meeting
# The Advisory Council of RIKEN BioResource Center

**April 17-19, 2006**

## GENERAL COMMENTS ON THE ACTIVITIES AND POLICIES OF THE RIKEN BRC OVER THE LAST TWO YEARS

The Advisory Council (AC) of the BioResource Center (BRC) noted with great satisfaction the substantial progress that has been achieved over the last two years compared to the situation at the first Advisory Council meeting. Progress has been remarkable, and the BRC is stronger and more solid than before. At the same time it has also expanded into a wider variety of research. The Director and his staff are to be congratulated for these achievements.

At this occasion, the Advisory Council wishes to address its warmest congratulations to the founding director Professor Moriwaki for leading the RIKEN BRC so efficiently, infusing a spirit that is favorable to the harmonious development of its activities. The AC also expresses its great satisfaction for the appointment of Professor Obata as Director. This will guarantee continuation of the same spirit of innovation and efficiency. During the AC meeting Dr. Obata provided precise and concise explanations of the general activities of the BRC and showed a firm grasp of the issues the BRC faces.

It is clear that most of the divisions now have coherent projects and most of them are developing interesting, even outstanding research activities, which in many instances complement their service activities. Specific comments on these activities are addressed later in this report.

## SPECIFIC SUGGESTIONS AND ADVICES

With an ever-increasing world-wide level of genomics research it is clear that the

demands the national and international research communities will place on the RIKEN BRC are likely to increase dramatically in the next years. For this reason, the AC warns the management of BRC as well as all the division leaders that they must be prepared for this dramatic expansion. New technologies and increased efficiencies will be needed to meet this increased demand.

The BRC should be prepared to introduce and develop new scientific developments and new technologies as they appear in the near future. For example, several projects with the aim to generate many new mutations in the mouse (ideally one in every gene of the genome) are going on world wide, including in Japan and this will have a profound impact on the activities of the BRC.

Other important techniques, including *in vivo* and molecular imaging at the cell level will also develop. The advisory council hopes that these techniques will be fully exploited in the future at BRC.

The BRC is to be congratulated for its efforts in developing international cooperation with similar institutions in the neighboring Asiatic countries. These efforts will have a strong, positive influence on the progress and importance of the RIKEN BRC and will enrich the various resources as scientific research progresses in these countries. At the same time, it increases the load of new responsibilities for the RIKEN BRC.

A major issue that should be mentioned in this final report is the funding of the RIKEN BRC activities. The advisory council insists on the fact that this resource centre is an essential tool for the development of Science, not only in Japan but also at the international level. The consensus feeling of the advisory council is that it is absolutely necessary that stable funding be insured at an optimal level to guarantee future activities.

The AC considers that there is also a need for the hiring of young, active research staff, to maintain and improve the current activity at BRC.

It is also suggested that a system of internal self evaluation be established.

## SPECIFIC COMMENTS AND RECOMMENDATIONS TO DIVISIONS AND TEAMS ON POLICY AND PRACTICE

### A. Experimental Animal Division

**Achievement**

The Experimental Animal Division has made good progress in establishing a major international archive of mouse mutants and strains that is currently working well in delivering mice within the wider Asian genetics community. Operating procedures are now well established and the BRC is providing an efficient service.

The mouse strain collection, especially the wild-derived mouse and ENU mutant strains are unique, and highly complimentary to the collections of other resource centers.

**Progression and Recommendations**

However, as noted earlier, this division is facing several major challenges as a consequence of efforts in Europe, Canada and the US to create ES cell mutant resources for every gene in the mouse genome. Demand from the wider biomedical sciences communities for access to mice from these comprehensive ES cell mutant libraries will be very significant. Given that many of the mutant libraries are being constructed as conditional mutants there will be a commensurate increase in the demand for access to Cre expressing lines. We recommend that the Director and the leaders of this division put in place a strategic plan that prepares the BRC to meet this challenge, preparing the BRC for the enormous increase in resources that will need to be stored and distributed. We recommend that the strategic plan incorporates the following elements:

- Provide the infrastructure to store a very large number of cryostrains (>25,000) as ES cells, embryos, sperm, etc.
- Develop the infrastructure and expertise to re-derive large numbers of lines from ES cells, to deliver live mice to users, and to undertake the re-archiving of the re-derived mice as frozen embryos. We cannot expect most users to have the capability or infrastructure for converting frozen genomes to live animals.
- Create a large, parallel archive of Cre expressing strains encompassing a variety of tissue-specific promoters, either by the capture and import of existing strains or through internal efforts (see Gene Engineering Division).
- Assess the balance between maintaining live versus frozen stocks, particularly for frequently requested mice and implement service accordingly.

