

Research Models and Services

2023 Catalogue

EASTERN EUROPE




charles river

Introducing the SRG

A first-in-class, highly immunocompromised rat model.

THE SRG Rat

A first-in-class, highly immunocompromised rat model.

Charles River is pleased to be including the SRG rat as part of our 2023 catalogue. The SRG rat model is designed for studying human cancer, infectious diseases, human tissue transplantation, and cellular therapies.

Unlike other immunodeficient rodent strains, such as the nude rat, the SRG (Sprague Dawley, Rag2, Il2rg- “SRG”) is a severely immunodeficient model created through knockout mutations in the Rag2 and Il2rgamma genes that result in mature B, T, and NK cell deficiencies. This severe immunodeficiency, combined with a larger organism size, makes the SRG rat an ideal alternative research model to mice in certain preclinical applications, especially for cancer research.

Benefits of the SRG Rat for Preclinical Oncology Research

- Severe immunodeficiency ensures high engraftment rates of a variety of human tissues and tumours
- Larger organism size allows larger tumour burden and reduces difficulty of procedures such as catheterisation and blood collection
- Larger tumour sizes (up to 10x larger compared to mice) allow for serial tissue sampling throughout the treatment routine (robust analysis upon harvest)

For pricing see page [58](#) of our catalogue, or visit [our website](#) for further information.



08 Contact Us

10 Ordering Information & Research Models Overview

11 Research Models

Model	Nomenclature	Strain Code	United States	Germany	France	Italy	UK	Canada	JAX® Strain	Page
Rat Models										
20 Health Profiles										
21 Outbred Rats										
CD® IGS	CrI:CD(SD)	001	•	•	• • •	•	•	•		21
Lister Hooded	CrI:LIS	603		•			•			21
Long Evans	CrI:LE	006	•			•				22
Wistar Han IGS	CrI:WI(Han)	273	•	•	•		•			22
Wistar WI IGS	CrI:WI	003	•	•			•	•		23
Wistar WU	CrI:WI(WU)	619		•						23
Sprague Dawley®	CrI:SD	400	•							*
24 Inbred Rats										
Brown Norway	BN/CrI	091	•	•						24
Fischer 344	F344/DuCrI	002	•	•						24
Lewis	LEW/CrI	004	•	•			•			25
WAG	WAG/RijCrI	638				•				25
Copenhagen	COP/CrCrI	C	•							29
26 Disease and Translational Rat Models										
Wistar Kyoto WKY	WKY/NCrI	008	•	•						26
ZDF	ZDF- <i>Lep^{fa}</i> /CrI	370 - 380	•		•					26
SHR	SHR/NCrI	007	•							27
SHHF	SHHF/MccGmiCrI- <i>Lep^{cp}</i> /CrI	373 - 374	•							28
ZSF1	ZSF1- <i>Lep^{fa}Lep^{cp}</i> /CrI	378 - 379	•							28
Zucker	CrI:ZUC- <i>Lep^{fa}</i>	185 - 186	•							28
Obese Prone CD® Rat	CrI:OP(CD)	C	•							29
Obese Resistant CD® Rat	CrI:OR(CD)	C	•							29
PCK	PCK/CrIjCrI- <i>Prkhd1^{pck}</i> /CrI	C	•							29
Stroke Prone	SHRSP/A3NCrI	C	•							29
SS-13BN Rat	SS-Chr 13BN/McwiCrI	C	•							29
Zucker	CrI:ZUC(Orl)- <i>Lep^{fa}</i>	C	•							29
Dahl/Salt Sensitive Rat	SS/JrHsdMcwiCrI	320	•							*

* not listed in the catalogue, C = Cryopreserved - • = SPF (VAF Plus) - • = SOPF (VAF Elite)

Model	Nomenclature	Strain Code	United States	Germany	France	Italy	UK	Canada	JAX® Strain	Page
Mouse Models										
31 Health Profiles										
32 Outbred Mice										
CD-1® IGS	Crl:CD1(ICR)	022	•	•	•	•	•	•		32
NMRI	Crl:NMRI(Han)	605		•	•					32
OF1	Crl:OF1	612			•					33
SKH1	Crl:SKH1- <i>Hr^{hr}</i>	686		•						33
Black Swiss	Crl:NIHBL(S)	C	•							*
CF-1™	Crl:CF1	023	•							*
CFW® - Swiss Webster	Crl:CFW(SW)	024	•							*
34 Inbred Mice										
129	129S2/SvPasCrl	287			• •					34
BALB/cByJ	BALB/cByJ	627			• •				•	34
BALB/cN	BALB/cAnNCrl	028	•	•		•	•	•		35
C3H/J	C3H/HeOuJ	626		•					•	35
C3H/N	C3H/HeNCrl	025	•			•	•			36
C57BL/6J	C57BL/6J	632		•	• •		• •		•	37
Aged C57BL/6J	C57BL/6J	662			•		•		•	37
C57BL/6N	C57BL/6NCrl	027	•	•	•	•		•		38
CBA	CBA/CaCrl	609					•			38
CBA/J	CBA/J	624			•				•	39
DBA/2J	DBA/2J	625			•				•	39
DBA/2N	DBA/2NCrl	026	•	•		•				40
FVB	FVB/NCrl	207	•	•			•			40
B6 Albino	B6N- <i>Tyr^{c-Brd}</i> /BrdCrCrl	493	•			•				41
SJL Elite	SJL/JOrlcoCrl	478	•							*

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Model	Nomenclature	Strain Code	United States	Germany	France	Italy	UK	Canada	JAX® Strain	Page
42 Hybrid Mice										
B6CBAF1/CrI	B6CBAF1/CrI	616					•			42
B6CBAF1/J	B6CBAF1/J	631			•				•	42
B6C3F1/CrI	B6C3F1/CrI	031	•			•				43
B6D2F1/CrI	B6D2F1/CrI	099	•	•						43
B6D2F1/J	B6D2F1/J	629			•				•	44
CD2F1	CD2F1/CrI	033	•			•				44
NMRCF1	NMRCF1/CrI	636			•					44
CB6F1	CB6F1/CrI	176	•	•						44
45 Disease Models										
K18-hACE2	B6.Cg-Tg(K18-ACE2)2Prlmn/J	704			•				•	45
ob/ob	B6.Cg-Lep ^{ob} /J	606				•			•	45
db/db	BKS.Cg-Dock7 ^m +/+ Lep ^{ob} /J	607				•			•	46
ApoE	B6.129P2-ApoE ^{tm1Unc} /J	622				•			•	46
NOD	NOD/ShiLtJ	613				•			•	47
48 Inflammation and Immunology Models										
Ly5.1	B6.SJL-Ptprc ^a Pepc ^b /BoyCrI	494				•	•			48
OT I	C57BL/6-Tg(TcraTcrb)1100Mjb/CrI	642			•					48
OT II	C57BL/6-Tg(TcraTcrb)425Cbn/CrI	643			•					48

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Model	Nomenclature	Strain Code	United States	Germany	France	Italy	UK	Canada	JAX® Strain	Page
Immunodeficient Models										
Athymic Nude	Crl:NU(NCr)-Foxn1 ^{nu}	490 - 491	●	●			●			53
CD-1® Nude	Crl:CD1-Foxn1 ^{nu}	086 - 087	●	●		●	●			53
Swiss Nude	Crl:NU(Ico)-Foxn1 ^{nu}	620 - 664			●					54
NMRI Nude	Crl:NMRI-Foxn1 ^{nu}	639 - 663		●						54
BALB/c Nude J	CBy.Cg-Foxn1 ^{nu} /J	633 - 657			●				●	55
BALB/c Nude N	CAnN.Cg-Foxn1 ^{nu} /Crl	194 - 195	●	●			●			55
SCID	CB17/lcr-Prkdc ^{scid} /lcrIcoCrl	236	●	●	●		●			55
SCID Beige	CB17.Cg-Prkdc ^{scid} Lyst ^{bg-J} /Crl	250	●	●						56
NOD SCID N	NOD.CB17-Prkdc ^{scid} /NCrCrl	394	●				●			56
NOD SCID J	NOD.CB17-Prkdc ^{scid} /J	634			●				●	57
NSG®	NOD.Cg-Prkdc ^{scid} Il2rg ^{tm1Wjl} /SzJ	614		●	●	●	●		●	57
SRG Rat	Sprague Dawley-Rag2 ^{em2hera} Il2rg ^{em1hera} /HblCrl	707	●	●						58
Nude Rat	Crl:NIH-Foxn1 ^{nu}	316 - 118	●	●				●		58
NIH-III	Crl:NIH-Lys ^{tg-J} -Foxn1 ^{nu} Btk ^{xid}	201 - 202	●							59
Nude Mouse	Crl:NU-Foxn1 ^{nu}	088 - 089	●							59
SHO®	Crl:SHO-Prkdc ^{scid} Hr ^{tr}	474	●							59
SHC	CB17.Cg-Prkdc ^{scid} Hr ^{tr} /lcrCrl	C	●							59

Rabbits, Guinea Pigs, Gerbils, Hamsters

61 Rabbits

New Zealand White	Crl:KBL(NZW)	052			●			●		61
Chinchilla Bastard	Crl:Crlg(CHB)	602			●					61

62 Guinea Pigs

Dunkin Hartley	Crl:HA	051	●		●			●		62
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62 Gerbils

Gerbils	Crl:MON(Tum)	243	●			●				62
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62 Hamsters

Syrian Hamster	Crl:LVG(SYR)	049	●							62
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* not listed in the catalogue, C = Cryopreserved - ● = SPF (VAF Plus) - ● = SOPF (VAF Elite)

Preconditioning Services, Surgery and Contract Services

- 64 Preconditioning Services
- 66 Surgery Services
 - 66 Catheters
 - 66 External Catheter Access Systems
 - 66 Excision Surgery
 - 66 Device Implantation
- 67 Training, On-site Surgery, Customised Surgical Procedures, and Protocols
- 68 Biospecimens
- 69 ALZET® Osmotic Pumps
- 73 Antibody Production
- 74 Pharmaceutical Quality Control (biological tests)

Research Animal Diagnostics Services

- 76 Research Animal Diagnostics Services
- 77 Health Monitoring (HM) Programmes
 - 77 Alternative (Sentinel-Free) Programmes
 - 77 Hybrid programmes
- 78 Traditional Whole-Animal Sentinel Programmes
- 79 PRIA® (PCR Rodent Infectious Agent) Panels
- 93 Serology Profiles
- 98 Microbiology Culture
- 99 Rodent Parasitology, Pathology and Other Services
- 100 Microbiome Diagnostic Services
- 101 Zebrafish Health Surveillance
- 102 Xenopus Health Surveillance
- 103 Cell Line and Research Biologics Screening

Genetically Engineered Models and Services

- 108 Colony Management
 - 108 Quarantine Services
 - 108 Breeding Services
- 110 Embryology Services – Mice
 - 110 Rederivation
 - 110 Cryopreservation
 - 111 Cryorecovery
 - 111 Combined Services
 - 111 Assisted Reproduction
 - 112 Embryo Kits
 - 112 Mouse Embryo Assays
- 113 Embryology Services – Rats
 - 113 Rederivation
 - 113 Cryopreservation
 - 114 Cryorecovery
- 115 Custom Model Creation Services
- 116 Microinjection Services
- 117 Genetic Testing Services

Insourcing Solutions®

- 119 Staffing and Facility Management
- 119 Expert Consulting
- 120 Charles River Campus - E-learning
- 121 Customised Training, Regulatory Training and Continuing Education
- 122 Modular buildings

Resources

- 124 Glossary of Terms
- 128 General Terms and Conditions of Sale

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Animals, products and services can be ordered from our customer service department by telephone, fax or e-mail. All orders must be confirmed e-mail. To ensure smooth processing of your order, we encourage you to use our order form available on request.

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Ordering Information

Cancellation Policy

Due to both ethical and commercial reasons, Charles River reserves the right to charge for late cancellations or changes to confirmed orders and/or delivery arrangements as follows:

Rodents:

- Standard outbred/inbred strains and standard age/weight ranges (catalogue strains < 8 weeks old):
 - Up to 7 days before shipping date: no charge,
 - 7 days before shipping date: 100% charge.
- Standing orders: 6 weeks notice for cancellation/modification.
- Specific strains and special age/weight ranges and large quantities (dependent on colony size): no cancellation allowed, "Take or pay".
- Mated/pregnant females (standard strains CD[®], WISTAR, OF1, and CD-1[®]): no cancellation fee if the order is cancelled before mating. After mating, we will invoice at the list price.

Guinea-pigs:

Cancellation accepted before the guinea-pigs are weaned (2 weeks).

