

March 13, 2014

To: Ryoji Noyori, RIKEN President

## **Interim Report on STAP Cell Research Paper Investigation**

Research Paper Investigative Committee  
(6 members)

Shunsuke Ishii, Chair

### **1. Circumstances**

On Thursday, February 13, 2014, a RIKEN researcher who had been notified of doubts concerning research papers published by RIKEN scientists contacted the RIKEN Auditing and Compliance Office through one of RIKEN's executive officers. The director of the Auditing and Compliance Office decided that this matter should be handled in compliance with the provisions for reports on research misconduct stipulated in Article 10, paragraph 3 of RIKEN's Regulations on the Prevention of Research Misconduct (September 13, 2012, Reg. 61), and from that same day through February 17, the Office conducted a preliminary inquiry in collaboration with Shunsuke Ishii, and four others. In response to the results of this preliminary inquiry, it was decided to carry out a full investigation as stipulated in Article 12 of the above Regulations, and an Investigative Committee was established on February 17, with Shunsuke Ishii serving as chair.

This interim report covers those items on which the Investigative Committee has reached conclusion, and the preliminary findings for items still under investigation. The Investigative Committee needs to ascertain the facts, but will release its final conclusions as soon as possible.

### **2. Methods and contents of the investigation**

#### **2-1. Purpose of the investigation, items under investigation, and persons being investigated**

The investigation sought to clarify whether or not the following items constituted "research misconduct" as defined in Article 12, paragraph 2 of the above Regulations.

- (1) Obokata, et al, Nature 505:641-647 (2014) (Paper 1)
  - (1-1) Unnatural appearance of colored cell parts shown by arrows in d2 and d3 images of Figure 1f.
  - (1-2) In Figure 1i, lane 3 appears to have been inserted later.
  - (1-3) A part of the Methods section on karyotyping appears to have been copied from another paper.
  - (1-4) A part of the procedures described in the Methods section on karyotyping appears to be different from the actual procedures used in the experiment.
  - (1-5) The images for Figures 2d and 2e appear to be incorrect, and closely

resemble images in Dr. Obokata's PhD dissertation.

Haruko Obokata (lead author, corresponding author), Yoshiki Sasai (co-author), Teruhiko Wakayama (co-author), and Hitoshi Niwa (co-author)

- (2) Obokata, et al, Nature 505: 676-680 (2014) (Paper 2)  
(2-1) There is a strong resemblance between the rightmost panel in Figure 1b and the lower panel in 2g, both showing fluorescence in mice placenta.

Haruko Obokata (lead author, corresponding author), Yoshiki Sasai (corresponding author), Teruhiko Wakayama (corresponding author), Hitoshi Niwa (co-author)

## **2-2. Individuals being investigated**

The individuals being investigated held the following positions at the time that the papers in question were being prepared.

### *Haruko Obokata*

Research Unit Leader of the Laboratory for Cellular Reprogramming, RIKEN Center for Developmental Biology

### *Yoshiki Sasai*

Group Director of the Laboratory for Organogenesis and Neurogenesis, RIKEN Center for Developmental Biology

### *Teruhiko Wakayama*

Previously Team Leader of the Laboratory for Genomic Reprogramming, RIKEN Center for Developmental Biology, currently professor at the Faculty of Life and Environmental Sciences, University of Yamanashi

### *Hitoshi Niwa*

Project Leader of the Laboratory for Pluripotent Stem Cell Studies

## **2-3. Investigation methods**

From February 20 through March 12, 2014, the Investigative Committee analyzed and examined the relevant materials and conducted interviews with the individuals concerned.

The materials included the original data of the experiments described in the papers, lab notes, files showing the process of creation of the papers, notes provided by the individuals being investigated, emails exchanged between the individuals being investigated, and equipment that was used in the experiments.

In addition, opinions regarding the reconstruction of the imaging data were solicited from Professor Akihiko Nakano, Laboratory of Developmental Cell Biology, Department of Biological Sciences, Graduate School of Science, University of Tokyo, who is also Team Leader of the Live Cell Molecular Imaging Research Team, RIKEN Center for Advanced Photonics, and an authority on imaging.