- Continue to maintain and develop close interactions between this division and the Bioresource Engineering Division, ensuring that all aspects of new strategic directions are underpinned by improving the effectiveness of archiving and re-deriving mice.
- Cooperation with Dr. Ogura's team to develop new techniques for germplasm preservation.

**B. Experimental Plant Division**

**Achievement**

The Experimental Plant Division achieved good progress in collection and distribution of a large number of unique full-length cDNA clones and seed resources of a model plant, Arabidopsis, including transposon-tagged lines, enhancer-trap lines, EMS mutants, and wild accessions. In addition to the global delivering service, this division provided reliable cryopreservation technology useful for cultured cell lines, and held a training course to transfer this technology to the community. The operations are efficient and well established.

The plant division has an important role both as resource center and as provider of a technical platform for hormone and metabolic profiling.

The awarding of the special prize of the Botanical Society of Japan cannot be interpreted in any other way than that the plant science community in Japan appreciates the role of the center.

**Progression and recommendations**

Additional care and support are required to enhance the value of the plant resources of BRC, such as a backup system and quality checking system, and resource-based technology. There is also a need for a unified database with metabolomic and genomic data being generated by other units of RIKEN. This should be developed by the Bioresources Information Division with assistance from the Experimental Plant Division.

The subject of this division has started to change from model plant to crops, a timely shift corresponding to the shift of research interest of the user community and growing

demand from the agricultural industry. Accumulated knowledge and resources from Arabidopsis could be utilized for translational research for the shift to crops. However, careful search and discussion with the community is required for the selection of crop species. Only in case where there is a need to supply such materials for a species that is not covered by other centers, the BRC is a suitable place to start a distribution system. This will be easy to organize because the infrastructure is already in place.

It would be useful that the BRC will distribute some important international core collections such as the Nordborg and INRA. At present nothing seems to have changed with this collection since it took over the materials and WebPages of the SASSC (last updated in 2004). Additional information on the geographical parameters (latitude, longitude, altitude etc) would be useful.

Furthermore it should be possible to organize that in the TAIR ecotype query one also can get the BRC accessions. This is a matter of discussion with the TAIR database. To genotype the available 400 accessions with SSR markers and also test their response to various stresses is a very useful task for a resource center. For this it is extremely important that the materials (which are to large extend – the AIS collection – identical to materials in the other centers) are well described and comparable with what is available under the same name in the other centers.

Cryo preservation seems a useful teaching item. One can forsee that also courses on metabolic profiling might be useful. Handling Arabidopsis could be another topic.

**C. Cell Engineering Division**

**Achievement**

- Large collection of human cell lines, including malignant tumor cell lines.
- Large collection of rat tumor cell lines.
- Mouse embryo stem cells
- Mesenchymal stem cells
- Cell bank of human ES cells

This division performed well and mostly achieved expected aims by serious efforts of faculty and supporting staffs. Particularly results accumulated in recent two years can be highly appreciated.

**Progression and recommendations**

Activities of this division are very high. Many researchers appreciate and use the resources of this division. The upper two collections are continuous works and the latter three are new. Both the human and mouse ES cell collections are not enough and it is important and urgent to increase them. The mesothelioma collection is also highly appreciated.

International collaboration should be much more promoted, paying special attention to the situation of bioresources and relating researches in Asian counties.

SNP (Hap Map) project listed as a future plan in Japanese – specific Bank is very interesting and should be studied and developed.

Translational research is one of internationally noticed trend in the field of clinical medicine and also one of the emphasized problems of the Japanese Government. It seems that research and development for translational resources should be accelerated.

Research and development of bioresources, which must be requested for promotion of system biology, are also important, because Japanese activities of system biology is rather high and closely related research projects are now-going to start in Japan.

**D. Gene Engineering Division**

**Achievement**

Implementation of previous recommendations is excellent and to be commended.

**Progression and recommendations**

The DNA resources provided by this division are absolutely essential to the wider research community and clearly the use of the resource has increased significantly over the last few years. The BRC has responded well to the needs of its users and is serving its market well.