Rabbits:

- Time-mated females:
 - 4 weeks before mating date, we will invoice the price of a 14-week-old animal.
 - 2 weeks before mating date, we will invoice the price of a 16-week-old animal.
 - 1 week before mating date, we will invoice the price of a 18-week-old animal.
 - 1 day before mating date, we will invoice the price of a time-mated female.

- Other rabbits:

Cancellations accepted before rabbits are 10 weeks old, otherwise "Take or pay".

Surgically Altered Models and Biospecimens:
No cancellation allowed, "Take or pay".

Additional Charges Specific orders

Our research models are sold within specific weight ranges or at a certain age as given in the catalogue. For specific orders outside the standard weight range or age, additional charges may apply.

International Genetic Standardization (IGS) Program

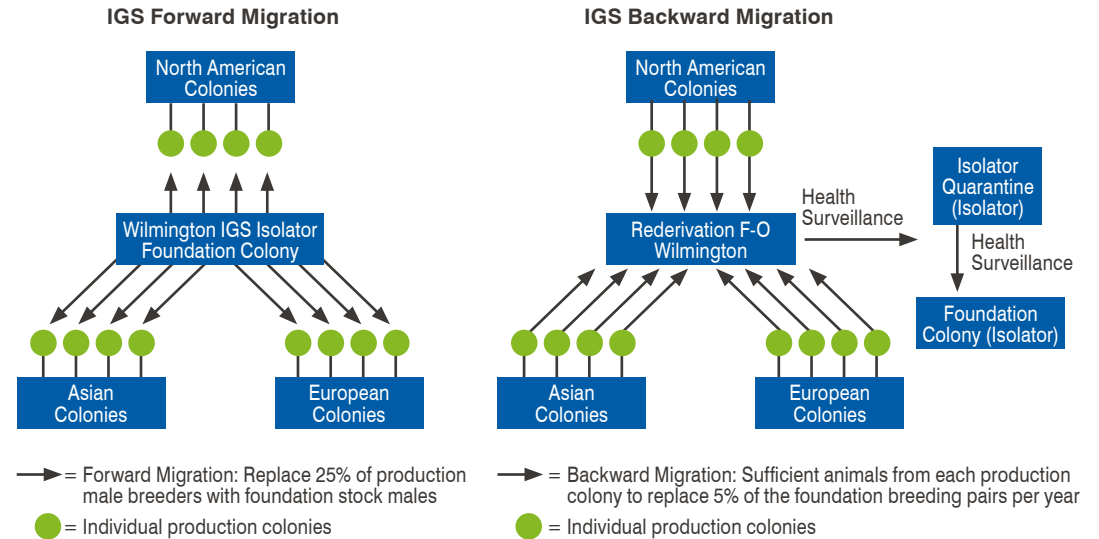
[+ Learn more](#)

Our unique International Genetic Standardization (IGS) program is available to manage the health and genetics of your inbred/outbred mice and rat strains to ensure high quality and uniformity, regardless of where they are bred.

Outbred Mice and Rats

- [CD® \(Sprague Dawley\) Rat](#)
- [CD \(Sprague Dawley\) SOPF Rat](#)
- [Wistar Rat](#)
- [Wistar Han Rat](#)
- [CD-1® Mouse](#)

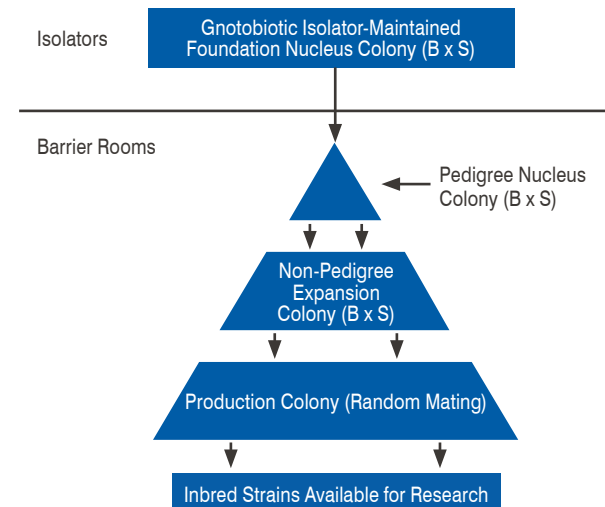
For outbred stocks, genetic drift and colony divergence across multiple generations for strains bred in isolation can be expected among rodent colonies. While genetic drift is natural and unavoidable, it's important to maintain diversity at the individual level and standardize the rate of genetic variation across multiple colonies that are geographically separated. For outbred stocks, the IGS program ensures minimal inbreeding, heterozygosity, and management of genetic drift across colonies worldwide.



Inbred Mice

- [C57BL/6N Mouse](#)
- [BALB/cN Mouse](#)

Inbred strains are defined as animals produced by a minimum of 20 generations of brother-sister mating, traceable to a founding pair. We use a pyramid mating system coupled to a foundation colony for inbred mice strains across the world. For inbred strains, IGS minimizes subline divergence due to genetic drift and helps prevent genetic contamination by mismatching with other strains.



[+ Learn more](#)



Animal Model Evaluation Program

Which Animal Model is Right for Your Study?

Selecting the appropriate animal model for your studies is critical to the success of your research. The Charles River Animal Model Evaluation Program allows you to assess the quality and compatibility of our animal models before making a commitment. Whether you have a new research protocol, are conducting or fine-tuning a pilot study, or simply exploring the opportunity to switch to a new animal model, this program can help you make the right choice.

Animal Model Evaluation Program Benefits

- No Cost:** Select the animal model you would like to evaluate and we will provide them to you at no cost.
- Risk Reduction:** Determine whether a model fits your research protocols before making a significant time and financial investment.
- Assess Quality:** Assess the quality of our research animal models on your own terms.
- Support:** Experience Charles River's industry-leading customer support network.

Programme Includes:

- Standard Mouse and Rat Models
- JAX® Mice Strains Bred by Charles River Europe
- Oncology Animal Models
- Disease/Translational Models
- Surgically Altered Models
- Biospecimens

[+ Learn more](#)

Animal Transport

Transportation by Accredited Trucks

Our animal deliveries are made in fully climate-controlled vans and trucks. Some export deliveries are transported by air freight. Transportation costs for animal orders are calculated according to the distance from our sites.

Our [customer service department](#) can provide you with information regarding the transportation routes and corresponding costs.

Weight Changes During Transport

Orders of animals with a weight specification will be referred to as the **packing weight**. As Charles River will have no control over potential weight changes during transport, we ask that you take this into account when planning your experiments and orders. Based on experience, we have noted that the way transport affects animal weight depends on the strain, sex, age and developmental status of the animals.

However, it is commonly found that rodents should return to their normal weight after an acclimatisation period of 24 to 48 hours after arriving at your facility. This may take a longer period of time for rabbits. This information is presented as guidance only, as weight recovery can also be influenced by the social position of the individual animals within their new hierarchies.

Shipping of Male Mice

Group-housed male mice may show aggressive behaviour, which might negatively impact the well-being of the animals and cause variations in experimental results.

At Charles River, adult male mice are housed in stable groups to minimize the risk of aggressive behaviour. When preparing the animals for shipping, every effort is made not to mix these groups.

Nevertheless mice can show aggressive behaviour after arrival at your facility due to differences in husbandry, new hierarchic structures that need to be established and hierarchy or influences caused by the experiment.

The housing of adult male mice that arrive at your facility from different crates should be avoided.

Strain Characteristics

The various strains bred by Charles River have unique and intrinsic zootechnical and behavioural characteristics that have to be taken into account when ordering the models. For all questions related to strain characteristics, please contact our [customer scientific and technical support](#).

SPF, SOPF, VAF/ Plus[®] and VAF/Elite[®] Health Status

Charles River is committed to providing you with high-quality genetically standardized models such as SPF (Specific Pathogen Free) and SOPF (Specific and Opportunistic Pathogen Free) animals which are free of select infectious agents and parasites. The terms SPF and SOPF are more commonly used in continental Europe while, VAF Plus and VAF Elite are more recognisable in the UK and North America.

SPF = VAF Plus and SOPF = VAF Elite; they are based on the same monitoring programmes in terms of agents screened, number and age of animals screened, frequency of testing, and recycling policies.

[+ Learn more](#)

Time-mated Females

Successful time mating of rodents is confirmed by the detection of positive signs of mating (e.g. the presence of a copulation plug). However, confirmation of mating is not a guarantee of pregnancy. We discourage pregnant animal shipments within the first 4-5 days of gestation (GD), when the embryo implantation generally occurs.

Shipping during that period may increase the risk of embryo loss and pregnancy termination. The day of putting male and female animals in a mating cage is denominated as day "0".

Pregnancy Guarantee (Percentage)

Stock or strain	Time mated and shipped before GD 14 for mice and 15 for rats	Time-mated and observed and/or palpated Shipped at GD 14 or 15 and over	Untimed pregnant. Selected by visual observation and/or palpation. GD 14-17
Outbred rats	90 %	100 %	100 %
Outbred mice	75 %	100 %	100 %
Inbred rats, Inbred mice, specialty mice	Plug guarantee only	75 %	75 %

Please note that we do not guarantee a certain number of embryos or fetuses out of a pregnancy. Since the individual gestation period is subject to biological variation, the exact birth date cannot be guaranteed as such.

Time-mating and subsequent plug-controls are set up according to best practice and experience.

Time-mating of animals (mating or plug-control) falling into a weekend or public holiday will incur additional premium charges on top of our communicated "time-mating" animal price.

On untimed pregnant orders a variation of 3 to 4 days gestation can be expected. Therefore Charles River cannot be held responsible for actual gestation and/or exact day of littering.

Charles River's protocol is in strict conformance with the Council Regulation (EC) 1/2005 on the protection of animals during transport and related operations.

Shipping Lactating Female Rats or Mice with Pups

Please contact our [Customer Service Department](#) to discuss modalities that are aligned with Council Regulation (EC) 1/2005 on the protection of animals during transport and national laws and regulations.



Age/Weight Correlation Information

Age/weight correlation information is presented throughout this product catalogue for each sex of most stocks and strains. The information is specific to the conditions maintained in Charles River barrier production rooms. Weight information related to the JAX® Mice strains are specific to the conditions maintained in Charles River's barrier production rooms as well. The shaded areas on each chart are the mean weight plus or minus one standard deviation at a given age averaged across all production facilities. This represents approximately 67% of the population, with the remaining 33% falling outside of this weight range. Overlaps in the full range of weights occur between age groups and will be more pronounced in outbred animals.

Weaning

The age of the animals is determined in weeks after weaning. Each strain has its own weaning procedure indicating when this step should take place. By convention, the age of weaning is reported as 3 weeks (corresponding to the designation "21-27 days" on SAP documents).

An age of 3 weeks means that the mouse is in its weaning week and does not prejudice its exact age.

Thus, all mice weaned in week N are classified in the age group of 3 weeks (21-27 days) regardless of their actual age. They will then move into the 4 weeks age group (28-34 days) on the Monday of the week N + 1, then in the age group of 5 weeks (35-41 days) on Monday of the week N + 2, and so on.

Aged Animals

Aged animals are available upon reservation from 3 months up to 15 months for specific strains. The animals can be ordered by age ranges of 1 month. Specific strains are available across our European subsidiaries. Contact your local office for more information on pricing and reservations.

Humane Care Initiative

Charles River is committed to the humane care of the research animals produced and used in all of its activities. Our Humane Care Initiative supports this core value and is directed by our Animal Welfare and Training group. All Charles River's employees are engaged to this humane care policy: continued education, signature of an ethical commitment, internal audits, and ethical information feedbacks.

[+ Learn more](#)

Quality Management

Charles River, Research Models and Services Germany (Sulzfeld), Italy (Calco) and UK (Margate) are certified ISO 9001.

AAALAC

Charles River is proud of the fact that all of our research model breeding and services facilities in Europe (UK, France, Germany and Italy) have received accreditation of their animal care and use programmes from the Association for the Assessment and Accreditation of Laboratory Animal Care (AAALAC) International. Only a handful of commercial breeders in Europe have received this prestigious accreditation.

AAALAC is an internationally recognised, nonprofit organisation that promotes the humane treatment of animals in science through voluntary accreditation and assessment programmes. AAALAC International accreditation is issued to organisations that demonstrate commitment to responsible animal care and use.

Participation in the accreditation process is voluntary and includes a site visit and programme evaluation conducted by the best animal care and use professionals and researchers from around the globe. The AAALAC Council on Accreditation then determines which institutions are to be accredited.



[+ Learn more](#)

The Jackson Laboratory

JAX® Mice and Research Services Provided Through Charles River

The Jackson Laboratory and Charles River, Inc. have a cooperative agreement to provide local supplies of JAX® Mice to biomedical researchers in Europe, Korea and Taiwan.