The Investigative Committee based its inquiry on examinations of these materials and interviews.

## **2-4. Results of investigation (items for which conclusions were reached)**

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| (1) Paper 1: Unnatural appearance of colored cell parts shown by arrows in d2 and d3 images of Figure 1f. |
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### Results of investigation

Dr. Obokata stated that she performed the live imaging, from which the still images published in the paper were made, that she submitted these as compressed images, that the original images in the submitted manuscript contained no distortion, that she did not notice the presence of distortion in the published images, and that she does not know why such distortions were generated.

The submitted original live imaging data was examined. Upon reproducing the images on several computers, it was confirmed that the images submitted with the manuscript contained no distortion, while the images in the published papers contained some distortion.

Dr. Akihiko Nakano explained the possible causes of the distortion as follows. Although it was not possible to create identical still images as those in the paper from the submitted live imaging, very similar images were created. Distortions result when the resolution is decreased and the images are compressed using JPEG or some other method. Reproducing the same distortion is difficult, because it depends on the degree of the compression. Therefore, if the distortions were generated in the process of figure preparation at the Nature editorial office, it is difficult to accurately reproduce those distortions. It is possible, along with compression, for block noises to be generated that cause the appearance of colors that are not in the original image. Given these reasons, it can be concluded that the published images constitute single frames captured from the live imaging.

#### Opinions

It is reasonable to conclude that the still images published in the papers were generated from the submitted live imaging. The images in the submitted manuscript contained no distortions, but distortions are evident in the published images. It is plausible these distortions were produced during figure processing at the Nature editorial office. Block noise, which can be generated during compression, is a widely known phenomenon. Therefore, it is judged that there was no falsification in the process of generating the images in question from the live imaging.

(2) Paper 2: Regarding the images of fluorescence in mice placenta, the rightmost panel in Figure 1b is very similar to the lower panel in Figure 2g.
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#### Results of investigation

Dr. Wakayama explained that these were two photos of the same chimera mouse generated from STAP cells, taken from different angles by Dr. Wakayama himself. He explained that he handed them to Dr. Obokata as electronic files after labeling them and including them with other chimeric embryo images.

Dr. Obokata explained that she obtained the two images from Dr. Wakayama, and with Dr. Sasai used them in preparing the figures for the paper. During the preliminary production of the paper, they inserted the image under Fig. 2g as a control for comparison between STAP cells and the FI stem cells. Then, in the process of writing by Dr. Sasai, the structure of the paper changed, the order of the figures changed, and the image became unnecessary, so a decision was made not to include it. However, it was explained that they forgot to remove the image when they were editing the figures for the paper. In addition, Dr. Sasai explained that the paper was submitted without him realizing the image had not been deleted, and that he failed to notice this during the editing and proofreading processes. He also explained that he neglected to instruct Dr. Obokata to delete the figure.

The bottom image of Figure 2g shows placenta GFP expression, but both the text

and caption only refer to embryo GFP expression, which only explains the top image of Figure 2g. The Investigative Committee was also presented with date-stamped files showing the original structure of the figures with the location of the images and copies of the corresponding lab notes.

### Opinions

The fluorescence placenta in Figure 1b (right panel) and that in Fig. 2g (bottom panel) are images that originated from the same chimera. There are, however, other images in the paper that are not referred to, either in the text or the figure legends, and it is possible to surmise that the bottom panel of Fig. 2g was included to show the existence of GFP-positive cells. Still, considering the fact that not all versions of the paper's editing were preserved so that the Investigative Committee could reconstruct the exact process as had been explained, it is plausible, given the date-stamped file data described above, that there was a previous version with the figures in a different position. As has already been pointed out, there are other images in the paper that are not referred to, either in the text or figure legends. Further investigation suggests that while there may be other reasons for these omissions besides forgetfulness, there are no materials that directly indicate anything exceeding negligence. Although this could be considered "falsification" as defined in RIKEN's Regulations on the Prevention of Research Misconduct, there is no evidence suggesting anything exceeding negligence, and this, therefore, is not judged to constitute research misconduct.