The AC recommends that this division:

- Prepare and maintain a DNA bank from a large group of both traditional and wild mouse inbred strains for dissemination to the community.
- Consider additional approaches to the construction of a Cre-zoo. They should also consider techniques that utilize a cassette exchange approach based on gene-traps obtained from ES cell lines.

**E. Microbe Division/Japan Collection of Microorganisms**

**Achievement**

The Japan Collection of Microorganisms (JCM) was established in 1978 and was consolidated into the BRC as the Microbe Division in 2004.

It is highly evaluated that the division has excellently achieved as one of the core microbial resource centers nationally and internationally.

**Progression and recommendations**

Although a variety of microorganisms has been collected, preserved and distributed, the activities should be concentrated into microorganisms related to health and environmental problems. In particular, it is needed to collect and preserve the microorganisms which can degrade man-made compounds such as chemicals that often cause harmful influences on human health and ecosystems. To ensure adequate expansion of the environmental microbial resources in balance with demand, the Microbe division will require good young scientific staff well aware of the most recent developments in the fields of environmental sciences.

Considering the fact that only less than 1% of microorganisms in the natural environments have been cultured, the Microbe Division should develop new isolation and culture technologies, as well as identification technology. In addition, in order to isolate and preserve the microorganisms useful for environmental improvement, the division should develop the screening methods.

In the past, the Microbe Division established an international network of microbial resources among Asian countries in collaboration with many universities and institutes in Japan. The re-establishment of this national and international collaboration is needed.

## F. Bioresource Information Division

### Achievement

It was suggested to develop phenotype ontologies (multi-functional retrieval system) for the mouse as well as a service system, not only for the BRC resources but also for resources in any other established resource centers. There was an urgent need for providing one-stop shops to search globally for bioresources. These suggestions and recommendations were partly achieved.

### Progression and recommendations

The Bioresource Information Division faces major new challenges that will require innovative and expanded efforts. Some of these include improved databases describing resources BRC provides for each model organism, establishing links to databases elsewhere, and means of correlative types of data among resource samples. These require introduction of phenotype ontologies and sample identifiers that allow linkage to other databases. These needs will expand dramatically as the resource collection expands, especially with the introduction of thousands of new mouse mutants.

We encourage the Division to develop a new strategic plan to address these new challenges as well as to establish a special external review committee of expert bioinformatics specialists to provide a high level of expertise for the evaluation of the Division's activities.

A current problem in this division appears to be weak connection between “service” and “research.” The researchers could not publish enough scientific papers during the past two years. Since, unfortunately, “service” is not evaluated academically, the incentive for “service” may decline.

It would be advisable to increase the number of staff and allow them to do more scientific work. A good candidate field for such work within the framework of the BRC appears to be “comparative genomics.” If this is implemented, the activities of the division will increase and play an important role in unifying the various other activities of the BRC.

## G. Bioresource Engineering Division

### Achievement

This division is to be congratulated on a number of excellent developments. The various developments in microinsemination, including the use of immature stem cells, as well as sperm from frozen carcasses, is an important underpinning to maintaining and extending the mouse archive.

### Progression and recommendations

The developments in generating germ line stem cells are particularly exciting and potentially offer the prospect of mutagenesis in a wide variety of genetic backgrounds. We recommend that this division makes contact with the various mouse mutagenesis groups worldwide to explore the potential of germ line stem cells for large-scale genome-wide mutagenesis.

Cloning of the mouse is a very useful strategy that is mastered in RIKEN.

## H. Technology and Development Team for Mammalian Cellular Dynamics

### Achievement

The Advisory Council was impressed by the recent contribution from this team in terms of genotyping and functional analysis of embryonic stem cells. The establishment of a BAC library (2 x $10^5$ clones – 11 coverage) of strain MSM/Ms, a wild strain of Japanese origin, allowed to perform high resolution genotyping of the same strain MSM and to compare the SNP pattern of this strain with the reference strain C57BL/6, indicating with high precision which chromosomal segments were inherited from the ancestral subspecies *Mus musculus molossinus*.

### Progression and recommendations

Genotyping will be applied to several other inbred strains in the near future and will presumably reveal a different arrangement of the chromosomal segments inherited from the ancestral progenitor. This will have the greatest impact on the analysis of certain quantitative traits including susceptibility to common diseases among the common inbred strains. The Advisory Council strongly supports these initiatives which are, at the same time, extremely original and up-to-date and very useful for the mouse community.