Through this agreement, Charles River serves as the exclusive, authorised, commercial distributor and breeder of JAX® Mice strains in the countries listed below.

- Albania
- Austria
- Belgium
- Bosnia-Herzegovina
- Bulgaria
- Croatia
- Czech Republic
- Denmark
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Italy
- Korea
- Luxembourg
- Macedonia
- Montenegro
- Netherlands
- Norway
- Poland
- Portugal
- Serbia
- Slovenia
- Spain
- Sweden
- Switzerland
- Taiwan
- United Kingdom

JAX® Mice are The Gold Standard for Biomedical Research

Used by researchers around the world, JAX® Mice are the most frequently cited strains in biomedical research publications and are supported by world-renowned scientific and technical staff. JAX® Mice are produced according to the highest standards of animal health and genetic quality. Charles River provides researchers in Europe and Asia with expedited access to over 12,000 JAX® Mice strains and hundreds of new mouse models each year. JAX® Mice strains include commonly used inbred strains as well as thousands of specialised disease models and genetically engineered strains.

JAX® Mice are The Most Published, Best Characterised Mouse Models

JAX® Mice have been referenced in more than 30,000 peer reviewed publications. Over 16,000 PubMed references cite use of the authentic JAX® Mice B6 strain (C57BL/6J, stock number 000664). The JAX® Mice B6 strain, along with many other JAX® Mice inbred strains have been fully sequenced as part of the Mouse Genome Project (see: www.sanger.ac.uk/science/data/mouse-genomes-project). The genome sequence data of JAX® Mice strains will remain relevant over time due to the rigorous genetic quality programs (including the JAX® patented Genetic Stability Program) used to breed JAX® Mice Strains. Additional genetic and phenotypic information about JAX® Mice is publicly available in data resources hosted by The Jackson Laboratory, including Mouse Genome Informatics (informatics.jax.org) and The Mouse Phenome Database (phenome.jax.org).

Only JAX® Mice Strains bred by Charles River in Europe are equivalent in genetic quality to those bred by The Jackson Laboratory



Charles River in Europe breed JAX® Mice in strict adherence to The Jackson Laboratory's breeding protocols and genetic quality control guidelines. These protocols provide the following benefits:

- Minimise naturally occurring genetic drift by systematically re-infusing breeding colonies with pedigreed mice from The Jackson Laboratory.
 - Assure genetic quality through routine use of state-of-the-art genetic quality monitoring methods such as SNP analysis.
- Under these conditions, JAX® Mice strains bred by Charles River are:
- Equivalent in genetic quality to those bred by The Jackson Laboratory.
 - Provide the genetic integrity and stable phenotypes needed to support research excellence.

J™ and JAX® are trademarks of The Jackson Laboratory registered in the United States. All rights reserved.

“J” Substrains Differ from Authentic JAX® Mice Strains Due to Genetic Drift

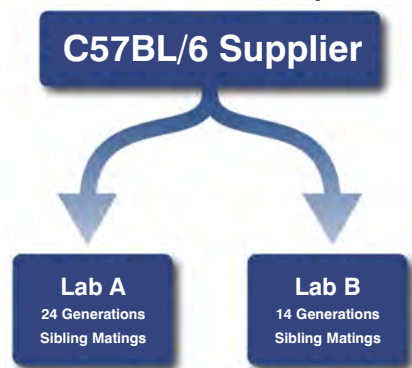
Over the years, organisations around the world have been maintaining colonies of mouse substrains with JAX® Mice ancestry (“J” substrains). These “J” substrains differ from JAX® Mice strains due to the genetic mutations which spontaneously occur and accumulate in mouse breeding colonies over time.

Due to naturally occurring genetic drift, a mouse strain will diverge into a genetically distinct substrain if its breeding colony is separated from the parental breeding colony for more than 20 generations of breeding (i.e., 10 generations in the parent colony plus the 10 that simultaneously pass in the sub-colony*). This divergence can occur within only a few years. Genetic differences between a parental strain and a substrain accumulate with time and at a rate dependent upon the level of quality control at the facilities housing and breeding the mice. These genetic differences often result in phenotype differences between a parental strain and a substrain. Such differences confound interpretation of experimental results especially when comparing results to published research using JAX® Mice strains.

IMPORTANT NOTE: JAX® Mice strains bred by Charles River are authentic JAX® Mice and are NOT genetically drifted “J” substrains.

* For more information on mouse nomenclature and substrain divergence, see <http://www.informatics.jax.org/mgihome/nomen/strains.shtml#substrains>.

Substrain Development



38 Generations apart

Genetic Drift White Paper

For further information on genetic drift and how it can impact your studies, please feel free to [download the white paper](#) entitled, “Strategies to Minimize Genetic Drift and Maximize Experimental Reproducibility in Mouse Research.”

Patented Genetic Stability Program

The JAX® patented Genetic Stability Program (GSP) effectively prevents cumulative genetic drift, including that caused by copy number variation, in the most popular strains of JAX® Mice.

The GSP program effectively limits cumulative genetic drift by refreshing The Jackson Laboratory’s foundation stocks with cryopreserved pedigree embryos or gametes approximately every five generations. The program was initiated in 2003 (Taft et al. 2006) and is covered by 2009 US patent 7,592,501 and 2012 US patent 8,110,721.



The Jackson Laboratory’s unique, patented GSP has several components: 1) an extensive supply of cryopreserved stock for each strain; 2) isolated foundation colonies, maintained by inbreeding for only five generations before refreshing with cryo-recovered stock; 3) large, independent expansion and production colonies fed directly from pedigreed colonies for distribution through The Jackson Laboratory and through Charles River in Europe. Importantly, the generations between the cryopreserved stocks and mice produced for distribution are kept to a minimum to prevent the accumulation of mutations that result in genetic drift (<http://www.jax.org/gsp>).

* The Jackson Laboratory’s innovative Genetic Stability Program is covered by 2009 US patent 7,592,501 and 2012 US patent 8,110,721.

Importance of Indicating Strain Lineage and History using Proper Strain Nomenclature

Proper mouse strain nomenclature, as established by the International Committee on Standardised Genetic Nomenclature for Mice, provides researchers with essential information about the lineage and history of inter-laboratory transfers of substrains over time.

Using proper strain nomenclature requires including in the strain name all Laboratory Codes (i.e., a unique 2-4 letter code assigned to each investigator or institution) as a means to identify all investigators or institutions which have maintained a strain or substrain.

Research Services Using JAX® Mice

Charles River breeding facilities located in Europe also serve as The Jackson Laboratory's exclusive commercial providers of certain research services using JAX® Mice bred by Charles River. Services offered include:

- Biospecimen provision
- Cross-breeding
- Custom breeding
- Dedicated supply
- DIO (Diet Induced Obesity) studies
- Health monitoring
- Recovery of cryopreserved embryos
- Surgeries
- Genotyping

Importing JAX® Mice strains

The Jackson Laboratory is home to over 12,000 JAX® Mice strains with hundreds of new models added each year. Through The Jackson Laboratory agreement with Charles River, European researchers have access to mouse strains suitable for research applications covering every major therapeutic area.

Importation Process:

- [Select a JAX® Mice strain](#) of interest. Please contact us should you require assistance in making a selection, or more information regarding your chosen strain.
- Request a JAX® Mice order form from Charles River.
- Upon receipt of the form, Charles River will provide availability details and a price quotation.
- The final steps will be handled by our teams including: order management, freight processing, documentation for customs purposes, customs and veterinary clearance, taxes and duties.

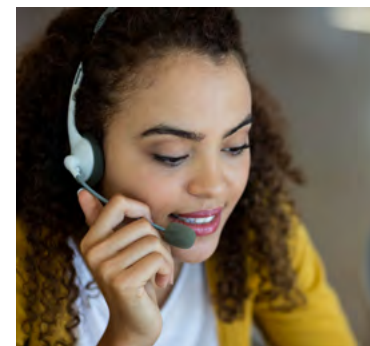
Our experienced customer service staff aim to make the process as smooth as possible. Please be aware that Charles River will not be responsible for any damages arising while mice are in the care of non-Charles River transport companies (e.g. airlines), and that delays can occur during adverse weather conditions for animal welfare reasons.

[+ Learn more](#)

For Technical Support

Technical information is available by telephone:

- in France: +33 (0)4 74 01 69 20
- in Germany: +49 (0)9761/406 49
- in U.K.: 0845 6013160
- in Italy: +39 039 509915
- or on the web at: www.criver.com and askcharlesriver@crl.com



Contact our customer service teams to discuss your requirements

Educational Information on Mouse Genetics and Strain Nomenclature

[Handbook on Genetically Standardized Mice.](#)

[JAX® Mice Genetic Quality Control Program.](#)

[JAX® Mice Genetic Stability Program.](#)

[Educational Resources on Nomenclature for Mouse Strains.](#)

Published Reference: Taft RA, Davisson M, Wiles MV. 2006 Know Thy Mouse. Trends Genet 22:649-53.

Rat Models



Rat Models - Health Profiles

Charles River is committed to providing you with high-quality genetically standardised models such as SPF (Specific Pathogen Free) and SOPF (Specific and Opportunistic Pathogen Free)*.

The CD® IGS Rat is available from Charles River Europe with an SOPF health status.

	SPF Immunocompetent rats	SOPF Immunocompetent rats
Viruses		
Rat Parvovirus Type 1 (RPV)	•	•
Rat Parvovirus Type 2 (RMV)	•	•
Toolan H1 Virus	•	•
Kilham Rat Virus (KRV)	•	•
Rat coronavirus/sialodacryoadentitis RCV/SDAV	•	•
Rat Theiler Virus (RTV, GDVII)	•	•
Reovirus 3 (REO3)	•	•
Sendai virus (SEND)	•	•
Pneumonia Virus of mice (PVM)	•	•
Mouse Adenovirus (MAV)	•	•
Lymphocytic Choriomeningitis (LCMV)	•	•
Hantaan Virus	•	•
Bacterias		
Tyzzers Disease (C.PIL)	•	•
Bordetella bronchiseptica	b	•
Corynebacterium kutscheri	•	•
Mycoplasma pulmonis	•	•
Rodentibacter pneumotropicus	b	•
Rodentibacter heylii	b	•
Pasteurella multocida	•	•
Salmonella spp	•	•
Streptobacillus moniliformis	•	•
Streptococcus pneumoniae	b	•
Helicobacter hepaticus	•	•
Helicobacter bilis	•	•
Helicobacter spp	•	•
Filobacterium rodentium	•	•
Pneumocystis spp	•	•

	SPF Immunocompetent rats	SOPF Immunocompetent rats
Opportunistic organisms		
Beta Haemolytic Streptococcus A	c	•
Beta Haemolytic Streptococcus B	c	•
Beta Haemolytic Streptococcus C	c	•
Beta Haemolytic Streptococcus G	c	•
Staphylococcus aureus	c	•
Pseudomonas aeruginosa	c	•
Klebsiella pneumoniae	c	•
Klebsiella oxytoca	c	•
Proteus mirabilis	c	•
Parasites		
E. cuniculi	•	•
Ectoparasite	•	•
Helminth	•	•
Enteric Pathogenic Protozoa	•	•
Other protozoa	c	•

• = excluded agents - b = planned recycle - c = no action

* List of agents for North America may differ from table listed above

CD® IGS (International Genetic Standard) Rats

STRAIN CODE: 001

[+ Learn more](#)




Weight in Grams	MALE	FEMALE
	Price - €	Price - €
≤50	13,47	13,47
51-75	14,63	14,63
76-100	18,63	18,63
101-125	20,82	20,82
126-150	22,75	22,75
151-175	24,71	24,71
176-200	27,51	27,51
201-225	29,32	29,32
226-250	30,87	30,87
251-275	32,89	32,89
276-300	36,55	Upon Request
>300	Upon Request	Upon Request
Retired breeder	16,99	16,99
Pregnant / time mated females		Upon Request
Female with litter (males or females)		Upon Request

Nomenclature: Crl: CD(SD)

Origin: Originated in 1925 by Robert W. Dawley from a hybrid hooded male and a female Wistar rat. Introduced into Charles River in 1950 from Sprague Dawley®. Caesarean derived in 1955 from original Charles River SD colonies to form the nucleus of the current CD® stock.

Coat Colour: White (Albino).

Research Application: General multipurpose model, safety and efficacy testing, aging, nutrition, diet-induced obesity, oncology, surgical model.

 Production colonies are developed from the Foundation Colony and managed according to the Charles River [International Genetic Standardization](#) program.

 SOPF

Also available with SOPF health status (Strain code: 687). Please enquire for pricing.