## **2-5 Progress of investigation (items still under investigation)**

(1) Paper 1: In Figure 1i, lane 3 appears to have been inserted later

### Progress of investigation

Drs. Obokata and Sasai submitted an electronic file of the photos of the gels on which Figure 1i is based, lab notes, and a written explanation of the process and methods used to create the figure. The two were also interviewed separately.

After careful review of all of the information acquired, it was confirmed that Figure 1i is a processed image of 2 photos taken of 2 pulse-field electrophoresed gels. There were a total of 29 samples, with samples 1 through 14 electrophoresed to gel 1 and samples 15 through 29 to gel 2. It was confirmed from the photos of the two gels that lanes 1, 2, 4, and 5 of Figure 1i correspond to lanes 1, 2, 4, and 5 of gel 1, counting from the left (standard DNA size marker is lane 0 on the left), and lane 3 corresponds to lane 1 of gel 2 (standard DNA size marker is lane 0 on the left).

Regarding the image processing, it was confirmed that lane 1 of gel 2 was not simply inserted in the location of gel 1's lane 3, in the photo of lanes 1, 2, 3, 4, and 5. The separation distance of the standard DNA size marker lane in gel 1 is approximately 0.63 times that in the latter gel 2. In preparing Figure 1i, the image of gel 1 was vertically elongated approximately 1.6 times before inserting the image of gel 2's lane 1. This was confirmed by the vertical warping seen in the images of dust in gel 1. A light smear in the photo of gel 2's lane 1 has been erased before insertion, indicating that contrast adjustments were also made.

When Dr. Obokata was queried on this, she explained that lane 1 of gel 2 was the most suitable for clearly showing the rearrangement of T-cell receptor genes as a positive control. She stated that after confirming that the log-scale values of molecular weight and separation distances for the standard DNA size markers had satisfactory linearity in their respective gels, she vertically elongated the photo of gel 1 and decided

on the location for the insertion of lane 3 based on the location data for the standard DNA size marker. Upon verification, it was found that there was no linearity between the log-scale values of molecular weight and separation distances of the standard DNA size markers for gel 1 and gel 2, and that it would have been impossible to position lane 3 on the basis of the standard DNA size marker location data, as had been explained. In addition, her explanation was not supported by the fact that even if the image of lane 3 was positioned in conjunction with the standard DNA size markers located near the T-cell receptor gene rearrangement band group of lane 3 in Figure 1i, the T-cell receptor gene rearrangement band group would be placed differently from the T-cell receptor gene rearrangement band shown in lane 3 of Figure 1i. Contrary to her explanation, if the image in lane 3 is positioned in reference to the position of the T-cell receptor gene rearrangement band group in lane 3 of Figure 1i, a discrepancy appears between the positions of the standard DNA size marker bands in gels 1 and 2. As a result, this suggests that when Figure 1i was processed, it was not the standard DNA size marker bands that were taken as the standard, but rather the lane was inserted to fit with the shape of Lane 4, which is adjacent to the T-cell receptor gene rearrangement band group.

With regard to the electrophoresed samples, from the information provided by Dr. Obokata, including sample tube labels and the lab notes, it was indicated that lanes 1, 2, 4, and 5 in Figure 1i are consistent with the paper, and that the "Lymphocytes" label for lane 3 actually refers to CD45+/CD3+ T lymphocytes.

(2) A part of the Methods section on karyotyping in Paper 1 was found to have been copied from Guo J., et.al.; Multicolor Karyotype Analyses of Mouse Embryonic Stell Cell, in Vitro Cell Dev Biol Anim 41(8-), 278-283 (2005), and this also was investigated.

