



GENETICALLY ENGINEERED MODELS AND SERVICES

## Rederivation Services

### Services Offered

- Embryo and sperm rederivation
- Rapid rederivation
- IVF rapid expansion
- Cryopreservation
- Embryo transfer

Charles River can remove adventitious organisms, such as viruses, bacteria and parasites, from mice and rats with our rederivation services. Rederived animals are guaranteed to meet our VAF/Elite® health status and will be maintained in biosecure isolator environment to protect the health of the colony. We have rederived over 10,000 unique strains of mice and rats with 100% removal of unwanted organisms.

### Embryo Rederivation

This service is recommended for use with homozygous lines, lines with multiple genetic mutations or rats. A non-rederived live colony will be maintained until deliverables are met.

### Sperm Rederivation

This service is recommended for use with non-homozygous, single mutation mouse lines.

### Rapid Rederivation

Rapid rederivation services significantly reduce the time and cost associated with the rederivation procedure for mice and rats. We guarantee to return at least two visibly pregnant females to clients in as little as six weeks.

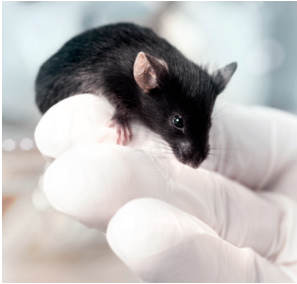
### IVF Rapid Expansion

IVF-based rederivation and expansion for mice can provide a large quantity of animals to help obtain an established colony faster. Included in this service is a comprehensive health evaluation of the rederived colony to confirm the success of the expansion and guarantee that animals are of VAF/Elite® status.

### Cryopreservation

In conjunction with rederivation, it is often advisable to cryopreserve embryos and/or sperm to provide backup in the case of a future colony loss.

EVERY STEP OF THE WAY



## Embryo Transfer

Embryo collection and transfer techniques minimize the risk of transmitting agents that could infect the uterus and or placenta. Rederivation by embryo transfer decreases the risk of a foster mother rejecting pups. This method eliminates the need for precise timing of cesarean surgery, a common obstacle with transgenic and knock-out lines in which gestation length often varies. Charles River performs hundreds of embryo transfer rederivations each year.

## Available Rederivation Services

Service	Requirements	Deliverables	Estimated Timeline
<b>Rapid rederivation – embryo and sperm</b>	<b>Mouse:</b> <ul style="list-style-type: none"> <li>• 2-5 males: &lt; 6 months old</li> <li>• 10 females: 3-4 weeks old</li> </ul> <b>Rat:</b> <ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• Minimum 2 visibly pregnant, embryo recipient females</li> <li>• VAF/Elite® mice</li> </ul>	6 weeks
<b>Embryo rederivation</b>	<b>Mouse:</b> <ul style="list-style-type: none"> <li>• 2 males: &lt; 6 months old</li> <li>• 10 females: 3-4 weeks old</li> </ul> <b>Rat:</b> <ul style="list-style-type: none"> <li>• 4 males: &lt; 6 months old</li> <li>• 10-15 females: 10-12 weeks old</li> </ul>	<ul style="list-style-type: none"> <li>• Minimum 10 offspring with complete health report</li> <li>• Conventional colony held until project completion</li> <li>• For homozygous x homozygous strains</li> <li>• VAF/Elite® mice or rats</li> </ul>	12-15 weeks
<b>Sperm rederivation</b>	<b>Mouse:</b> <ul style="list-style-type: none"> <li>• 2 males: &lt; 6 months old</li> <li>• 10 females: 3-4 weeks old</li> </ul> <b>Rat:</b> <ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• Minimum 10 offspring</li> <li>• Complete health report</li> <li>• Sperm cryopreservation</li> <li>• For homozygous x homozygous strains</li> <li>• VAF/Elite® mice</li> </ul>	12-15 weeks
<b>Embryo rederivation with homozygous expansion breeding</b>	Minimum of 5 breeding pairs	<ul style="list-style-type: none"> <li>• Minimum 10 offspring with complete health report</li> <li>• Conventional colony held until project completion</li> <li>• For homozygous x homozygous strains</li> <li>• VAF/Elite® mice or rats</li> </ul>	6-9 months

## Service Flow

1. Charles River organizes transfer of animals to our site.
2. Project Manager determines objectives and strategy for the project once animals are received.
3. Technical team implements the rederivation project.
4. ICM customer portal provides direct, two-way communication with project manager during rederivation project.
5. Charles River arranges the shipment of animals at the end of the project or establishes a breeding colony and protocol in our facilities.