Lister Hooded

STRAIN CODE: 603

[+ Learn more](#)



Weight in Grams	MALE	FEMALE
	Price - €	Price - €
<50	22,14	22,14
50-75	24,70	24,70
76-100	27,50	27,50
101-125	30,30	30,30
126-150	33,30	33,30
151-175	36,33	36,33
176-200	39,57	39,57
201-225	43,04	43,04
226-250	46,51	46,51
251-275	49,97	49,97
276-300	53,67	53,67
>300	Upon Request	Upon Request
Retired breeder	31,08	31,08
Pregnant / time mated females		Upon Request
Female with litter (males and females)		Upon Request

Nomenclature: Crl:LIS

Origin: These rats have taken their name from the Lister Institute, where the stock first originated. From Glaxo to Charles River UK in 1990 and again in 1996. To Charles River Germany in 2007.

Coat Colour: White with black hood.

Research Application: Noted for its docility and good breeding performance. Susceptible to audiogenic seizures.

Long Evans Rat

STRAIN CODE: 006

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
28-34 (4 weeks)	41,41	41,41
35-41 (5 weeks)	49,39	49,39
42-48 (6 weeks)	54,99	54,99
49-55 (7 weeks)	61,35	61,35

Nomenclature: Crl:LE

Origin: Originated by Drs. Long and Evans in 1915 by cross of several Wistar Institute white females with a wild gray male. To Charles River from Canadian Breeding Farm and Laboratories in 1978. Caesarean rederived in 1978.

Coat Colour: White with black hood; occasionally white with brown hood.

Research Application: General multipurpose model, behavioral research, diet-induced obesity.

Wistar Han IGS (International Genetic Standard) Rat

STRAIN CODE: 273

[+ Learn more](#)




Weight in Grams	MALE	FEMALE
	Price - €	Price - €
≤50	12,87	12,87
51-75	14,77	14,77
76-100	18,50	18,50
101-125	20,60	20,60
126-150	22,70	22,70
151-175	25,00	25,00
176-200	27,22	27,22
201-225	28,97	Upon Request
226-250	30,64	Upon Request
251-275	32,60	
276-300	35,50	
>300	Upon Request	
Retired breeder	24,46	24,46
Pregnant / time mated females		Upon Request
Female with litter (males or females)		Upon Request

Nomenclature: Crl:WI(Han)

Origin: Rederived by Glaxo Wellcome from Han Wistar stock supplied by BRL. Transferred to Charles River in 1997.

Coat Colour: White (Albino).

Research Application: General multipurpose model, safety and efficacy testing, aging, oncology, surgical model.

 Production colonies are developed from the Foundation Colony and managed according to the Charles River [International Genetic Standardization](#) program.

Wistar IGS (International Genetic Standard) Rat

STRAIN CODE: 003

[+ Learn more](#)




Weight in Grams	MALE	FEMALE
	Price - €	Price - €
≤50	13,37	13,37
51-75	15,33	15,33
76-100	19,22	19,22
101-125	21,40	21,40
126-150	23,55	23,55
151-175	25,96	25,96
176-200	28,26	28,26
201-225	30,09	Upon Request
226-250	31,83	Upon Request
251-275	33,85	
276-300	36,86	
>300	Upon Request	
Retired breeder	27,10	27,10
Pregnant / time mated females		Upon Request
Female with litter (males and females)		Upon Request

Nomenclature: Crl:WI

Origin: To Scientific Product Farms Ltd (previous owner of Charles River UK) in 1947 from Wistar Institute. To Charles River USA in 1975 from Charles River UK. Caesarian derived in 1975 to form the nucleus of the current Wistar rat colonies.

Coat Colour: White (Albino).

Research Application: General multipurpose model, infectious disease research, safety and efficacy testing, aging, surgical model.

 **IGS** Production colonies are developed from the Foundation Colony and managed according to the Charles River [International Genetic Standardization](#) program.

Wistar Wu Rat

STRAIN CODE: 619

[+ Learn more](#)



Weight in Grams	MALE	FEMALE
	Price - €	Price - €
51-75	19,25	19,25
76-100	22,36	22,36
101-125	24,75	24,75
126-150	27,60	27,60
151-175	29,72	29,72
176-200	31,85	31,85
201-225	34,52	Upon Request
226-250	36,46	Upon Request
251-275	39,36	Upon Request
276-300	Upon Request	
>300	Upon Request	
Retired breeder	Upon Request	30,06
Pregnant / time mated females		Upon Request
Female with litter (males and females)		Upon Request

Nomenclature: Crl:WI(WU)

Origin: Selection by H.H. Donalson at the Wistar-Institute, USA, at the beginning of 20th century. To Glaxo in 1927, continued as inbred. To Nederlands-Instituut voor Volksvoeding in 1933, to Unilever, Vlaardingen in 1941 and Instituut Centrale Proefdierenbedrijf TNO in 1958. Caesarian rederived in 1963. As an outbred to SAVO, Kiblegg in 1975. Caesarian rederived at Charles River in 1987.

Coat Colour: White (Albino).

Research Application: General multipurpose model, toxicology, safety and efficacy testing, aging.

Brown Norway Rats

STRAIN CODE: 091

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	56,68	56,68
28-34 (4 weeks)	60,67	60,67
35-41 (5 weeks)	74,92	74,92
42-48 (6 weeks)	83,84	83,84
49-55 (7 weeks)	87,79	87,79
56-62 (8 weeks)	98,82	98,82
Additional week (up to 12 weeks)	11,00	11,00

Nomenclature: BN/Crl

Origin: Silvers and Billingham began brother x sister matings with selection for haplotype in 1958 from a brown mutation in a stock of wild rats maintained by King and Aptekman in a pen-bred colony rats trapped from the wild in 1930 by King at the Wistar Institute. To Charles River from Radiobiology Institute, Netherlands in 1976.

Coat Colour: Non-agouti brown.

Research Application: Genetic mapping, respiratory inflammation, immunological dysfunction, aging, transplantation research.

Fischer 344 Rats

STRAIN CODE: 002

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	43,56	43,56
28-34 (4 weeks)	45,85	45,85
35-41 (5 weeks)	51,87	51,87
42-48 (6 weeks)	57,27	57,27
49-55 (7 weeks)	65,89	65,89
56-62 (8 weeks)	69,43	69,43
Additional week (up to 12 weeks)	6,06	6,06

Nomenclature: F344/DuCrI

Origin: From mating #344 of rats purchased from a local breeder (Fischer). Colony originated by M.R. Curtis, Columbia University Institute for Cancer Research, 1920. Dunning at Columbia continued to inbreed to form the strain starting in 1920. Dunning to Charles River in 1960 at F68. Caesarean rederived in 1960. To Charles River Germany in 1987.

Coat Colour: Albino.

Research Application: General multipurpose model, aging, safety and efficacy testing, surgical model, oncology, nutrition.

Lewis Rats

STRAIN CODE: 004

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	44,36	44,36
28-34 (4 weeks)	45,53	45,53
35-41 (5 weeks)	58,73	58,73
42-48 (6 weeks)	62,22	62,22
49-55 (7 weeks)	66,11	66,11
56-62 (8 weeks)	72,00	72,00
Additional week (up to 12 weeks)	Upon Request	Upon Request

Nomenclature: LEW/Crl

Origin: Developed by Dr. Lewis from Wistar stock in the early 1950s. To Charles River from Tulane in 1970 at F34. Hysterectomy rederived in 1975.

Coat Colour: White (Albino).

Research Application: Transplantation research, induced arthritis/inflammation, experimental allergic encephalitis, STZ-induced diabetes.

WAG Rats

STRAIN CODE: 638

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	Upon Request <i>Breeding colonies for the WAG rat will fluctuate in size depending on current demand. Please contact your local customer service department for pricing and an estimated lead time for delivery.</i>	
28-34 (4 weeks)		
35-41 (5 weeks)		
42-48 (6 weeks)		
49-55 (7 weeks)		
56-62 (8 weeks)		

Nomenclature: WAG/RijCrl

Origin: A.L. Bacharach, Glaxo Labs., U.K., 1924, from a Wistar stock. To Harrington in 1964 at F83. To MBL-TNO in 1953, after that to REP Institutes TNO, Rijswijk. To Charles River Germany from REP Institutes TNO in 1993.

Coat Colour: Albino.

Research Application: General multipurpose model, epilepsy, behavior, immunology.

Wistar Kyoto Rats

STRAIN CODE: 008



[+ Learn more](#)

Age In Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	47,14	47,14
28-34 (4 weeks)	49,20	49,20
35-41 (5 weeks)	52,46	52,46
42-48 (6 weeks)	58,59	58,59
49-55 (7 weeks)	68,40	68,40
56-62 (8 weeks)	74,23	74,23
Additional week	10,80	10,80

Nomenclature: WKY/NCrl

Origin: Strain started by Okamoto from outbred Wistar stock at the Kyoto School of Medicine, in 1963. To NIH in 1971. This is the same stock from which the SHR was developed. To Charles River in 1974 at F11.

Coat Colour: Albino.

Research Application: Control for the SHR rat, ADHD model.

ZDF Rats

STRAIN CODE: 370



[+ Learn more](#)

Age in Days	MALE		FEMALE
	Diabetic fa/fa - €	Control fa/+ - €	Diabetic fa/fa - € Control fa/+ - €
42-48 (6 weeks)	798,21	309,08	Upon Request
49-55 (7 weeks)	822,57	337,50	
56-62 (8 weeks)	850,12	362,75	
63-69 (9 weeks)	879,78	389,26	
70-76 (10 weeks)	904,60	417,80	
Additional week (up to 12 weeks)	14,81	14,81	

Nomenclature: ZDF-*Lep^{fa}*/CrI

Origin: The diabetic trait occurred in a colony of outbred Zucker rats at Eli Lilly Research Laboratories, USA, during 1974-1975. Part of this colony was moved to Indiana University Medical School (IUMS) in 1977. Animals with diabetic lineage were identified and rederived in 1981. The inbred line of ZDF rat was established in 1985. To Genetic Models Inc. (GMI) in 1991 and to Charles River in 2001.

Coat Colour: White with black hood.

Diet: Purina 5008.

Research Application: Type 2 diabetes, hyperlipidemia, glucose intolerance, obesity, hyperinsulinemia.

ZDF Control Information

STRAIN CODE: 380

[+ Learn more](#)

Lean animals are available as possible controls. The zygosity is fa/+.

It is a condition of sale that customers (or their employees) purchasing or receiving ZDF rats are not permitted to breed or cross breed ZDF rats without the prior written approval of Charles River.

SHR Rats

STRAIN CODE: 007

[+ Learn more](#)



Age In Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	Upon Request <i>Please contact your local customer service department for pricing and an estimated lead time for delivery.</i>	
28-34 (4 weeks)		
35-41 (5 weeks)		
42-48 (6 weeks)		
49-55 (7 weeks)		
56-62 (8 weeks)		
63-69 (9 weeks)		
70-76 (10 weeks)		
Additional week		

Nomenclature: SHR/NCrl

Origin: To NIH in 1966 from Okamoto at F 13. From an outbred Wistar Kyoto male with marked elevation of blood pressure. To Charles River from NIH in 1973 at F 32. Caesarean derived in 1973.

Coat Colour: Albino.

Research Application: Genetic hypertension, hypertensive drug research, ADHD model, safety and efficacy testing.

Other Metabolic, Renal and Cardiovascular Rat Models Available from Charles River*

Spontaneously Hypertensive Heart Failure (SHHF) Model Rats

STRAIN CODE: 373 (Obese), 374 (Lean +/-)

Nomenclature: SHHF/MccGmiCrl-*Lep^{fl}*/Crl.

Research Application: Heart failure, hypertension, type 2 diabetes, nephropathy, insulin resistance.

[+ Learn more](#)

Zucker Rats

STRAIN CODE: 185 (Obese), 186 (Lean)

Nomenclature: Crl:ZUC-*Lep^{fl}*

Research Application: Insulin resistance, glucose intolerance, metabolic syndrome, genetic obesity.

[+ Learn more](#)

ZSF1 Rats

STRAIN CODE: 378 (Obese), 379 (Lean +/-)

Nomenclature: ZSF1-*Lep^{fl}* *Lep^{fl}*/Crl.

Research Application: Hypertension, type 2 diabetes, hyperlipidemia, nephropathy, metabolic syndrome.

It is a condition of sale that customers (or their employees) purchasing or receiving this strain are not permitted to breed or cross breed this strain without the prior written approval of Charles River.