Analysis of the methylation pattern of the CpG regions in developing embryonic cells is also very original approach, which may reveal helpful for a better understanding of gene regulation during development. Considering their likely impact on some aspects of mouse (mammalian) genetics and their originality, the Advisory Council strongly recommends these two projects for continuous support. The SNPing of several other inbred strains is encouraged and should be done after discussion with other laboratories involved in similar strategies.

## I. Technology and Development Team for BioSignal Program
## Subteam for BioSignal Integration

### Achievement

It was pointed out by the last Advisory Council that the goals of this subteam were ambitious, and it was recommended that a clear plan and focus should be developed. Following these recommendations, substantial improvements have been made by focusing on the NF-κB signaling pathway. It is fortunate that the NF-κB family consists of only five members—a small multigene family—because this allowed the team to examine double KOs of the members in all combinations.

### Progression and recommendations

It is to be noted that functional assays of double KOs exploited the mouse collection in the BRC. This research illustrates the attraction the genetic resources of the BRC will provide in recruiting new researchers here. Whereas there was no special technology development, the research will provide novel resources on immune diseases, apoptosis and development.

## J. Technology and Development Team for BioSignal Program
## Subteam for Manipulation of Cell Fate

The lentivirus vector and hematopoietic stem cell studies are very innovative. The lentivirus developments are likely to have a major impact on the development of new resource techniques. This work should be strongly encouraged.

# Responses of the BRC to the General Comments, Specific Suggestions and Advices by the Second BRC Advisory Council Meeting

**General Comments**

AC: The Advisory Council (AC) of the BioResource Center (BRC) noted with great satisfaction the substantial progress that has been achieved over the last two years compared to the situation at the first Advisory Council meeting. Progress has been remarkable, and the BRC is stronger and more solid than before. At the same time it has also expanded into a wider variety of research. The Director and his staff are to be congratulated for these achievements.

At this occasion, the Advisory Council wishes to address its warmest congratulations to the founding director Professor Moriwaki for leading the RIKEN BRC so efficiently, infusing a spirit that is favorable to the harmonious development of its activities. The AC also expresses its great satisfaction for the appointment of Professor Obata as Director. This will guarantee continuation of the same spirit of innovation and efficiency. During the AC meeting Dr. Obata provided precise and concise explanations of the general activities of the BRC and showed a firm grasp of the issues the BRC faces.

It is clear that most of the divisions now have coherent projects and most of them are developing interesting, even outstanding research activities, which in many instances complement their service activities. Specific comments on these activities are addressed later in this report.

BRC: RIKEN BRC aims to become one of the finest biological resource centers in the world. With the three principles of operation of the BRC, “Trust”, “Sustainability”, “Leadership”, the BRC shall increase variety and quantity of biological resources and also improve their quality. To accomplish these goals, the BRC must make every effort to have (1) support from scientific community, RIKEN and government, (2) secure and sustainable funding, (3) outstanding research and technical staff, (4) capability of research and development, (5) international cooperation and (6) sufficient equipments and facilities.

**Specific Suggestions and Advices**

**【Increasing Bioresources】**

AC: With an ever-increasing world-wide level of genomics research it is clear that the demands the national and international research communities will place on the RIKEN BRC are likely to increase dramatically in the next years. For this reason, the AC warns the management of the BRC as well as all the division leaders that they must be prepared for this dramatic expansion. New technologies and increased efficiencies will be needed to meet this increased demand.

BRC: In order to have the capacity of managing expected dramatic increase of bioresources, BRC shall develop innovative technologies for secure preservation and recovery of enormous qualities and varieties of biological resources. In addition, the BRC shall improve efficiency of its operation and allocate appropriate and necessary staff and funds to such activities.

**【New Scientific Developments and New Technologies】**

AC: The BRC should be prepared to introduce and develop new scientific developments and new technologies as they appear in the near future. For example, several projects with the aim to generate many new mutations in the mouse (ideally one in every gene of the genome) are going on world wide, including in Japan and this will have a profound impact on the activities of the BRC.

BRC: By paying close attention to the trend of national and global science, the BRC shall conduct research and develop on biological resources and relevant technologies. For this purpose, the RIKEN BRC shall collaborate with scientists within RIKEN and outside research institutes. Consolidated efforts will be made together with National Projects operated by the Ministry of Education, Culture, Sports, Science and Technology (MEXT).