#### Progress of investigation

Dr. Obokata explained that in the Genomic Reprogramming Research Team under Dr. Wakayama, karyotyping was carried out on a day-to-day basis, but that the protocol used was a very simple one, and deciding that a more detailed explanation was needed, she referred to a paper that explained the protocol in detail, but forgot to include a note. She confirmed that she wrote the Methods section, and while she seemed to vaguely remember copying some part of it, she did not have a copy of the paper from which it was copied, and did not remember the source. The similarity of the text, the fact that Dr. Obotaka was not familiar with the protocol, and that the description in the paper does not correspond exactly to the procedures followed in the actual experiment, lead to the conclusion that the text was somehow copied from the Guo paper.

(3) Dr. Sasai and Dr. Wakayama pointed out that some of the description of karyotyping in the Paper 1 Methods section was different from the actual process used, and should be corrected. This was investigated.

#### Progress of investigation

Dr. Wakayama explained that the karyotyping was carried out by his own staff, and that he gave the data to Dr. Obokata. The preparation of the cell sample was carried out in line with the explanation in the Methods section written by Dr. Obotaka, but Dr. Wakayama explained that his staff carried out the hybridization and imaging using

Applied Spectral Imaging's SKY FISH system, which was different from what was written in the Methods section. The image files, including creation date information, were submitted. Dr. Wakayama explained that this section under Methods had been written by Dr. Obokata, and he surmises that because she did not know the details of the experiment with hybridization and imaging, she gave an incorrect explanation.

(4) Drs. Sasai and Obotaka pointed out that the images for Figures 2d and 2e were incorrect and needed to be changed. This was investigated, along with the fact that these images closely resemble images in Dr. Obokata's dissertation.

#### Progress of investigation

On February 20, the committee was presented by Drs Sasai and Obokata with a request for correction and with supporting documentation. They pointed out that the image used to illustrate Paper 1's assertion that they used STAP cells created out of spleen hematopoietic cells actually showed STAP cells created out of bone marrow hematopoietic cells, and they were thinking of replacing the incorrect image with the correct image. The supporting documentation they provided consisted of documents showing the process of the experiment and date-stamped image files. Dr. Obokata explained that she mistook the images because both the spleen and bone marrow blood cell samples had the same "hemato" (hematopoietic) label. The submitted documentation confirmed that the two experiments had been carried out at completely different times.

At the same time, however, it was found that the above image of the STAP cells created from bone marrow hematopoietic cells very closely resembled an image Dr. Obokata had used in her doctoral dissertation for Waseda University. After a comparison of the image data, there is no denying that the two images come from the same experiment. In her dissertation, Dr. Obokata describes an experiment using pluripotent stem cells, derived from the B6 bone marrow cells of a 3 to 4-week old mouse, which had been passed through a narrow pipette. (They referred to these stem cells as a "sphere"). It can be surmised that the image used in Paper 1—which was now to be corrected—was acquired when preparing the dissertation, and was derived from experiment conditions that differed from those for Paper 1.

It must also be noted that in requesting the correction of the images, no allusion was made to the fact that they came from Dr. Obotaka's dissertation.

### **3. Other issues**

It was verified that part of the bisulphite sequencing description under the Methods section in Paper 1 is similar to text in another paper. The text in question is a short passage of 8 lines referring to primer arrangements and frequently carried out PCR experiments which is described with similar wording in many papers, and therefore cannot be considered to constitute plagiarism.

**Regulations on the Prevention of Research Misconduct**  
**September 13, 2012 Regulation No. 61**  
**Effective October 1, 2012**

*This is a translation of the Japanese and is for information purposes only.*

**Article 1 Purpose**

These regulations set forth the measures necessary to prevent research misconduct among RIKEN's researchers and other personnel, and to provide for prompt and appropriate response in the event that research misconduct takes place or is suspected.

**Article 2 Definitions**

1. In these regulations, the term "researchers" refers to all RIKEN personnel involved in research activities.
2. In these regulations, the term "research misconduct" refers to the occurrence of any of the following in the course of research activities. Inadvertent or unintentional errors and differences of opinion are not regarded as research misconduct.
  - (1) Fabrication: Making up data or results and recording or reporting them.
  - (2) Falsification: Manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.
  - (3) Plagiarism: The appropriation of another person's ideas, processes, results, or words without giving appropriate credit.

