ARCHIVING GENETICALLY ENGINEERED ANIMAL LINES[1]

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There are several benefits to be gained from archiving genetically engineered animals (GEA), including those outlined by Osborne (2009):

1. Enables reduction of animal use by minimising the number of GA [genetically altered] lines maintained on the shelf
2. Provides some insurance against loss of valuable stocks caused by adverse events such as environmental disasters, disease outbreaks, genetic drift, and breeding failure
3. Facilitates the sharing of resources, which in itself provides more opportunity for reduction and minimises the need of researchers to replicate research, or reproduce resources
4. Is a refinement avoiding the need for the live transportation of animals

Sharing and archiving of genetically altered mice: Opportunities for reduction and refinement (Osborne, 2009) provides information on how, what and when to archive. Although this reference has a focus on mice, much of the information can be applied to work with other species. Osborne (2009) points out the advantages and disadvantages of cryopreservation of embryos and sperm which should be considered in the context of the particular line to be archived. The document also details considerations for when cryopreservation would be most valuable, taking into account whether the line is new or established, as well as such factors as the availability of facilities and expertise.

Additional Archiving Resources

In addition to the archiving facilities listed by Osborne (2009), the following resources are also available:

- **Canadian Mutant Mouse Repository (CMMR)** http://www.cmmr.ca/
  The CMMR is a repository for archiving and distributing genetically engineered mouse lines. It is also a repository for the North American Conditional Mouse Mutagenesis project

[1] This best practices document was developed by a CCAC-facilitated committee involved in the development of guidelines for genetically engineered animals.

(NorCOMM), which focuses on developing and distributing mouse embryonic stem (ES) cell lines carrying single gene trapped or targeted mutations (http://www.norcomm.org/index.htm).

- **Zebrafish International Resource Center (ZUIRC)**
  http://zebrafish.org/zirc/home/guide.php
  The ZRC is a repository of genetically engineered zebrafish lines.
- **Canadian Mouse Consortium** (http://www.mousecanada.ca/)
  The Canadian Mouse Consortium provides a resource for archiving services as well as other services related to the production, phenotyping and genotyping of genetically engineered mice.

Reference

Osborne N et al. (2009) *Sharing and archiving of genetically altered mice: Opportunities for reduction and refinement*. West Sussex UK: RSPCA.