**【Technology Development】**

AC: Other important techniques, including *in vivo* and molecular imaging at the cell level will also develop. The advisory council hopes that these techniques will be

fully exploited in the future at the BRC.

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| BRC: Collaboration among Divisions and Teams with in the BRC and cooperation with other research institution including private sectors should be promoted to develop novel technologies for characterization of biological resources. |

**【International Cooperation】**

AC: The BRC is to be congratulated for its efforts in developing international cooperation with similar institutions in the neighboring Asiatic countries. These efforts will have a strong, positive influence on the progress and importance of the RIKEN BRC and will enrich the various resources as scientific research progresses in these countries. At the same time, it increases the load of new responsibilities for the RIKEN BRC.

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| BRC: With long rang perspective, the BRC will solidify the cooperation with institutions with similar mission in Asia. The BRC will take the initiative to build an Asian network of biological resources with these Asian institutions. |

**【Stable Founding】**

AC: A major issue that should be mentioned in this final report is the funding of the RIKEN BRC activities. The advisory council insists on the fact that this resource centre is an essential tool for the development of Science, not only in Japan but also at the international level. The consensus feeling of the advisory council is that it is absolutely necessary that stable funding be insured at an optimal level to guarantee future activities.

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| BRC: Support from the research community is the most effective way to ensure sustainable funding for the BRC operation. Based on their support, the BRC must convince RIKEN and Government that the BRC is the essential infrastructure for advancement of science and is worth maintaining. In addition, increase and diversification of the source of funding, including user's fee is important for future stable operation of the BRC. |

**【Recruitment】**

AC: The AC considers that there is also a need for the hiring of young, active research staff, to maintain and improve the current activity at the BRC.

BRC: Continuous hiring of research and technical staff managing biological resources directly leads to the continuous accessibility of biological resources. By recruiting appropriate tenured or contract staff, the BRC should meet the demands from research community. These are many cases that appropriate staff cannot be found outside, thus the education and training of the staff within the BRC is necessary.

**【Self Evaluation】**

AC: It is also suggested that a system of internal self evaluation be established.

BRC: All Divisions Teams and all employees of the BRC should make their own goals to be achieved and should make self-evaluation annually. The BRC management should help and guide Divisions, Teams and each employee to achieve their goals. The aims of the BRC are quite different from those of ordinary research institutions, consequently the items for evaluations are needed set by the BRC. Establishment of such self-evaluation system in the BRC will encourage the staff involved in this important but unique mission of building scientific infra – to be structure.

**Appendix 1**

# The Second Advisory Council Meeting of the RIKEN BioResource Center April 17-19, 2006

## AGENDA

### RIKEN TSUKUBA INSTITUTE & OKURA FRONTIER HOTEL TSUKUBA

Monday, April 17 — 1st day —

9:30 *Leave from the Hotel to RIKEN by Microbus*

**RIKEN TSUKUBA INSTITUTE**

10:00～10:05 *Greetings*
***Director of RIKEN Tsukuba Institute: Mr. Shin OHKOUCHI***

10:05～10:20 *Opening remarks: Outline of RIKEN*
***Executive Director of RIKEN: Dr. Yoshiharu DOI***

10:20～10:30 *Logistics of the meeting and Assignment of Chief Contributors*
***Dr. Yoshitaka NAGAI***

10:30～12:30 *Activities of the RIKEN BioResource Center*
***Former Director: Dr. Kazuo MORIWAKI***
***Director: Dr. Yuichi OBATA***

12:30～13:30 *Lunch at BioResource Center 1F 103,105*

13:30～17:30 *Activities of each Division and Team*

13:30～14:00 *Experimental Animal Division*
***Dr. Atsushi YOSHIKI***

14:00～14:30 *Bioresource Engineering Division*
***Dr. Atsuo OGURA***

14:30～15:00 *Technology and Development Team for Mammalian Cellular Dynamics*
***Dr. Kuniya ABE***

15:00～15:30 *Coffee break*

15:30～16:00 *Technology and Development Team for BioSignal Program*
*Subteam for BioSignal Integration*
***Dr. Takahiro DOI***

16:00～16:30 *Microbe Division / Japan Collection Microorganisms*
***Dr. Yoshimi BENNO***