**Article 3 Standard of conduct for researchers**

A person involved in research work should take pride in being a researcher and should be aware of the obligations inherent in such a position. The researcher must abide by the following standards.

- (1) Do not commit research misconduct.
- (2) Do not aid or abet research misconduct.
- (3) Do not allow others to commit research misconduct.

**Article 4 Duties of the supervisor**

Supervisors must comply with the following to ensure that research misconduct does not occur within the organization for which they are responsible.

- (1) Properly check all research reports, various data, and research

procedures within the organization.

- (2) Ensure that all subordinates are aware that laboratory notebooks, and any other recordkeeping medium, whether paper-based or electronic, are not the personal property of any one individual but rather belong to RIKEN as defined in Article 3 of the RIKEN Regulation on Management of Research Results (2006, Reg. 10). Also instruct all subordinates on the proper method for making entries in laboratory notebooks.
- (3) Laboratory notebooks, and any other recordkeeping medium, whether paper-based or electronic, must be kept on file even after research results have been published, for a duration designated by RIKEN, so as to be available as reference to other researchers or for investigations.
- (4) When jointly publishing a paper, the share of responsibility between the corresponding author and co-authors should be made clear.

#### **Article 5 Burden of proof**

A RIKEN researcher who is suspected of research misconduct has a responsibility to explain the facts of the case to RIKEN.

#### **Article 6 Individual with overall responsibility**

The executive director in charge of research affairs shall be in charge of all matters pertaining to research misconduct within RIKEN.

#### **Article 7 Point of contact for reporting research misconduct**

The Auditing and Compliance Office shall serve as the contact point for consulting about or reporting research misconduct.

#### **Article 8 Notice of protocols for reporting research misconduct**

RIKEN shall notify all employees and also make public, information on the internal responsible office for reporting research misconduct and the procedures involved in making such reports.

#### **Article 9 Procedures for reporting research misconduct**

1. Incidents of research misconduct may be reported by telephone, email or letter.
2. In reporting an incident, the informant must name the researcher or research group suspected of research misconduct, explain the specific nature of the research misconduct, and present scientific and rational reasons why research misconduct is suspected.

#### **Article 10 Receipt of report on research misconduct**

1. Upon receiving a report of research misconduct, RIKEN must promptly instruct the director of the Auditing and Compliance Office to carry out a



preliminary inquiry.

2. Anonymous reports of research misconduct may be handled using the same procedures as for reports made by known informants.
3. When there is sufficient reason to do so, consultations related to research misconduct may be handled as a report of research misconduct and investigated accordingly.
4. When there is sufficient reason to do so, consultations on preventing research misconduct may lead to an inquiry and the issuing of a warning to those who appear on the verge of research misconduct.
5. Should allegations of research misconduct at RIKEN be voiced by the media, academic societies or other organizations, the matter will be handled in the same way as an internal report of research misconduct.
6. If report of research misconduct relates to research conducted by a RIKEN researcher at another institution, or if the individual suspected of research misconduct has a concurrent post at another institution, RIKEN shall consult with the other institution and, if necessary, carry out a joint investigation with the other institution.

#### **Article 11 Preliminary inquiry**

The director of the Auditing and Compliance Office shall carry out a preliminary inquiry of an alleged case of research misconduct, with the cooperation of experts in the relevant research field within RIKEN. The inquiry's objectives shall be the following.

- (1) Assess whether there is a possibility that research misconduct has actually occurred
- (2) Confirm the scientific and rational grounds for the allegation of research misconduct
- (3) Check whether the duration from the time the relevant research results were made public to the time the research misconduct was reported is within or exceeds the period of time stipulated by RIKEN for keeping laboratory notebooks and other paper or electronic records of data on file, or the period of time considered reasonable for maintaining records within the relevant field of research.

