Transgenic Models and Services

Charles River works with hundreds of customers globally on thousands of unique transgenic models to deliver study-ready cohorts to meet research needs. Our team of scientists, project managers and animal care staff is able to offer guidance, develop work plans and help overcome any challenges.

Service Offerings:

Cryopreservation
- Embryo cryopreservation
- Sperm cryopreservation
- Cryopreservation with homozygous expansion breeding

Rederivation
- Rapid-Embryo
- Rapid-Sperm
- Embryo and sperm rederivation with homozygous expansion breeding
- IVF rapid expansion

Mouse and Rat Breeding
- Production breeding and animal holding
- IVF colony expansion
- Speed congenics
- Colony startup package

Model Creation Services
- CRISPR ES Injection
- CRISPR Direct Injection
- RNAi Direct Injection

Internet Colony Management (ICM™)
- Real-time data sharing and progress updates
- Two-way online portal
- Portfolio management capabilities
- Data filtering, sorting and export
**Cryopreservation Services**

**Embryo cryopreservation**
Embryo cryopreservation is an essential process for safeguarding your research strains from loss, and remains the easiest and safest method of long-term cell storage. While many factors are involved in this procedure, we have decades of experience in successfully freezing rodent embryos and regularly assist clients in determining the appropriate quantity to cryopreserve for each model.

**Sperm cryopreservation**
Sperm cryopreservation is increasingly becoming a fast, safe and cost-effective way to protect genetically engineered mouse colonies. With sperm cryopreservation, it is feasible to cryopreserve stocks at multiple stages of model development, which provides an opportunity to recover a model from an earlier state if it ever becomes necessary. We offer sperm cryopreservation for all genetically engineered mouse strains, providing a permanent backup to your valuable lines. All samples receive a pre and post thaw computerized sperm analysis to provide definitive quality information to ensure your model can be recovered in the future.

**Rederivation Services**
Charles River rederivation services remove viruses, bacteria and parasites from mice and rats. All rederived animals meet the VAF/Elite® health status and are maintained in a biosecure isolator environment to protect the health of the colony.

**Embryo rederivation**
Embryo rederivation works best on homozygous lines. Non-rederived live colonies are maintained until deliverables are met. At Charles River, we offer:
- Rapid-Embryo
- Embryo rederivation with health report for mice and rat
- Embryo rederivation with homozygous expansion breeding for mice and rat

**Sperm rederivation**
Sperm rederivation is best used for nonhomozygous, single-mutation mouse lines. At Charles River, we offer:
- Rapid-Sperm
- Sperm rederivation with health report
- IVF rapid expansion

**Mouse and Rat Breeding**
Our expert staff works with clients one-on-one to develop and execute breeding plans, troubleshoot difficulties and deliver cohorts of study animals. All of the work is managed in our revolutionary Internet Colony Management system (ICM™).

Charles River offers:
- Production breeding and animal holding
- IVF colony expansion
- Speed congenics
- Colony startup package

**Transgenic Models and Services**
**Model Creation Services**
Effective research depends on finding the most relevant model for the application. Charles River helps clients select, customize, create and maintain the right model for their studies using the latest CRISPR/Cas9 and RNAi technology. In addition to direct injections, breeding and housing, embryology, and genetic testing services, we now offer model design and creation through our strategic alliance with Mirimus Inc., a leader in genomic engineering. This new partnership creates a complete, flexible solution for our North American clients to create CRISPR models. Together, our combined *in vitro* and *in vivo* expertise provides an optimal environment for creating, characterizing, preserving and distributing genetically modified mouse model lines.

Charles River offers:
- CRISPR ES Injection
- CRISPR Direct Injection
- RNAi ES Injection

**Internet Colony Management (ICM™)**
ICM™ is a revolutionary, custom-designed software solution for both project and vivarium management. ICM™ simplifies project management by providing a two-way communication portal that allows customers to direct actions with their colonies, such as setting up matins, scheduling shipments and consolidating space. Through the use of an RFID isolator/cage location tracking system and a workflow management package, ICM™ streamlines animal technician workload and captures data electronically on each animal through the use of tablet computers and a simple numerical keypad interface.

Key Features:
- Real-time data sharing among animal care technicians, project management staff and clients
- Two-way, data-rich customer portal to share information and direct colony and animal requests
- Portfolio management capabilities showing high-level information such as current cage usage, activities, site usage and therapeutic area/investigator usage
- Extensive filtering and sorting capabilities to quickly navigate to the data you need
- Data export to Microsoft® Excel® to allow for custom data manipulation
- Colony goal management with real-time updates on progress