16:30～17:00 *Gene Engineering Division*
***Dr. Kazunari K.YOKOYAMA***

17:00～17:30 *General discussion*

17:45 *Leave from RIKEN to the Hotel by Microbus*

**Room "YUBAE" (HOTEL Annex 2nd Floor)**

20:00～ *P.C. equipments & coffee available*

Tuesday, April 18 － 2nd day －

9:30 *Leave from the Hotel to RIKEN by Microbus*

**RIKEN TSUKUBA INSTITUTE**

10:00～12:00 *Activities of each Division and Team*

10:00～10:30 *Experimental Plant Division*
***Dr. Masatomo KOBAYASHI***

10:30～11:00 *Cell Engineering Division*
***Dr. Yukio NAKAMURA***

11:00～11:30 *Technology and Development Team for BioSignal Program*
*Subteam for Manipulation of Cell Fate*
***Dr. Hiroyuki MIYOSHI***

11:30～12:00 *Bioresource Information Division*
***Dr. Kaoru FUKAMI***

12:00～13:00 *Lunch at BioResource Center 1F 103,105*

13:00～14:00 *General discussion*

14:15 *Leave from RIKEN to the Hotel by Microbus*

**Room "YUBAE" (HOTEL Annex 2nd Floor)**

15:30～18:00 *Preparation of Council Report :* ***Advisory Council Members only***

**Room "YUBAE" (HOTEL Annex 2nd Floor)**

20:00～ *P.C. equipments & coffee available*

22:00 *Submit comments and recommendations to Mr. Yoshida*

Wednesday, April 19 － 3rd day －

**Room "YUBAE" (HOTEL Annex 2nd Floor)**

9:00～11:00 *Preparation of Council Report :* ***Advisory Council Members only***

11:00～11:30 ***Summary of Council Report from the RIKEN BRC Advisory Council***

11:30～11:40 *Closing remarks* ***by Dr. Yoshitaka NAGAI***

11:40～ *Lunch at the Room "HOKUTO" (Hotel Annex 2nd Floor)*

**Appendix 2**

**The Second Advisory Council Meeting**
**of the RIKEN BioResource Center**
**April 17-19, 2006**

# The Major Items for Comments and Recommendations on the Policy and Practice of the RIKEN BioResource Center

**Item 1. Overall activities and policies of the RIKEN BRC**

1) Performance of the Center in last five years since its establishment and in last two years since the last Advisory Council meeting
2) Implementation of the comments and recommendations made by the Advisory Council in 2004
3) Policies for future development of the Center
    i) Variety of bioresources
    ii) Research and development
    iii) International collaboration
    iv) Sustainable operation
    v) National role of the BRC
    vi) Sustainable funding
    vii) Faculty and supporting staff
    viii) Facilities
    ix) Infrastructure [IPR, Ethics, PR, International relationship and Quality control (ISO, OECD)]

**Item 2. Activities of Experimental Animal, Experimental Plant, Cell Engineering, Gene Engineering, and Microbe Divisions. The main objectives of these Divisions are collection, maintenance, preservation and distribution of bioresources.**

1) Past performance and accomplishments
2) Implementation of comments and recommendations by the Advisory Council
3) Issues for future development
    i) Varieties of resources
    ii) Quantity
    iii) Quality

iv) Research and development
v) Education and training
vi) International collaboration

**Item 3. Activities of Bioresource Information Division.**

1) Past performance and accomplishments
2) Implementation of comments and recommendations by the Advisory Council
3) Issues for future development
    i) Research and development necessary for the main activities of the Center (i.e. collection, preservation and distribution of bioresources)
    ii) Development for a better communication with the BRC users
    iii) Research and development for Bio Digital Contents
    iv) Development of human resource for bioresource informatics
    v) International collaboration

**Item 4. Activities of Bioresource Engineering Division.**

1) Past performance and accomplishments
2) Implementation of comments and recommendations by the Advisory Council
3) Education and training
4) Issues for future development: Research and development necessary for the main activities of the Center
    i) Technology development
    ii) Demonstration of best use of the bioresources
    iii) Development of novel bioresources

**Item 5. Technology and Development Teams.**

1) Past performance and accomplishments
2) Implementation of comments and recommendations by the Advisory Council
3) Issues for future development: Research and development necessary for the main activities of the Center
    i) Technology development
    ii) Characterization of bioresources
    iii) Demonstration of best use of the bioresources
    iv) Development of novel bioresources

**Appendix 3**

# The Second Advisory Council Meeting of the RIKEN BioResource Center April 17-19, 2006

## Assignment of Chief Contributors for Summarizing Comments and Recommendations on the Policy and Practice of the RIKEN BioResource Center