#### **Article 12 Full investigation**

1. Upon completion of the preliminary inquiry of the preceding article, the director of the Auditing and Compliance Office shall promptly report the results to RIKEN.

2. Upon receiving the report, RIKEN shall promptly decide whether or not to carry out a full investigation.
3. Once it has decided to carry out a full investigation, RIKEN must notify both the informant and the subject of the allegation. If the subject of the allegation belongs to another institution, RIKEN must also notify that institution of the decision to investigate.
4. In addition to the matters stipulated in the preceding paragraph, if the research that is being investigated has been funded by another institution or organization, RIKEN must notify the funding party of its decision to investigate.
5. The informant and the subject being investigated must, upon the notification stipulated in paragraph 3 above, cooperate with the investigation.
6. In the event that RIKEN decides not to carry out a full investigation, it must notify the informant and give its reasons for the decision. In this case, RIKEN must be prepared, when requested to do so, to disclose the results of the preliminary inquiry to the informant.

#### **Article 13 Temporary measures**

1. When RIKEN decides to carry out a full investigation, it may temporarily withhold funds for the research under investigation until the investigative committee stipulated in Article 14 has completed its investigation.
2. RIKEN may implement the following measures to safeguard documents and materials relevant to the investigation.
  - (1) Suspend from work the individual or individuals under investigation in accordance with Article 25 of RIKEN's work regulations for Indefinite-term employees (2003, Reg. 33), Article 26 of RIKEN's work regulations for fixed-term employees (2003, Reg. 34), and Article 7 of RIKEN's work regulations for junior research associates (2009, Reg. 38).
  - (2) Prohibit contact between the individual or individuals undergoing investigation and other parties with a vested interest.
  - (3) Temporarily close the laboratory and other facilities of the individual or individuals undergoing investigation.
  - (4) Secure items related to the investigation.
  - (5) Any other measures considered necessary.
3. In implementing measure (3) in the above paragraph, RIKEN must make every effort to ensure that researchers other than those under investigation will be able to carry out their normal duties.

#### **Article 14 Investigative committee**

1. To carry out a full investigation, RIKEN shall establish an investigative committee that includes experts in the relevant research field from outside of RIKEN.
2. Members of the investigative committee shall be appointed or commissioned by RIKEN, other than the informant, the subject of the allegation, and any other individuals with a vested interest in the matter.
3. The chair of the investigative committee shall be appointed by RIKEN.
4. When it establishes an investigative committee, RIKEN shall notify the informant and the subject of the allegation of the names and affiliations of the committee members.
5. The informant and the subject of the allegation have seven days from the date on which they receive notice of who will be on the investigative committee to appeal their objections to any of the committee appointments.
6. Upon receipt of an appeal as described in the above paragraph, RIKEN must review the appeal and if the objection is considered to be justified, RIKEN must replace the committee member in question and report the change to the informant and the subject of the allegation.  
If RIKEN decides to deny the appeal, it must explain its reasons for doing so to the informant and the subject of the allegation.
7. The Auditing and Compliance Office shall serve as the secretariat for the investigative committee.

#### **Article 15 Method of investigation**

1. Unless there are unavoidable circumstances, the investigative committee shall commence its investigation within 30 days of the decision to conduct an investigation.
2. The investigation shall involve careful review of all relevant research papers, paper-based and electronic data and other records, as well as lab notebooks, and interviews of all individuals concerned.
3. In conducting an investigation, the subject of the allegation must be given the opportunity to refute the allegations.
4. In refuting the allegations, the subject of the allegations must provide scientific evidence that the research in question was carried out with appropriate scientific methods and reported on appropriately in published research papers.
5. In addition to the provisions of paragraph 2, the investigative committee may,

if it considers it necessary, instruct the subject of the allegations to replicate experiments or may approve a request made by the informant to have the experiments replicated.