[+ Learn more](#)

*Limited availability, upon reservation from Charles River USA



Cryopreserved

Common Name	Nomenclature	
Copenhagen	COP/CrCrI	+ Learn more
Obese Prone CD® Rat	CrI:OP(CD)	+ Learn more
Obese Resistant CD® Rat	CrI:OR(CD)	+ Learn more
PCK	PCK/CrIjCrI-Prkhd1 ^{ock} /CrI	+ Learn more
Stroke Prone Rats	SHRSP/A3NCrI	+ Learn more
SS-13BN Rat	SS-Chr 13 ^{BN} /McwiCrI	+ Learn more
Zucker Rat	CrI:ZUC(OrI)-Lep ^{ra}	+ Learn more

Mouse Models



Mouse Models - Health Profiles

Charles River is committed to providing you with high-quality genetically standardized models such as SPF (Specific Pathogen Free) and SOPF (Specific and Opportunistic Pathogen Free)*.

	SPF Immunocompetent mice	SOPF Immunocompetent mice
Viruses		
Minute Virus of Mice (MVM)	•	•
Mouse Parvovirus (MPV)	•	•
Mouse Hepatitis Virus (MHV)	•	•
Mouse Norovirus (MNV)	•	•
Theiler's Murine Encephalomyelitis Virus (TMEV -GDVII)	•	•
Mouse Rotavirus (EDIM)	•	•
Sendai virus (SEND)	•	•
Reovirus 3 (REO3)	•	•
Pneumonia virus of Virus (PVM)	•	•
Mouse Thymic Virus (MTV)	•	•
Mouse Cytomegalovirus (MCMV)	•	•
Hantaan Virus (HANT)	•	•
Lymphocytic Choriomeningitis Virus (LCMV)	•	•
Mouse Adenovirus (MAV 1 & 2)	•	•
K Virus (K)	•	•
Ectromelia virus (ECTRO)	•	•
Polyoma Virus (POLY)	•	•
Lactate Dehydrogenase Virus (LDV)	•	•
Murine Chapparovirus (MuCPV)	•	•
Opportunistic organisms		
Staphylococcus aureus	c	•
Pseudomonas aeruginosa	c	•
Klebsiella pneumoniae	c	•
Klebsiella oxytoca	c	•
Pneumocystis spp	c	•
Proteus mirabilis	c	•
Beta haemolytic Streptococcus A	c	•
Beta haemolytic Streptococcus B	c	•
Beta haemolytic Streptococcus C	c	•
Beta haemolytic Streptococcus G	c	•
Corynebacterium bovis	c	•

	SPF Immunocompetent mice	SOPF Immunocompetent mice
Bacterias		
Tyzzet's Disease (CPIL)	•	•
Bordetella bronchiseptica	b	•
Citrobacter rodentium	•	•
Corynebacterium kutscheri	•	•
Mycoplasma pulmonis	•	•
Rodentibacter pneumotropicus	b	•
Rodentibacter heylii	b	•
Pasteurella multocida	•	•
Salmonella spp	•	•
Streptobacillus moniliformis	•	•
Streptococcus pneumoniae	b	•
Helicobacter hepaticus	•	•
Helicobacter bilis	•	•
Helicobacter typhlonius	•	•
Helicobacter spp, other species	•	•
Filobacterium rodentium	•	•
Parasites		
Ectoparasites	•	•
Helminths	•	•
Enteric Pathogenic Protozoa	•	•
Other protozoa	c	•
E. cuniculi	•	•

Immunocompetent Strains Available from Charles River with an SOPF Health Status: 

From Europe		From North America*
CrI:CD1 (ICR)	C3H/HeNCrI	BALB/cAnNCrI
CrI:NMRI (Han)	C57BL/6J	SJL/JOrIcoCrI
129S2/SvPasCrI	C57BL/6NCrI	CrI:SKH1-Hr ^r
BALB/cByJ		

• = excluded agents - b = planned recycle - c = no action

* List of agents for North America may differ from table listed above

CD-1[®] IGS (International Genetic Standard) Mice

STRAIN CODE: 022

[+ Learn more](#)



Weight in Grams	MALE	FEMALE
	Price - €	Price - €
10-12	5,40	5,40
12-14	5,57	5,57
14-16	6,03	6,03
16-18	6,51	6,51
18-20	6,83	6,83
20-22	7,40	7,40
22-24	7,74	7,74
> 24 g / (per 2 g)	Upon Request	Upon Request
Retired breeder	Upon Request	Upon Request
Time mated females		Upon Request
Female with litter (males and females)		Upon Request
Pregnant		Upon Request

Nomenclature: CrI:CD1 (ICR)

Origin: The original group of Swiss mice that served as progenitors of this stock consisted of two male and seven female albino mice derived from a non-inbred stock in the laboratory of Dr. de Coulon, Centre Anticancereux Romand, Lausanne, Switzerland. These animals were imported into the United States by Dr. Clara Lynch of the Rockefeller Institute in 1926. The Hauschka Ha/ICR stock was initiated in 1948 at the Institute for Cancer Research in Philadelphia from "Swiss" mice of Rockefeller origin. To Dr. Edward Mirand of Roswell Park Memorial Institute where they were designated as HaM/ICR. To Charles River in 1959 and hysterectomy rederived that same year.

Coat Colour: Albino.

Research Application: General multipurpose model, safety and efficacy testing, aging, pseudopregnancy, surgical model.

IGS Production colonies are developed from the Foundation Colony and managed according to the Charles River [International Genetic Standardization](#) program.



Also available with SOPF health status (Strain code: 482). Please enquire for pricing.

NMRI Mice

STRAIN CODE: 605

[+ Learn more](#)



Weight in Grams	MALE	FEMALE
	Price - €	Price - €
10-12	6,42	6,42
12-14	6,91	6,91
14-16	7,36	7,36
16-18	7,85	7,85
18-20	8,31	8,31
20-22	9,16	9,16
22-24	9,56	9,56
> 24 g / (per 2 g)	1,09	1,09
Retired breeder		Upon Request
Time mated females		Upon Request
Female with litter (males and females)		Upon Request
Pregnant		Upon Request

Nomenclature: CrI:NMRI(Han)

Origin: Swiss-type mouse, which Clara Lynch gave to Pooley in 1937. He maintained an inbred line of this animal until the 51st generation, before he transferred it to the Naval Medical Research Institute. Introduced into Charles River in 1979 from the Central Institute for Laboratory Animal Breeding - Hannover (Germany).

Coat Colour: Albino.

Research Application: General purpose model, toxicology, teratology, pharmacology (especially in psychopharmacology for behavioral studies) and physiology.



Also available with SOPF health status (Strain code: 679). Please enquire for pricing.

OF1 Mice

STRAIN CODE: 612

[+ Learn more](#)



Weight in Grams	MALE	FEMALE
	Price - €	Price - €
10-12	5,07	5,07
12-14	5,48	5,48
14-16	5,57	5,57
16-18	5,92	5,92
18-20	6,29	6,29
20-22	6,66	6,66
22-24	7,27	7,27
> 24 g / (per 2 g)	Upon Request	Upon Request
Retired breeder	4,72	4,72
Time mated females		54,50
Female with litter (males and females)		91,19
Pregnant females		62,05

Nomenclature: Crl:OF1

Origin: In 1935, Carworth Farms began to select a line of vigorous and productive mice. Progenitors originating from a colony bred in Missouri were bought and the strain was named CF1 (Carworth Farms strain 1). This strain was introduced at Charles River France in 1967, and it acquired the name OF1 (Oncins France 1).

Coat Colour: Albino.

Research Application: Model for general use including toxicology, teratology, pharmacology and physiology.

SKH1 Hairless Mice

STRAIN CODE: 686

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
28-34 (4 weeks)	60,18	60,18
35-41 (5 weeks)	63,96	63,96
42-48 (6 weeks)	68,15	68,15

Nomenclature: Crl:SKH1-*Hr^{hr}*

Origin: An uncharacterised / non-pedigreed hairless strain of mice was acquired by Temple University from a small commercial supplier in New York City. To Charles River from the Skin and Cancer Hospital, Temple University in 1986. The mouse is euthymic and immunocompetent.

Coat Colour: Hairless, albino.

Research Application: Wound healing model, dermatology, safety and efficacy testing.

129 Mice

STRAIN CODE: 287

+ Learn more



Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	52,86	52,86
28-34 (4 weeks)	56,99	56,99
35-41 (5 weeks)	60,97	60,97
42-48 (6 weeks)	65,03	65,03
49-55 (7 weeks)	69,55	69,55
56-62 (8 weeks)	74,07	74,07
Additional week	4,21	4,21

Nomenclature: 129S2/SvPasCrl

Origin: The 129/Sv inbred strain genotype C-P (wild-type alleles at the “albino” and “pink-eyed dilution” loci) was established by Dr LC Stevens from The Jackson Laboratory. Because of his interest in testicular teratomas which are extremely frequent in the 129 inbred strain, he investigated the effect of certain mouse mutations, which affect the male germ line, on the frequency of these tumors. One of these mutations was “steel” (Sl) which, at the heterozygous state, is responsible for a dilution of the coat colour and a depigmentation of the tail tip. The original 129 inbred strain is homozygous for the two recessive mutations “chinchilla” (Tyr^{c-ch}) and “pink-eyed dilution” (p). Its coat colour is cream. In order to distinguish the effect of the “steel” mutation on the coat colour, Dr Stevens introduced by repeated backcrosses the wild-type alleles at the “albino” and “pink-eyed dilution” loci from the C3H/He inbred strain. This is the reason why the 129/Sv inbred strain, unlike other 129 strains, has an agouti coat colour. Testicular teratomas have an incidence of approximately 1% as this strain does not carry the Dnd1^{Ter} mutation. In the seventies, Dr Stevens introduced the 129/Sv strain to the Institut Pasteur in the Laboratory of Dr JL Guenet, where it has been maintained for over 20 years, Charles River France acquired this strain in August 1996. The strain was renamed 129S2 in 1999 after the revision of the international nomenclature.

Coat Colour: Agouti.

Research Application: Transgenic/knockout model development, large number of unmyelinated axons in lumbar motor roots.



Also available with SOPF health status (Strain code: 476). Please enquire for pricing.

JAX® Mice Strain: BALB/cByJ

STRAIN CODE: 627

+ Learn more



Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	19,73	19,73
28-34 (4 weeks)	20,12	20,12
35-41 (5 weeks)	22,00	22,00
42-48 (6 weeks)	23,73	23,73
49-55 (7 weeks)	26,98	26,98
56-62 (8 weeks)	30,28	30,28
Additional week (up to 12 weeks)	3,61	3,61
Retired breeder	16,77	16,77

Nomenclature: BALB/cByJ

Origin: The breeding colony for this strain is derived from and systematically reinfused with pedigreed JAX® Mice stock obtained from The Jackson Laboratory. Charles River adheres to The Jackson Laboratory’s breeding protocols and genetic quality program to maintain this breeding colony. Mice from this colony are genetically equivalent to those bred by The Jackson Laboratory and are considered authentic JAX® Mice strains which are designated with a ‘J’ as the final letter in the strain nomenclature. JAX® Mice Strains are for internal research use only and should not be propagated for distribution or sale.

Coat Colour: Albino.

Strain Characteristics: For comprehensive strain information, see the strain data sheet at jax.org/strain/001026. For physiological strain data, see Mouse Phenome Database at jax.org/mpd-001026.

Research Application: Oncology, immunology, inflammation, autoimmunity, neurobiology.



The Jackson Laboratory’s Genetic Stability Program is covered by 2009 US patent 7,592,501 and 2012 US patent 8,110,721.



Also available with SOPF health status (Strain code: 678). Please enquire for pricing.

BALB/cAnNCrI Mice

STRAIN CODE: 028

[+ Learn more](#)

Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	17,61	17,61
28-34 (4 weeks)	18,50	18,50
35-41 (5 weeks)	19,81	19,81
42-48 (6 weeks)	22,03	22,03
49-55 (7 weeks)	23,53	23,53
56-62 (8 weeks)	25,49	25,49
Additional week	3,28	3,28
Retired breeder	16,74	16,74
Time mated females		Upon Request
Female with litter (males and females)		Upon Request
Pregnant		Upon Request


Nomenclature: BALB/cAnNCrI

Origin: H.J Bagg developed the “Bagg albino” in 1913 using stock from an Ohio pet dealer. Inbred in 1923 by McDowell. To Snell in 1932 at F26, to Andervont in 1935. To NIH at F72 in 1951. To Charles River USA from NIH in 1974. Caesarian derived in 1975. This strain has been very widely used for in vivo production of monoclonal antibodies by the ascites method because of its haplotype with many hybridoma cell lines (BALB/c mouse melanoma [NS1] fusion products). This mouse is also used frequently for immunisation and B-cell collection. Low incidence of mammary tumors (10-20%). Arteriosclerosis common in both sexes. Male aggression is frequently overestimated.

Haplotype: H-2^d.

Coat Colour: Albino.

Research Application: General multipurpose model, hybridoma development, monoclonal antibody production, infectious disease.

