



**National Center for
Research Resources**

NATIONAL INSTITUTES OF HEALTH

Data Annotation and Curation of Mouse Strains at the Mutant Mouse Regional Resource Consortium

Bethesda, MD

September 9, 2010

Meeting Summary

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A. Overview

The workshop was organized by Oleg Mirochnitchenko and Michael Chang of NCCR's Division of Comparative Medicine. The 16 participants included three NCCR staff members (Franziska Grieder, Michael Chang and Oleg Mirochnitchenko), four directors of the Mutant Mouse Regional Resource Centers (MMRRCs) — UC Davis, University of Missouri, the University of North Carolina at Chapel Hill and The Jackson Laboratory — and the director of the Informatics, Coordination and Service Center (ICSC).

B. Purpose

This workshop of the representatives from each of the MMRRC repositories and ICSC was held to coordinate efforts and ensure extensive and accurate curation of strain information for all of the accepted MMRRC strains in the repository. The central purpose of the meeting was to discuss the significant number of newly deposited strains that are requiring joint efforts for the fast and proper curation in order to make the strain information available to the requesting investigators through the ICSC search interface. It was critical to discuss and develop a plan for the implementation of this curation process. The meeting, therefore, supported the essential components required for the MMRRCs to accomplish their mission and serve the need of the biomedical community.

C. Objectives and Goals

The objectives and goals of this meeting were to 1) review and assess ongoing curation performance metrics, 2) develop plans for the recent resurgence of the curation program at the ICSC, and 3) develop strategies for data annotation and curation of the Type 3 strains (contract submissions for consortia and institutions) currently not in the Mouse Genome Informatics (MGI) database.

D. Presentation

Michael Sasner, director of the ICSC, underlined the following major goals of the curation at ICSC: 1) to create a structured, comprehensive, integrated and accurate resource of current biological knowledge; 2) to enable users to find strains of interest using various search modalities: gene, allele, phenotype, reference; 3) to provide robust information on strain datasheets with links to external information sources; and 4) to use the most efficient process possible using existing infrastructure and information rather than create redundant systems. According to the current records, all available strains (2,592) have published data sheets. All strains under development and awaiting transfer (66/174, 38%) have complete annotation, and for 108 strains, annotation is in progress. Almost all public strains: 2,658/2,766 (96%) are curated. As of September 7, 2010, 1,385 strains have official allele nomenclature in MGI (1,293 of these are available). All strains with allele nomenclature have official strain nomenclature. The new search for phenotype in the animal catalog has been developed. Disease search terms will be added in the later time. Other new functionalities include: search by strain/cell line name; sortable columns; help text; and a new link to the fees page. These new functions were

demonstrated and discussed. The future steps for introduction of new informatics infrastructure were presented as well as a workflow for curation of the Type 3 sets.

E. General Discussion

The following issues were raised and solutions were recommended:

1. Quality of the donor provided data
2. Mechanism of genotype confirmation, contaminating alleles
3. Time frame of releasing the annotation data to the public for different types of the animals
4. Tools for the document sharing
5. Genotyping protocols
6. Arrangements required for the annotation of future large Type 3 sets, among others

The following topics also were discussed:

1. ICSC/MMRRC interactions (Structural/operational issues)
 - Moderator: Lela Riley
2. Curation efforts
 - Moderators: Kent Lloyd, Lela Riley
3. Data exchange project, data sharing
 - Moderators: Erick Engelhard, Lela Riley
4. Customer service practices and tool development
 - Moderator: Terry Magnuson
5. Order-tracking system: updates and challenges
 - Moderator: John Critser
6. Other catalogs searches and MMRRC presentation in these catalogs
 - Moderators: Michael Sasner, Erick Engelhard
7. Advisory Board
 - Moderator: Kent Lloyd
8. Library of the MMRRC scientific materials
 - Moderator: Lela Riley

F. Recommendations

The following recommendations were compiled to address the current issues of the curation process at ICSC as well as everyday practices of strain annotation:

1. Participants of the meeting agreed to organize special monthly management meetings — via teleconference — of the curators and their supervisors from each of the MMRRCs. After each meeting, the agreed-upon recommendations will be implemented at each MMRRC.

2. Significant improvements are required for the communication between the ICSC and each of the resource facilities, including exchange of the nomenclature updates, Material Transfer Agreement processing, protocols, and release of the order information.
3. Participants recommend redesigning the order webpage to make it more user friendly for the customers.
4. Participants also recommended making MMRRC data publicly available, which will require a preliminary cost estimates.

The meeting participants discussed and made recommendations regarding Advisory Board members and their role in evaluating and facilitating the improvement of the MMRRC's service delivery and communication with the biomedical research community.

G. Conclusion

The workshop was concluded by the general discussion and preliminary program presentation for the next MMRRC annual meeting in May 2011 at the Jackson Laboratory (Maine). Participants expressed their satisfaction with the results of the meeting and stressed that the workshop was very productive and everyone will focus on the implementation of the recommendations at their centers.

Appendix A: Participant Roster

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