6. When replicating experiments as provided for in the preceding paragraph, the subject of the allegations must be provided with the funding, time, place, and equipment and supplies required to replicate the experiments. Provided, however, if the subject of the allegations repeatedly requests opportunities to replicate the same experiments, and the investigative committee judges such requests to be an attempt to prolong or hinder the investigation, the committee may deny such requests.
7. The investigative committee may, if it considers it necessary, extend the investigation to other research conducted by the subject of the allegations even though such research may not be directly related to the case of research misconduct.

#### **Article 16 Reporting of investigation results**

The investigative committee shall, unless there are unavoidable circumstances, report on the investigation to RIKEN within 150 days of its start, to confirm the following points.

- (1) Was there research misconduct?
- (2) If it has been confirmed that there was research misconduct, what was the nature of this misconduct, who was involved and to what extent, and what was the involvement of the authors of papers related to this research, including their contribution to the papers and their roles in the research?
- (3) If it has been confirmed that there was no research misconduct, did the individual reporting the misconduct do so with wrongful intent?

#### **Article 17 Notice of investigation results**

1. Upon receiving the investigative committee's report, RIKEN must promptly notify the informant and the subject of the allegations (including others who are found to have contributed to the research misconduct) of the results. Should the individual under investigation belong to another institution, RIKEN must also notify the head of that institution.
2. In addition to the provisions of the above paragraph, when the research under question has been paid for by funds from another institution, RIKEN shall also notify that institution of the investigation results.
3. When the informant belongs to another institution and RIKEN finds, as a

result of the investigation outlined in the preceding articles, that the individual made the report with wrongful intent, RIKEN must report this fact to the head of the individual's institution.

#### **Article 18 Appeal**

1. Individuals who have been found to be involved in research misconduct and individuals who are found to have reported research misconduct with wrongful intent have the right to appeal the findings to RIKEN within 10 days of being notified of those findings.
2. Upon receiving a request for appeal from an individual accused of research misconduct, RIKEN must notify the informant, and if the subject of the allegations belongs to another institution, RIKEN must also notify the head of that institution.
3. Upon receiving a request for appeal from an individual who has been judged to have reported research misconduct with wrongful intent, RIKEN must notify the individual who was accused of the research misconduct, and if the individual who reported the alleged misconduct belongs to another institution, RIKEN must also notify the head of that institution.
4. In addition to the provisions of paragraphs 2 and 3 above, when the research under question has been paid for by funds from another institution, RIKEN shall also notify that institution of the appeal.

#### **Article 19 Review of appeal**

1. When receiving a request for appeal as outlined in paragraph 1 of the above article, RIKEN must, unless there are unavoidable circumstances, instruct the investigative committee to review the appeal.
2. With regard to the above-mentioned review, the investigative committee must decide whether or not to reopen the case, taking into consideration the intent and reason for the appeal, and must promptly report its decision to RIKEN.
3. Upon receipt of the investigative committee's decision, RIKEN must convey the decision to the informant and to the subject of the allegations. When the subject of the allegations belongs to another institution, RIKEN must also notify the head of that institution. However, when the case has been appealed by an individual who has been found guilty of research misconduct according to the provisions of Article 16, notice of the results of the review appeal will not be given to the head of the informant's institution.
4. In addition to the above provisions, when the research under question is

paid for by funding from another institution, RIKEN shall report the review results of paragraph 2 to that institution.

5. In reopening a case of research misconduct, RIKEN shall require the individual appealing the case to submit materials that will provide grounds for overturning the inquiry decision based on the provisions of Article 16, and will request other forms of cooperation as necessary for a speedy resolution of the case. The decision to reopen the case may be retracted if the individual appealing the case does not cooperate as required.
6. In the event that the investigative committee decides that the appeal referred to in paragraph 2 above has been made to prolong the investigation or to put off the measures outlined in Article 21, RIKEN may refuse to consider any further appeals.
7. The investigative committee shall, unless there are unavoidable circumstances, report on its review of the appeal to RIKEN within 50 days of reopening the case.
8. All the provisions of Article 17 can be applied to the report of the preceding paragraph. In such a case, the terms “preceding article” used in paragraphs 1 and 3 of Article 17 may be read as “preceding paragraph”.