**Item 1. Overall activities and policies of the RIKEN BRC** **Drs. Nagai/Guenet**

1) Performance of the Center in last five years since its establishment and in last two years since the last Advisory Council meeting
2) Implementation of the comments and recommendations made by the Advisory Council in 2004
3) Policies for future development of the Center
   - i) Variety of bioresources
   - ii) Research and development
   - iii) International collaboration
   - iv) Sustainable operation
   - v) National role of the BRC
   - vi) Sustainable funding
   - vii) Faculty and supporting staff
   - viii) Facilities
   - ix) Infrastructure [IPR, Ethics, PR, International relationship and Quality control (ISO, OECD)]

**Item 2. Activities of Experimental Animal, Experimental Plant, Cell Engineering, Gene Engineering, and Microbe Divisions**
**The main objectives of these Divisions are collection, maintenance, preservation and distribution of bioresources.**

| | |
|---|---|
| **Experimental Animal Division** | **Dr. Paigen** |
| **Experimental Plant Division** | **Dr. Okada** |
| **Cell Engineering Division** | **Dr. Sugano** |
| **Gene Engineering Division** | **Dr. Eguchi** |
| **Microbe Division** | **Dr. Watanabe** |

1) Past performance and accomplishments
2) Implementation of the comments and recommendations by the Advisory Council
3) Issues for future development
    i) Varieties of resources
    ii) Quantity
    iii) Quality
    iv) Research and development
    v) Education and training
    vi) International collaboration

**Item 3. Activities of Bioresource Information Division** **Dr. Takahata**

1) Past performance and accomplishments
2) Implementation of comments and recommendations by the Advisory Council
3) Issues for future development
    i) Research and development necessary for the main activities of the Center (i.e. collection, preservation and distribution of bioresources)
    ii) Development for a better communication with the BRC users
    iii) Research and development for Bio Digital Contents
    iv) Development of human resource for bioresource informatics
    v) International collaboration

**Item 4. Activities of Bioresource Engineering Division** **Dr. Brown**

1) Past performance and accomplishments
2) Implementation of the comments and recommendations by the Advisory Council
3) Education and training
4) Issues for future development: Research and development necessary for the main activities of the Center
    i) Technology development
    ii) Demonstration of best use of the bioresources
    iii) Development of novel bioresources

**Item 5. Technology and Development Teams**

| | |
|---|---|
| **Mammalian Cellular Dynamics** | **Dr. Guenet** |
| **BioSignal Integration** | **Dr. Takahata** |
| **Manipulation of Cell Fate** | **Dr. Kuroki** |

1) Past performance and accomplishments
2) Implementation of the comments and recommendations by the Advisory Council
3) Issues for future development: Research and development necessary for the main activities of the Center
    i) Technology development
    ii) Characterization of bioresources
    iii) Demonstration of best use of the bioresources
    iv) Development of novel bioresources

**Appendix 4**

## The List of the RIKEN Participants

| | |
|---|---|
| Dr. Yoshiharu Doi | RIKEN Executive Director |
| Mr. Shin Ohkouch | RIKEN Executive Director,<br>Director of the Tsukuba Institute |
| Dr. Yuichi Obata | RIKEN BRC Director |
| Dr. Kazuo Moriwaki | RIKEN Special Consultant |
| Dr. Atsushi Yoshiki | Experimental Animal Division |
| Dr. Masatomo Kobayashi | Experimental Plant Division |
| Dr. Yukio Nakamura | Cell Engineering Division |
| Dr. Kazunari Yokoyama | Gene Engineering Division |
| Dr. Yoshimi Benno | Microbe Division/Japan Collection of Microorganisms |
| Dr. Kaoru Fukami | Bioresource Information Division |
| Dr. Atsuo Ogura | Bioresource Engineering Division |
| Dr. Kuniya Abe | Team for Mammalian Cellular Dynamics |
| Dr. Takahiro Doi | Subteam for BioSignal Integration |
| Dr. Hiroyuki Miyoshi | Subteam for Manipulation of Cell Fate |

| | |
|---|---|
| Mr. Satoru Tomita | Research Promotion Division |
| Mr. Masaki Aizawa | Research Promotion Division |
| Mr. David W. Chapmon | DRI/FRS Promotion Division |
| Ms. Susan Murata | General Affairs Division |