

The 4th Review Committee
Evaluation and Suggestions

(April 8, 2016)

Technology and Development Team for Mouse Phenotype Analysis: Japan Mouse Clinic

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◎: Compulsory report items ○: Major report items ●: Optional report items

◎ 1-1a. *Have sufficient results been achieved? (The BRC's standing in the world, contribution to society)*

- It can be evaluated as meeting expectations:
 1. This Team has constructed Japan's largest systematic mouse phenotyping pipeline, which measures up to international standards. Providing the research community with its foundations is making wide-ranging contributions to the growth and development of the life sciences. In addition, its participation in the IMPC since its early stages has made Japan's presence known in this field. Based on these points, the importance of this project and its contribution to society are obvious. The Committee also gives high marks for conducting training sessions on methods of phenotyping to disseminate these techniques to the research community in Japan and overseas.
- The Committee offers suggestions to produce sufficiently enhanced performance in the future:
 1. Participation in the IMPC is highly commendable, and is one of Japan's major contributions to the international community. It will be desirable to guarantee stable project expenses and convert your platform to a sustainable form, including updating equipment on a limited budget.

◎ 1-1b. *Responses to previous comments and advice*

- From the following perspectives, it can be evaluated as adequately addressed:

1. The team is making efforts to increase the number of users, and it is hoped that its own income will increase based on user fees.
- The Committee offers the following suggestions for further improvement:
 1. Despite the importance of the collaboration with the IMPC, it is regrettable that direct budget for participation in IMPC is not allocated by government. Some sort of scheme or a change in perspective, including consideration of budget problems, might be necessary to continue.

○ *1-2. Is the self-analysis of strengths and weakness adequate?*

- It can be evaluated as adequately analyzed, but the Committee offers the following suggestions for further improvement:
 1. The JMC is the foundational for mouse phenotyping in Japan, and the Committee requests that the JMC consider not only maintaining it, but improving it. The revision of the “Labor Contract Act” in April 2014 has made the continuous employment of experienced personnel more difficult, but this is probably something that RIKEN as a whole should deal with.

● *1-3. Is the plan reasonable for the medium to long term?*

- From the following perspectives, it can be evaluated as reasonable:
 1. Age-associated phenotype screening for dementia and autophagy-related diseases, construction of an RDoC-based platform for mouse behavioral analysis, and imaging analysis of mouse fetuses, are international trends in research, and as such, these plans are appropriate.

● *2a. Have appropriate fields been earmarked for future prioritization?*

- From the following perspectives, it can be evaluated as appropriate:
 1. The Committee commends the team for including phenotyping of aging-related traits in the next IMPC.
- The Committee offers the following suggestions for further improvement:

1. RIKEN BRC will inevitably choose to continue cooperating with the IMPC. However, collaboration on an equal basis will be difficult, due to factors such as the size of their budgets, and it would be desirable to strive to include the formation of uniquely Japanese views.

● *3-2. Are the policies for future resource infrastructure and technology development appropriate?*

- Generally being appropriate is commendable, but the Committee offers the following suggestions for further improvement:
 1. The expansion of the Mouse Clinic into an on-demand mouse clinic will not be necessary. It will be more important to improve the completeness of the standardized phenotype analysis (more mutant mice should be analyzed). Moreover, the Committee (one reviewer) did not entirely understand the significance of the nature of the next IMPC age-associated diseases phenotype screening, especially screening for autophagy-related diseases.
- For some portions that are deemed insufficient, the Committee points out and makes suggestions as follows:
 1. Given the current decrease in funds for operations at Japanese universities, the current situation does not make it easy for individual researchers to analyze mouse phenotype adequately. RIKEN BRC ought to enhance the size of its institutions and support staff so that it can take a more proactive approach to meeting these needs.
 2. Research on the interaction of genetics and environment during the gestation period has become a worldwide trend and is increasingly competitive. Therefore, the team should try to distinguish themselves from other research groups in Japan and overseas in the field of epigenetic analysis of offspring exposed to maternal nutritional or metabolic abnormalities during the gestation period.

3-3. Innovation hub

● *(i) Collaborations with industry, government, and academia*

- From the following perspectives, it can be evaluated as generally sufficient:

1. A comprehensive pipeline gives the team the latent ability to become a hub. The plans to move from being merely an investigative institution to one that emphasizes data interpretation (analysis) are appropriate. Moreover, stronger ties with the clinical research groups would be an appropriate policy.

● *(ii) Collaborations within the BRC*

- From the following perspectives, it can be evaluated as generally sufficient:
 1. It is hoped that the collaboration with the Technology and Development Unit for Knowledge Base of Mouse Phenotype will be developed and expanded.