 IGS Production colonies are developed from the Foundation Colony and managed according to the Charles River [International Genetic Standardization](#) program.

JAX® Mice Strain: C3H/HeOuJ

STRAIN CODE: 626

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	25,40	25,40
28-34 (4 weeks)	27,89	27,89
35-41 (5 weeks)	29,39	29,39
42-48 (6 weeks)	32,44	32,44
49-55 (7 weeks)	35,50	35,50
56-62 (8 weeks)	38,58	38,58
Additional week	4,01	4,01
Retired breeder	27,81	27,81

Nomenclature: C3H/HeOuJ

Origin: The breeding colony for this strain is derived from and systematically reinfused with pedigreed JAX® Mice stock obtained from The Jackson Laboratory. Charles River adheres to The Jackson Laboratory’s breeding protocols and genetic quality program to maintain this breeding colony. Mice from this colony are genetically equivalent to those bred by The Jackson Laboratory and are considered authentic JAX® Mice strains which are designated with a ‘J’ as the final letter in the strain nomenclature. JAX® Mice Strains are for internal research use only and should not be propagated for distribution or sale.

Coat Colour: Agouti.

Strain Characteristics: For comprehensive strain information, see the strain data sheet at jax.org/strain/000635. For physiological strain data, see Mouse Phenome Database at jax.org/mpd-000635.

Research Application: Safety and efficacy testing, oncology, neurological disorders, retinal degeneration.

C3H/HeNCrI Mice

STRAIN CODE: 025

[+ Learn more](#)

Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	23,06	23,06
28-34 (4 weeks)	24,65	24,65
35-41 (5 weeks)	26,33	26,33
42-48 (6 weeks)	28,62	28,62
49-55 (7 weeks)	32,64	32,64
56-62 (8 weeks)	35,32	35,32
Additional week	3,42	3,42
Retired breeder	24,52	24,52
Female with litter (males and females)		Upon Request

Nomenclature: C3H/HeNCrI

Origin: From a cross of a Bagg albino female and a DBA male by Strong in 1920. A litter of 4 females and 2 males sent to Andervont in 1930; then to Heston at F35. To NIH in 1951 from Heston at F57. To Charles River USA from NIH in 1974. Caesarian derived in 1975. 85% hepatomas at 14 months. This is an MMTV negative strain and hence does not show high incidence of mammary tumours. Resistant to Leishmania infection. High complement activity. Retinal degeneration allele (Pde6b, formerly known as rd) is carried on chromosome 5. Mated females are highly susceptible (89%) to cardiac calcinosis.

Haplotype H-2^k.

Coat Colour: Agouti.

Research Application: Safety and efficacy testing, oncology, neurological disorders, retinal degeneration.

SOPF Also available with SOPF health status (Strain code: 573). Please enquire for pricing.



JAX® Mice Strain: C57BL/6J

STRAIN CODE: 632



[+ Learn more](#)

Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	18,80	18,80
28-34 (4 weeks)	20,20	20,20
35-41 (5 weeks)	22,36	22,36
42-48 (6 weeks)	24,20	24,20
49-55 (7 weeks)	26,32	26,32
56-62 (8 weeks)	29,49	29,49
Additional week (up to 12 weeks)	3,54	3,54
Retired breeder	17,12	17,12
Time mated females		Upon Request
Female with litter (males and females)		Upon Request
Pregnant		Upon Request

Nomenclature: C57BL/6J

Origin: The breeding colony for this strain is derived from and systematically reinfused with pedigreed JAX® Mice stock obtained from The Jackson Laboratory. Charles River adheres to The Jackson Laboratory's breeding protocols and genetic quality program to maintain this breeding colony. Mice from this colony are genetically equivalent to those bred by The Jackson Laboratory and are considered authentic JAX® Mice strains which are designated with a 'J' as the final letter in the strain nomenclature. JAX® Mice Strains are for internal research use only and should not be propagated for distribution or sale.

Coat Colour: Black.

Strain Characteristics: For comprehensive strain information, see the strain data sheet at jax.org/strain/000664. For physiological strain data, see Mouse Phenome Database at jax.org/mpcd-000664.

Research Application: General multipurpose model, diet-induced obesity, transgenic/knockout model development, safety and efficacy testing, immunology.

The Jackson Laboratory's Genetic Stability Program is covered by 2009 US patent 7,592,501 and 2012 US patent 8,110,721.



The Jackson Laboratory's Genetic Stability Program is covered by 2009 US patent 7,592,501 and 2012 US patent 8,110,721.



Also available with SOPF health status (Strain code: 680). Please enquire for pricing.

Aged models C57BL/6J*

STRAIN CODE: 662



[+ Learn more](#)

Age in Weeks	MALE	FEMALE
	Price - €	Price - €
18-21 (4 months)	67,46	67,46
22-26 (5 months)	77,44	77,44
27-31 (6 months)	82,97	82,97
32-35 (7 months)	92,56	92,56
36-39 (8 months)	99,81	99,81
40-43 (9 months)	102,00	102,00
44-48 (10 months)	104,87	104,87
49-52 (11 months)	114,25	114,25
53-55 (12 months)	118,89	118,89
56-59 (13 months)	126,66	126,66
60-64 (14 months)	134,22	134,22
65-68 (15 months)	155,31	155,31

* C57BL/6J mice are raised as age cohorts and shipped as such to minimize aggression, and divided or additional crates may be used to maintain original cohorts. Upon arrival at your facility, we recommend maintaining the housing group to preserve the established hierarchies whenever possible.

Nomenclature: C57BL/6J

Study-ready aged C57BL/6J males and females are available off-the-shelf between 12 - 68 weeks of age. For aged C57BL6/J > 68 weeks old, please consult us.

Research Application: Immunology, cancer, longevity interventions, and biomarker studies.

Aged C57BL/6NCrI also available. Please enquire for pricing.

C57BL/6NCrI Mice

STRAIN CODE: 027

[+ Learn more](#)

Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	17,07	17,07
28-34 (4 weeks)	18,67	18,67
35-41 (5 weeks)	20,48	20,48
42-48 (6 weeks)	21,84	21,84
49-55 (7 weeks)	23,12	23,12
56-62 (8 weeks)	26,30	26,30
Additional week (up to 12 weeks)	3,46	3,46
Retired breeder	20,20	20,20
Time mated females		Upon Request
Female with litter (males and females)		Upon Request
Pregnant		Upon Request


Nomenclature: C57BL/6NCrI

Origin: Developed by C.C. Little in 1921, from a mating of Miss Abby Lathrop's stock that also gave rise to strains C57BR and C57L. To The Jackson Laboratory in 1948 from Hall. To NIH in 1951 from The Jackson Laboratory at F32. To Charles River in 1974 from NIH. Hysterectomy rederived in 1975.

Haplotype H-2^b.

Coat Colour: Black.

Research Application: General multipurpose model, diet-induced obesity, transgenic/knockout model development, safety and efficacy testing, immunology.

 **IGS** Production colonies are developed from the Foundation Colony and managed according to the Charles River [International Genetic Standardization](#) program.



Also available with SOPF health status (Strain code: 475). Please enquire for pricing.

Aged C57BL/6NCrI also available. Please enquire for pricing.

CBA Mice*

STRAIN CODE: 609

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
Up to 21	18,69	18,69
21-27 (3 weeks)	20,59	20,59
28-34 (4 weeks)	22,31	22,31
35-41 (5 weeks)	24,28	24,28
42-48 (6 weeks)	27,88	27,88
49-55 (7 weeks)	29,71	29,71
56-62 (8 weeks)	33,57	33,57
Additional week	3,67	3,67
Retired breeder		21,96
Lactating mouse with litter		169,88
Time mated (over 14 day gestation)		Upon Request
Untimed pregnant		128,80

Nomenclature: CBA/CaCrI

Origin: From a cross of a Bagg albino female and a DBA male by Strong in 1920. The CBA strain was selected for a low mammary tumour incidence. Transferred via The Jackson Laboratory to Haldane and Gruneberg in 1932 To Carter (CBA/Ca) in 1947. The CBA/Ca is the substrain most commonly used in British research. VAF Plus breed stock to Charles River UK from Glaxo in 1992. Absence of lower third molars in about 18%, few skeletal variants, some mammary tumours in breeders. Do not develop antinuclear antibodies or LE cells with aging.

Histocompatibility H-1^a, H-2^k, H-3.

Coat Colour: Agouti.

Research Application: Research applications include brain development, neurochemistry and behavioural studies.

* Prices are subject to exchange rate variation.

JAX® Mice Strain: CBA/J

STRAIN CODE: 624



[+ Learn more](#)

Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	25,70	25,70
28-34 (4 weeks)	27,76	27,76
35-41 (5 weeks)	32,08	32,08
42-48 (6 weeks)	36,40	36,40
49-55 (7 weeks)	40,64	40,64
56-62 (8 weeks)	45,04	45,04
Additional week (up to 12 weeks)	3,74	3,74
Retired breeder	22,04	22,04

Nomenclature: CBA/J

Origin: The breeding colony for this strain is derived from and systematically reinfused with pedigreed JAX® Mice stock obtained from The Jackson Laboratory. Charles River adheres to The Jackson Laboratory's breeding protocols and genetic quality program to maintain this breeding colony. Mice from this colony are genetically equivalent to those bred by The Jackson Laboratory and are considered authentic JAX® Mice strains which are designated with a 'J' as the final letter in the strain nomenclature. JAX® Mice Strains are for internal research use only and should not be propagated for distribution or sale.

Coat Colour: Agouti.

Strain Characteristics: For comprehensive strain information, see the strain data sheet at jax.org/strain/000656. For physiological strain data, see Mouse Phenome Database at jax.org/mpd-000656.

Research Application: General purpose strain, diet-induced atherosclerosis, autoimmunity research, internal/organ research, metabolism research.



The Jackson Laboratory's Genetic Stability Program is covered by 2009 US patent 7,592,501 and 2012 US patent 8,110,721.

JAX® Mice Strain: DBA/2J

STRAIN CODE: 625



[+ Learn more](#)

Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	28,94	28,94
28-34 (4 weeks)	28,94	28,94
35-41 (5 weeks)	32,46	32,46
42-48 (6 weeks)	34,59	34,59
49-55 (7 weeks)	36,06	36,06
56-62 (8 weeks)	37,51	37,51
Additional week (up to 12 weeks)	3,89	3,89
Retired breeder	24,05	24,05
Female with litter (males and females)		Upon Request

Nomenclature: DBA/2J

Origin: The breeding colony for this strain is derived from and systematically reinfused with pedigreed JAX® Mice stock obtained from The Jackson Laboratory. Charles River adheres to The Jackson Laboratory's breeding protocols and genetic quality program to maintain this breeding colony. Mice from this colony are genetically equivalent to those bred by The Jackson Laboratory and are considered authentic JAX® Mice strains which are designated with a 'J' as the final letter in the strain nomenclature. JAX® Mice Strains are for internal research use only and should not be propagated for distribution or sale.

Coat colour: Non-agouti dilute brown.

Strain Characteristics: For comprehensive strain information, see the strain data sheet at jax.org/strain/000671. For physiological strain data, see Mouse Phenome Database at jax.org/mpd-000671.

Research Application: Safety and efficacy testing, immunology, audiogenic seizures, glaucoma research.



The Jackson Laboratory's Genetic Stability Program is covered by 2009 US patent 7,592,501 and 2012 US patent 8,110,721.

DBA/2NCrI Mice

STRAIN CODE: 026

[+ Learn more](#)

Age in Days	MALE	FEMALE
	Price - €	Price - €
28-34 (4 weeks)	26,03	26,03
35-41 (5 weeks)	29,16	29,16
42-48 (6 weeks)	31,04	31,04
49-55 (7 weeks)	32,44	32,44
56-62 (8 weeks)	33,69	33,69
Additional week	3,40	3,40
Retired breeder	21,68	21,68

Nomenclature: DBA/2NCrI

Origin: Developed by C.C. Little in 1909 from stock segregating for coat colour. Oldest of all the inbred strains of mice. In 1929 - 1930 crosses were made between sublines, and several new sublines were established, including the widely used sublines 1 (previously called 12) and 2 (previously called 212). To Mider in 1938. To NIH in 1951 from Mider at F34. To Charles River in 1974 from NIH. Hysterectomy rederived in 1975.

Haplotype H-2^d.

Coat Colour: Non-agouti dilute brown.

Research Application: Safety and efficacy testing, immunology, audiogenic seizures.

