



Rederivation

Adventitious organisms such as viruses, bacteria, and parasites in your rodent colonies can significantly compromise the results of your research. To help you ensure the integrity of your studies, Charles River offers the ability to remove these unwanted organisms from your colonies through our embryo transfer rederivation services. Embryo transfer rederivation is a safe, effective method for rederiving your standard and genetically engineered rodent colonies. We currently offer three rederivation options - Standard Rederivation, Rapid Rederivation, and IVF Rapid Expansion - all of which take advantage of our decades of experience producing high-quality, clean research animals. Regardless of which option you choose, all of your newly rederived VAF/Elite™ animals are maintained in the biosecurity of an isolator environment to protect the health of the colony.

Standard Rederivation

Our standard rederivation procedure is currently available for mice and rats, with other species considered on request. With this service, we guarantee to return at least three rederived breeding pairs of VAF/Elite™ health status in about 12 weeks. In many cases, additional rederived animals are born and they are provided to you at no additional charge. Included in the service is a comprehensive health evaluation of the rederived colony to confirm the success of the procedure and to allow the animals to be imported directly into almost any institution worldwide. In addition, the original contaminated colony is maintained at Charles River until the rederived colony is available, which provides further assurance that your valuable genetically engineered model is protected.

Rapid Rederivation

Our rapid rederivation service can significantly reduce the time and cost associated with the rederivation procedure for mice and rats. With this option, we guarantee to return at least two visibly pregnant females (approximately 14-17 days gestation) to you in approximately five weeks. The females then litter at your facility and you are responsible for performing any health testing required. The original contaminated colony is maintained at Charles River for approximately 10 days after the pregnant females ship to you, which provides a valuable backup in case any complications arise during the shipment.

Embryo Transfer

Embryo collection and transfer techniques minimize the risk of transmitting agents that could infect the uterus and/or placenta, including *Pasteurella pneumotropica* and *Mycoplasma pulmonis*.

The zona pellucida covering the preimplantation-stage embryo offers a natural barrier against pathogens and resists repeated washing in antibiotic and proteolytic solutions. Rederivation by embryo transfer decreases the risk of a foster mother rejecting pups. Additionally, this method eliminates the need for precise timing of cesarean surgery, a common obstacle with transgenic and knockout lines in which gestation length often varies. Charles River performs hundreds of embryo transfer rederivations each year at our Wilmington, MA facility. In addition, we collect hundreds of thousands of preimplantation-stage embryos annually, and reconstitute many stocks and strains by embryo transfer. These activities fall under the supervision of board-certified veterinarians, laboratory professionals, and animal surgeons.

Visit www.criver.com/info/quotes for project estimates.

IVF Rapid Expansion

We know that rederivation, while often necessary, adds additional time before you are able to utilize your animals for your research. To help you overcome this obstacle, Charles River offers an *in vitro* fertilization (IVF)-based rederivation and expansion program for mice. Our rapid expansion service can provide a large quantity of animals to you, hundreds if required, to help you get your colony established faster. Included in this service is a comprehensive health evaluation of the rederived colony to confirm the success of the expansion and guarantee that your animals are of VAF/Elite™ status. This globally recognized health profile provides peace of mind to your animal facility and ensures that your research is not compromised by an unwanted adventitious organism. Animals born from this program are typically available for shipment approximately 15 weeks after the original contaminated colony arrives at Charles River.

Animal Requirements

While animal requirements may vary due to background strain and genetic mutation, the table below provides general guidance on the requirements for each of our rederivation options.

Service	Mice		Rats	
	# of Males/Age	# of Females/Age	# of Males/Age	# of Females/Age
Standard Rederivation	2 / <6 months	10-15 / 3-4 weeks	4 / <6 months	10-15 / 10-12 weeks
Rapid Rederivation	2 / <6 months	10 / 3-4 weeks	4 / <6 months	10-15 / 10-12 weeks
IVF Rapid Expansion	2 / <6 months	varies / 3 weeks	N/A	N/A

If you are unable to meet our animal requirements, Charles River can utilize commercially available wildtype females (required for IVF Rapid Expansion) to serve as embryo donors. Alternatively, we offer extensive breeding services to expand your line pre-derivation.

Cryopreserve

In conjunction with rederivation, it is often advisable to cryopreserve embryos and/or sperm to provide a backup in the case of a future colony loss. We offer several affordable packages in conjunction with rederivation to cryopreserve germ plasm. Our cryopreserve package freezes down ~100 embryos and includes one year of liquid nitrogen storage in two of our independent freezer facilities. Our sperm cryopreservation service freezes down the sperm from two males in approximately 14 straws. Both of these services provide an effective means to quickly recover the colony in the event of a future catastrophe.