#### **Article 20 Public notice of investigation results**

1. Upon receipt of notice, in accordance with the provisions of Article 16 or paragraph 7 of Article 19, that research misconduct has been confirmed, RIKEN shall make the following items public.
  - (1) The name and affiliation of the individual or individuals accused of research misconduct
  - (2) The nature of the research misconduct
  - (3) The measures RIKEN has taken up to the time of making the notice public
  - (4) The names and affiliations of the members of the investigative committee
  - (5) The methods and procedures used in the investigation
  - (6) Other relevant matters
2. Upon receipt of notice, in accordance with the provisions of Article 16 or paragraph 7 of Article 19, that no research misconduct has taken place, RIKEN shall, in principle, make no public announcement. However, if the case is already publicly known or has been reported by the media, or it is clear that there were unintentional errors made in the papers published on

the research in question, RIKEN will make the results of the investigation public. In such a case, the public notice will open with a statement that no research misconduct was discovered (and will include, if relevant, the comment that errors in the published papers were unintentional), and present, in the following order, the name and affiliation of the subject of the allegation, the names and affiliations of the members of the investigative committee, and the methods and procedures used in the investigation.

3. Upon receipt of notice, in accordance with the provisions of Article 16 or paragraph 7 of Article 19, that the report of research misconduct was made with wrongful intent, RIKEN shall make public the name and affiliation of the informant.
4. In making the public notices of the preceding paragraphs, RIKEN shall allow ample time for the appeals outlined in paragraph 1 of Article 18.

#### **Article 21 Measures to be taken when research misconduct has been confirmed**

Upon receipt of notice, in accordance with the provisions of Article 16 or paragraph 7 of Article 19, that research misconduct has taken place, RIKEN shall, in addition to making the public announcement stipulated in paragraph 1 of the above article, implement the following measures.

- (1) Discipline in accordance with RIKEN regulations those individuals involved in research misconduct
- (2) Direct the individuals involved in research misconduct to retract their research papers and other relevant publications
- (3) Deny the individuals involved in research misconduct access to research funds, including competitive funds inside and outside RIKEN (excluding funds required to cover the costs of maintaining research equipment and devices), for a duration of time stipulated by RIKEN
- (4) Demand repayment of all or some of research funds already used by the individuals involved in research misconduct
- (5) Discipline in accordance with RIKEN regulations the supervisor or supervisors of the individuals involved in research misconduct, when they are found to bear administrative responsibility for the misconduct

#### **Article 22 Measures to be taken when no research misconduct has taken place**

Upon receipt of notice, in accordance with the provisions of Article 16 or paragraph 7 of Article 19, that research misconduct has not taken place, RIKEN

shall, in addition to making the public announcement stipulated in paragraph 2 of Article 20, implement the following measures.

- (1) Rescind the temporary measures stipulated in Article 13
- (2) Notify all those involved that there has been no research misconduct in the case under investigation
- (3) Implement measures to restore the good name of the subject of the allegations and ensure that the individual is not placed at any disadvantage
- (4) Other measures considered necessary

#### **Article 23 Cooperating with the investigation**

All relevant departments and personnel must cooperate with the investigation.

#### **Article 24 Safeguarding of the informant and others cooperating with the investigation**

RIKEN must ensure that the informant and others cooperating with the investigation are not placed at any disadvantage.

#### **Article 25 Preventing information leaks**

Every precaution must be taken to prevent the leakage of unpublicized data, papers, or any other scientific or technical information that should remain secret which relates to the case under investigation

#### **Article 26 Honorariums and travel expenses for members of the investigative committee**

1. Members of the investigative committee who are from outside of RIKEN may be paid honorariums and funds to cover necessary expenses.
2. Honorariums and travel expenses for members of the investigative committee shall be paid in accordance with the provisions of RIKEN's regulations on payments to committee members (2003, Reg. 69).

#### **Article 27 Miscellaneous provisions**

Matters other than those covered in these regulations that pertain to the prevention of research misconduct shall be stipulated elsewhere.