FVB Mice

STRAIN CODE: 207

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	18,98	18,98
28-34 (4 weeks)	20,37	20,37
35-41 (5 weeks)	23,77	23,77
42-48 (6 weeks)	26,61	26,61
49-55 (7 weeks)	29,37	29,37
56-62 (8 weeks)	35,07	35,07
Additional week (up to 12 weeks)	3,74	3,74
Retired breeder		22,31

Nomenclature: FVB/NCrI

Origin: Derived in 1935 from an outbred Swiss colony [N.GP(S)] at NIH. During the early 1970's, established as an inbred strain called Fv1b (sensitive to the B strain of Friend leukemia) at NIH. To Charles River from NIH in 1994. Caesarean derived in 1995.

Haplotype H-2^q.

Coat Colour: Albino.

Research Application: Transgenic/knockout model development.

Due to the aggressive nature of these mice, we do reserve the right to send them by original cage cohorts for animal welfare reasons.

B6 albino mice

STRAIN CODE: 493

[+ Learn more](#)

Age in Days	MALE	FEMALE
	Price - €	Price - €
28-34 (4 weeks)	36,33	36,33
35-41 (5 weeks)	37,88	37,88
42-48 (6 weeks)	39,54	39,54
49-55 (7 weeks)	42,77	42,77
56-62 (8 weeks)	45,98	45,98

Nomenclature: B6N-*Tyr^{c-Brd}*/BrdCrCrI

Origin: Received by NCI from Dr. Allan Bradley at Baylor College of Medicine in 2000. The B6 albino strain is a spontaneous albino mutant coisogenic C57BL/6 strain. The mice contain a mutation in the tyrosinase gene, and when homozygous for the mutation the coat colour of the mice is albino rather than black. To Charles River US in 2009 from NCI. To Charles River France in 2011.

Haplotype H2^b.

Coat Colour: White (Albino).

Research Application: Creation of chimeras with B6N-derived embryonic stem cells.

Additional Models from The Jackson Laboratory

Many additional inbred mouse models are available from The Jackson Laboratory and may be obtained by importation through Charles River. Charles River serves as the exclusive European commercial distributor of The Jackson Laboratory's JAX® Mice strains.

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B6CBAF1/CrI*

STRAIN CODE: 616

[+ Learn more](#)

Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	34,31	34,31
28-34 (4 weeks)	39,19	39,19
35-41 (5 weeks)	43,83	43,83
42-48 (6 weeks)	48,78	48,78
49-55 (7 weeks)	54,05	54,05
56-62 (8 weeks)	59,75	59,75
63-69 (9 weeks)	66,05	66,05
Additional week	6,32	6,32

Nomenclature: B6CBAF1/CrI

Origin: First generation (F1) progeny of a cross between female C57BL/6J and male CBA/CaCrI.

Coat Colour: Agouti.

Research Application: Uses include hybrid vigor, as a background for deleterious mutations, to create or enhance expression of polygenic diseases, to determine the mode of inheritance, and to provide physiological buffering (present a broader array of responses to various stresses).

** Strain is available to customers in the United Kingdom and Ireland only. Prices are subject to exchange rate variation.*

JAX® Mice Strain: B6CBAF1/J Mice

STRAIN CODE: 631

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	24,76	24,76
28-34 (4 weeks)	25,03	25,03
35-41 (5 weeks)	27,37	27,37
42-48 (6 weeks)	32,05	32,05
Additional week (up to 12 weeks)	4,00	4,00

Nomenclature: B6CBAF1/J

Origin: First generation (F1) progeny of a cross between female JAX® Mice strain C57BL/6J and male JAX® Mice strain CBA/J. Both parental strains are maintained in breeding colonies derived from and systematically reinfused with pedigreed JAX® Mice stock obtained from The Jackson Laboratory. Charles River adheres to The Jackson Laboratory's breeding protocols and genetic quality program to maintain this breeding colony. Mice from this colony are genetically equivalent to those bred by The Jackson Laboratory and are considered authentic JAX® Mice strains which are designated with a 'J' as the final letter in the strain nomenclature. JAX® Mice Strains are for internal research use only and should not be propagated for distribution or sale.

Coat Colour: Agouti.

Strain Characteristics: For comprehensive strain information, see the strain data sheet at jax.org/strain/100011. For physiological strain data, see Mouse Phenome Database at jax.org/mpd-100011.

Research Application: Uses include hybrid vigor, as a background for deleterious mutations, to create or enhance expression of polygenic diseases, to determine the mode of inheritance, and to provide physiological buffering (present a broader array of responses to various stresses).

B6C3F1/Crl Mice

STRAIN CODE: 031

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
28-34 (4 weeks)	24,29	24,29
35-41 (5 weeks)	25,44	25,44
42-48 (6 weeks)	26,56	26,56
49-55 (7 weeks)	27,69	27,69
56-62 (8 weeks)	28,81	28,81
Pregnant / time mated females		Upon Request
Female with litter (males and females)		Upon Request

Nomenclature: B6C3F1/Crl

Origin: Mice result from a cross between female C57BL/6NCrl and male C3H/He mice.

Coat Colour: Agouti.

Research Application: Safety and efficacy testing, transgenic/knockout model development, transplantation research.

B6D2F1/Crl Mice

STRAIN CODE: 099

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	20,26	20,26
28-34 (4 weeks)	21,47	21,47
35-41 (5 weeks)	22,90	22,90
42-48 (6 weeks)	24,20	24,20
Time mated females		Upon Request
Female with litter (males and females)		Upon Request
Pregnant		Upon Request

Nomenclature: B6D2F1/Crl

Origin: Mice result from a cross between female C57BL/6NCrl and male DBA/2NCrl mice.

Coat Colour: Black.

Research Application: Safety and efficacy testing, transgenic/knockout model development, transplantation research, behavioral research.

JAX® Mice Strain: B6D2F1/J

STRAIN CODE: 629



+ Learn more

Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	21,41	21,41
28-34 (4 weeks)	21,63	21,63
35-41 (5 weeks)	23,24	23,24
42-48 (6 weeks)	25,12	25,12
Additional week (up to 12 weeks)	3,83	3,83

Nomenclature: B6D2F1/J

Origin: First generation (F1) progeny of a cross between female JAX® Mice strain C57BL/6J and male JAX® Mice strain DBA/2J. Both parental strains are maintained in breeding colonies derived from and systematically reinfused with pedigreed JAX® Mice stock obtained from The Jackson Laboratory. Charles River adheres to The Jackson Laboratory's breeding protocols and genetic quality program to maintain this breeding colony. Mice from this colony are genetically equivalent to those bred by The Jackson Laboratory and are considered authentic JAX® Mice strains which are designated with a 'J' as the final letter in the strain nomenclature. JAX® Mice Strains are for internal research use only and should not be propagated for distribution or sale.

Coat Colour: Black.

Strain Characteristics: For comprehensive strain information, see the strain data sheet at jax.org/strain/100006. For physiological strain data, see Mouse Phenome Database at jax.org/mpd-100006.

Research Application: Safety and efficacy testing, transgenic/knockout model development, transplantation research, behavioral research.

CD2F1/CrI Mice

STRAIN CODE: 033



+ Learn more

Weight in Grams	MALE	FEMALE
	Price - €	Price - €
10-12	25,33	25,33
12-14	27,70	27,70
14-16	30,26	30,26
16-18	32,44	32,44
18-20	34,72	34,72
20-22	36,88	36,88
Additional week	4,14	4,14

Nomenclature: CD2F1/CrI

Origin: First generation (F1) progeny of a cross between female BALB/cAnNCrI x male DBA/2NCrI.

Coat Colour: Brown agouti.

Research Application: Safety and efficacy testing, transplantation research, monoclonal antibody production.

Other Hybrid Mice Available from Charles River

NMRCF1/CrI

STRAIN CODE: 636

Nomenclature: NMRCF1/CrI

CB6F1/CrI

STRAIN CODE: 176

Nomenclature: CB6F1/CrI.

Research Application: Transplantation research, monoclonal antibody production.

+ Learn more

JAX® Mice Strain: K18-hACE2

STRAIN CODE: 704



[+ Learn more](#)

Commercial organizations require a license prior to shipping. Please contact your local Charles River office for further information. The commercial license fee is included in the pricing below.

Age in Days	Academic and Non-Profit	Commercial Organizations
	MALE / FEMALE Hemizygous for Tg(K18-ACE2)2PrImn	MALE / FEMALE Hemizygous for Tg(K18-ACE2)2PrImn
	Price - €	Price - €
21-27 (3 weeks)	80,95	131,91
28-34 (4 weeks)	80,95	131,91
35-41 (5 weeks)	80,95	131,91
42-48 (6 weeks)	80,95	131,91
49-55 (7 weeks)	80,95	131,91
56-62 (8 weeks)	80,95	131,91

Nomenclature: B6.Cg-Tg(K18-ACE2)2PrImn/J

Description: K18-hACE2 transgenic mice express human ACE2, the receptor used by the severe acute respiratory syndrome coronavirus (SARS-CoV) to gain entry to cells. Expression is driven in epithelia by a human keratin 18 (KRT18) promoter. Most importantly, expression is observed in airway epithelial cells where infections typically begin. This model of lethal infection with SARS-CoV mimics the human disease and should be useful for studies of pathogenesis and for the development of antiviral therapies for SARS. Recent research indicates that this line may also be useful in studies related to the study of 2019 novel coronavirus (SARS-CoV-2) pathogenesis and the disease outbreak COVID-19.

Coat Colour: Black.

Strain Characteristics: For comprehensive strain information, see the strain data sheet at jax.org/strain/034860.

Research Applications: Internal/organ research, virology, research tools, developmental biology, immunology, inflammation and autoimmunity research.



JAX® Mice Strain: Obese Mice ob/ob

STRAIN CODE: 606



[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
42-48 (6 weeks)	221,45	221,45
49-55 (7 weeks)	227,16	227,16
56-62 (8 weeks)	234,07	234,07
Additional week	10,82	10,82

Nomenclature: B6.Cg-Lep^{ob}/J

Origin: The breeding colony for this strain is derived from and systematically reinfused with pedigreed JAX® Mice stock obtained from The Jackson Laboratory. Charles River adheres to The Jackson Laboratory's breeding protocols and genetic quality program to maintain this breeding colony. Mice from this colony are genetically equivalent to those bred by The Jackson Laboratory and are considered authentic JAX® Mice strains which are designated with a 'J' as the final letter in the strain nomenclature. JAX® Mice Strains are for internal research use only and should not be propagated for distribution or sale.

Coat Colour: Black.

Control: Heterozygote or wildtype from the colony or C57BL/6J.

Diet: 5K20 or equivalent.

Strain Characteristics: For comprehensive strain information, see the strain data sheet at jax.org/strain/000632. For physiological strain data, see Mouse Phenome Database at jax.org/mpd-000632.

Research Application: Phase I and II type 2 diabetes, obesity research, wound healing.

JAX® Mice Strain: Diabetic Mice db/db

STRAIN CODE: 607

[+ Learn more](#)

Age in Days	MALE	FEMALE
	Price - €	Price - €
35-41 (5 weeks)	191,53	191,53
42-48 (6 weeks)	197,80	197,80
49-55 (7 weeks)	203,63	203,63
56-62 (8 weeks)	209,78	209,78
Additional week	10,82	10,82

Nomenclature: BKS.Cg-Dock7^m+/+Lepr^{db}/J

Origin: The breeding colony for this strain is derived from and systematically reinfused with pedigreed JAX® Mice stock obtained from The Jackson Laboratory. Charles River adheres to The Jackson Laboratory's breeding protocols and genetic quality program to maintain this breeding colony. Mice from this colony are genetically equivalent to those bred by The Jackson Laboratory and are considered authentic JAX® Mice strains which are designated with a 'J' as the final letter in the strain nomenclature. JAX® Mice Strains are for internal research use only and should not be propagated for distribution or sale.

Coat Colour: Varies by genotype.

Coat colour	Misty gene	Leptin Receptor gene	Phenotype
Grey	m/m	+/+ (wildtype)	lean, nondiabetic
Black	m/+	db / +	lean, nondiabetic
Black	+/+	db / db	fatty and diabetic

Control: Heterozygote from the colony or JAX® Mice Stock Number 000662 C57BLKS/J.

Diet: 5K52 or equivalent.

Strain Characteristics: For comprehensive strain information, see the strain data sheet at jax.org/strain/000642. For physiological strain data, see Mouse Phenome Database at jax.org/mpd-000642.

Research Application: Phase I, II, and III type 2 diabetes, obesity research, wound healing.

