

Concept Clearance - Reissue of Mutant Mouse Resource and Research Centers (MMRRCs) and the Informatics, Coordination and Service Center (ICSC) for the MMRRCs

The number of genetically modified mouse strains has expanded greatly in recent years, resulting in increased pressure to preserve and make these mice available for the research community. In March 1998, the National Institutes of Health (NIH) held a meeting on "Priority Setting for Mouse Genomics and Genetics Resources". In response to meeting recommendations, NIH established the Mutant Mouse Resource & Research Centers (MMRRC) to serve the scientific community. The MMRRCs were started in 1999 with funding through cooperative research agreements (U42). Currently, the MMRRC Consortium is the largest government supported mouse strain repository and consists of four breeding and distribution facilities located at the University of North Carolina at Chapel Hill, University of Missouri, University of California at Davis, and The Jackson Laboratory. The fifth MMRRC Consortium component, the Informatics, Coordination, and Service Center (ICSC), is located at University of California at Davis.

ORIP's Strategic Plan emphasizes expansion and accessibility to animal models and animal and biological materials as well as exploration of ways to improve the reproducibility of research using disease models. To accomplish these goals, the MMRRC Consortium is responsible for importing mice from donating investigators and establishing banks of cryopreserved sperm, embryos, and related materials for distribution to research investigators. In addition, each Center provides services on a fee-for-service basis to investigators for colony management and breeding, assisted reproduction, embryonic stem cell and microinjection, genetic analysis, phenotyping, pathology and diagnostics. The MMRRC strains are held to the highest standards to optimize reproducibility of studies and assure scientific rigor and transparency. All submitted strains are thoroughly reviewed before acceptance and include additional quality control measures. For example, understanding, documenting, and accurately reporting the genetic backgrounds of mouse models used in research is essential for recreating an experimental study and achieving reproducible results. The MMRRCs also use up to 10% of their budget on high risk, high return, research pilot projects that complement the goals and needs of the MMRRC Consortium such as enhancements in cryopreservation of mouse embryos and gametes, rederivation of living mice from cryopreserved embryos and sperm, quality control testing for mouse pathogens, mutagenesis and embryonic stem cell isolation and cloning, and phenotyping and genotyping services. The MMRRC Consortium has an External Advisory Committee of experts and users who advise the Centers and the NIH on how to enhance the capacity of the Centers as well as the MMRRC's long-term sustainability and relevance to biomedical research. Critical functions of the ICSC include provision of informatics and coordinating services to support the function of the MMRRC Consortium; maintenance and further development of a public website portal and Customer Service Center; operation of the order processing system; review and processing of applications from donating investigators; organization and participation in monthly teleconferences, annual Consortium meeting and other activities; oversight of marketing efforts; and completion of monthly and yearly metrics reports. The current MMRRC Consortium collection consists of 44,964 unique mutant alleles; submissions include live mice, frozen germplasm, or embryonic stem cells. MMRRC resources are used by investigators funded by NIH grants from the majority of NIH Institutes and Centers. There is steady growth in the number of curated submissions of live animals or frozen sperm to the repositories as well as in the number of MMRRC users over the last 8 years.

Based upon the performance of the program and the need to raise the predictive power and reproducibility of animal studies, ORIP requests the concept clearance from the Council of Councils to continue support for the "Mutant Mouse Resource and Research Centers (MMRRCs) and the Informatics, Coordination and Service Center for the MMRRC".