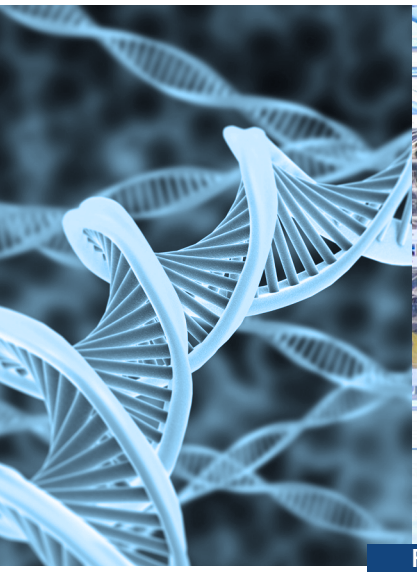
charles river



RESEARCH MODELS AND SERVICES

Genetically Engineered Models:
Model Creation Services

Available Techniques

- CRISPR/Cas 9 direct injection into embryos
- CRISPR/Cas 9 injection into embryonic stem (ES) cells
- RNAi direct injection into embryos

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.

CRISPR ES Injection

The CRISPR/Cas 9 ES injection follows the design and synthesis of the desired model. Embryonic stem cells are injected with genetic material and implanted into the embryos, which are later reimplanted into the foster female. Additional genetic backgrounds are available, as is off-target analysis of F1 animal models when this method is used.

Package I

- Design and synthesis of CRISPR/Cas9 into ES cells
- Injection into ~ 80 embryos
- Reimplantation into VAF/Elite® foster female
- Husbandry and weaning
- VAF/Elite® health report

Delivery of chimeric mice

Additional services (optional):

- Other genetic backgrounds available on request
- Off-target analysis on FI animals for CRISPR models

Package II

Includes package I services and:

- Breeding to F1 generation
- Sample collection and screening up to 40 mice

Delivery of heterozygous F1 mice

EVERY STEP OF THE WAY

Services

- All services use Charles River's VAF-Elite® foster females
- All services include animal husbandry and weaning of the resulting chimeric mice
- Extended packages include breeding up to the F1 generation, with sample collection and screening

CRISPR Direct Injection

The CRISPR/Cas 9 injection follows the design and synthesis of the desired model. With this technique, genetic material is injected directly into the embryo before reimplantation into foster females.

Package I

- Design and synthesis of CRISPR/Cas9
- Injection into ~250 C57BL/6N embryos
- Reimplantation into VAF/Elite® foster female
- Husbandry and weaning
- Sample collection for genetic characterization in F0 mice
- VAF/Elite® health report

Delivery of chimeric mice

Package II

Includes package I services and:

- Breeding to F1 generation
- Sample collection and screening up to 50 mice

Delivery of transgenic mice

RNAi ES Injection

The RNAi ES technique follows the generation of potent RNAs. This material is implanted into embryonic stem cells, which are then implanted into the foster female.

Package I

- Generation of potent shRNAs
- Injection into ~ 80 embryos
- Reimplantation into VAF/Elite® foster female
- Husbandry and weaning
- VAF/Elite® health report

Delivery of chimeric mice

Package II

Includes package I services and:

- Breeding to F1 generation
- Sample collection and screening up to 40 mice

Delivery of heterozygous F1 mice

Charles River's model creation services are enhanced by a comprehensive portfolio of support services in embryology (e.g., cryopreservation, microinjection), genetic testing and breeding that can protect the long-term integrity of valuable mouse model lines, and special pricing is available for combined services.

As a world-leading supplier of genetically engineered models and services, we have a longstanding reputation for the highest quality VAF/Elite® mice and strict biosecurity protocols. Moreover, our large capacity AALAC-accredited facilities enable to us to offer timely, secure delivery to researchers around the globe.

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