JAX® Mice Strain: ApoE Mice

STRAIN CODE: 622

[+ Learn more](#)

Age in Days	MALE	FEMALE
	Price - €	Price - €
28-34 (4 weeks)	243,47	243,47
35-41 (5 weeks)	249,26	249,26
42-48 (6 weeks)	254,80	254,80
49-55 (7 weeks)	260,85	260,85
56-62 (8 weeks)	266,62	266,62
Additional week	11,09	11,09

Nomenclature: B6.129P2-Apoe^{tm1Unc}/J

Origin: The breeding colony for this strain is derived from and systematically reinfused with pedigreed JAX® Mice stock obtained from The Jackson Laboratory. Charles River adheres to The Jackson Laboratory's breeding protocols and genetic quality program to maintain this breeding colony. Mice from this colony are genetically equivalent to those bred by The Jackson Laboratory and are considered authentic JAX® Mice strains which are designated with a 'J' as the final letter in the strain nomenclature. JAX® Mice Strains are for internal research use only and should not be propagated for distribution or sale.

Coat Colour: Black.

Control: JAX® Mice Strain: C57BL/6J.

Strain Characteristics: For comprehensive strain information, see the strain data sheet at jax.org/strain/002052. For physiological strain data, see Mouse Phenome Database at jax.org/mpd-002052.

Research Application: Cardiovascular research (atherosclerosis, heart abnormalities, hypercholesterolemia, hypertriglyceridemia, vascular defects).



The Jackson Laboratory's Genetic Stability Program is covered by 2009 US patent 7,592,501 and 2012 US patent 8,110,721.

JAX® Mice Strain: NOD Mice

STRAIN CODE: 613



[+ Learn more](#)

Age in Days	MALE	FEMALE
	Price - €	Price - €
28-34 (4 weeks)	103,60	103,60
35-41 (5 weeks)	116,48	116,48
42-48 (6 weeks)	131,89	131,89
49-55 (7 weeks)	144,76	144,76
56-62 (8 weeks)	157,36	157,36
Additional week	13,61	13,61

Nomenclature: NOD/ShiLtJ

Origin: The breeding colony for this strain is derived from and systematically reinfused with pedigreed JAX® Mice stock obtained from The Jackson Laboratory. Charles River adheres to The Jackson Laboratory’s breeding protocols and genetic quality program to maintain this breeding colony. Mice from this colony are genetically equivalent to those bred by The Jackson Laboratory and are considered authentic JAX® Mice strains which are designated with a ‘J’ as the final letter in the strain nomenclature. JAX® Mice Strains are for internal research use only and should not be propagated for distribution or sale.

Coat Colour: White (Albino).

Strain Characteristics: For comprehensive strain information, see the strain data sheet at jax.org/strain/001976. For physiological strain data, see Mouse Phenome Database at jax.org/mpcd-001976.

Research Application: Polygenic model for autoimmune type 1 diabetes.



The Jackson Laboratory’s Genetic Stability Program is covered by 2009 US patent 7,592,501 and 2012 US patent 8,110,721.

Additional Models Available from The Jackson Laboratory

Many additional mouse models supporting metabolic and cardiovascular disease research are available from The Jackson Laboratory and may be obtained by importation through Charles River. Charles River serves as the exclusive European commercial distributor of The Jackson Laboratory’s JAX® Mice strains.

[+ Learn more](#)

Ly5.1 Mice

STRAIN CODE: 494



[+ Learn more](#)

	MALE / FEMALE
Age in Days	Price - €
28-34 (4 weeks)	117,13
Additional Week	5,78

Nomenclature: B6.SJL-*Ptprc^a Pepcb/BoyCr1*

Origin: The strain was originally developed at the Sloan Kettering Institute where it was backcrossed on a non-specified C57BL/6 strain. The congenic strain "C57BL/6-Ly5.1" carries the allele of the SJL mouse in the *Ptprc* gene locus: "Ptprc^a" or "CD45.1" or "Ly5.1". Charles River Europe breeds CD45.1 expressing B6.SJL-*Ptprc^a Pepcb/BoyCr1* mice in Italy.

Coat Colour: Black.

Research Application: This mouse is primarily used in inflammation and immunological adoptive transfer research.

SOPF

Also available with SOPF health status. Please enquire for pricing.

OT I

STRAIN CODE: 642

[+ Learn more](#)

	MALE / FEMALE
Age in Days	Price - €
28-34 (4 weeks)	206,88
Additional Week	6,94

Nomenclature: C57BL/6-Tg(*TcraTcrb*)1100Mjb/Cr1

Origin: From the Walter and Eliza Hall Institute, Victoria, Australia, to Charles River France in 2002. These homozygous mice contain transgenic inserts for mouse *Tcra-V2* and *Tcrb-V5* genes. The transgenic T cell receptor was designed to recognize ovalbumin residues 257-264 in the context of H2Kb and used to study the role of peptides in positive selection and the response of CD8+ T cells to antigen. Like most TCR transgenics, these mice are somewhat immunodeficient.

Coat Colour: Black.

Research Application: Immunology, inflammation and autoimmunity research.

SOPF health status.

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OT II

STRAIN CODE: 643

[+ Learn more](#)

	MALE / FEMALE
Age in Days	Price - €
28-34 (4 weeks)	206,88
Additional Week	6,94

Nomenclature: C57BL/6-Tg(*TcraTcrb*)425Cbn/Cr1

Origin: From the Walter and Eliza Hall Institute, Victoria, Australia, to Charles River France in 2002. These homozygous transgenic mice express the mouse alpha-chain and beta-chain T cell receptor that pairs with the CD4 coreceptor and is specific for chicken ovalbumin 323-339 in the context of I-A b. Homozygous mice are viable and fertile. In these mice there is a four-fold increase in the CD4 to CD8 peripheral T cell ratio, and lymph node T cells demonstrate a dose-dependent proliferative response to the specific ovalbumin ligand. These transgenic mice are useful for studying in vivo T cell biology such as TCR-ligand interactions, T cell activation, thymic selection, cross-presentation of antigens, process of thymic selection and central and peripheral T cell tolerance and induction.

Coat Colour: Black.

Research Application: T cell biology research (e.g., TCR-ligand interactions, T cell activation, thymic selection, cross-presentation of antigens, process of thymic selection and central and peripheral T cell tolerance and induction).

SOPF health status.

Additional Models Available from The Jackson Laboratory

Many additional inflammation and immunology mouse models are available from The Jackson Laboratory and may be obtained by importation through Charles River. Charles River serves as the exclusive European commercial distributor of The Jackson Laboratory's JAX® Mice strains.

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Immunodeficient Mouse and Rat Models



[+ Learn more](#)

Like You, We Believe There's a Cure

Charles River's global portfolio of high-quality immunodeficient models gives you the benefit of partnering with an industry leader offering an infrastructure capable of advancing your research both now and in the future.

83%

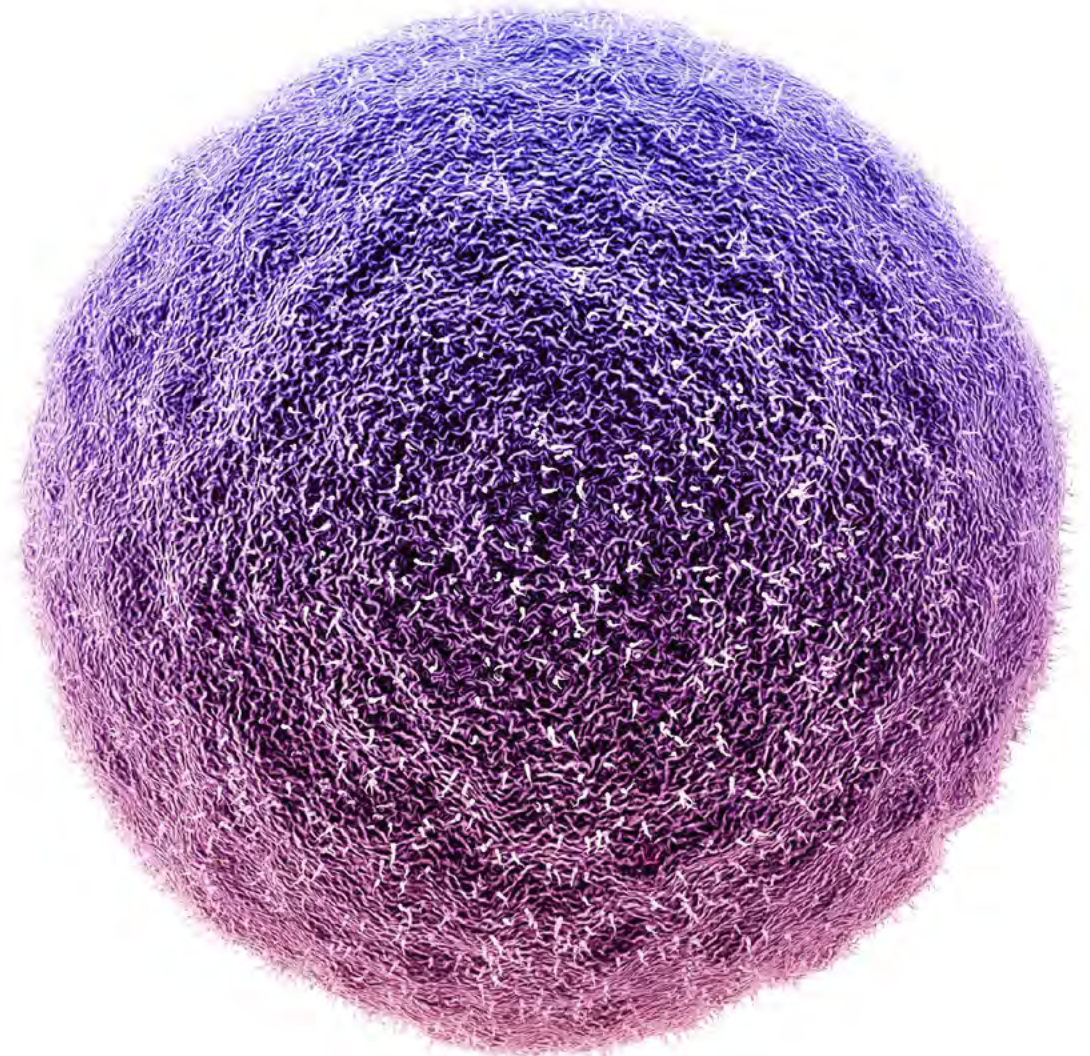
of 2020 FDA-approved cancer therapies
that were developed with
Charles River

62

Oncology patents
co-invented by our
scientists

16

Oncology candidates
delivered
to our partners



Overview of Characteristics

Due to the challenges inherent in researching and developing anticancer therapeutics, it is important that you have the right tools and resources available to you. To help you identify the best fit for your oncology research, Charles River maintains a portfolio of animal models with varying levels of immunodeficiency and phenotypic characteristics.



Characteristic	Athymic Nude	CD-1® Nude	Nude Mouse	Swiss Nude	NMRI Nude	BALB/c Nude*	NIH-III
Hair Coat	No	No	No	No	No	No	No
T Cell Deficient	No	No	No	No	No	No	No
B Cell Deficient	Yes	Yes	Yes	Yes	Yes	Yes	No
NK Cell Deficient	Yes	Yes	Yes	Yes	Yes	Yes	Impaired
Species	Mouse	Mouse	Mouse	Mouse	Mouse	Mouse	Mouse



Characteristic	CB17 SCID	SHO®	SHC	SCID Beige	NOD SCID*	NOD SCID gamma (NSG®)*	SRG	Nude Rat
Hair Coat	Yes	No	No	Yes	Yes	Yes	Yes	No
T Cell Deficient	No	No	No	No	No	No	No	No
B Cell Deficient	No	No	No	No	No	No	No	Yes
NK Cell Deficient	Yes	Yes	Yes	Impaired	Impaired	No	No	Yes
Species	Mouse	Mouse	Mouse	Mouse	Mouse	Mouse	Rat	Rat

* JAX® Mice Strains

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Tools to help find the right Oncology Model

Immunodeficient Rodents Models Poster

[Download a complimentary poster](#) listing the major phenotypes of the immunodeficient range of JAX® and Charles River mice and rats bred in Europe. This poster includes information on model features, degree of immunodeficiency, and gene functions.

Cancer Model Database

Using our [cancer model database](#), you can create a more targeted study design from the start by selecting the most appropriate tumour model for your preclinical programme. By searching for specific histology or molecular properties, our cancer model database can help you select the most relevant model for your research needs.

Xenograft Data

We have compiled [xenograft data](#) on certain immunodeficient models to assist in expediting the model selection process.

The CORE

The [CORE \(Collection of Oncology Research Experiments\)](#) is an online library of peer-reviewed publications designed to help researchers find the most appropriate research model for their oncology cell lines.

Athymic Nude Mice

STRAIN CODE: 490 (Homozygous)
491 (Heterozygous)

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
Homozygous nu/nu 28-34 (4 weeks)	51,08	51,08
35-41 (5 weeks)		56,99
42-48 (6 weeks)		60,91
49-55 (7 weeks)		64,85
56-62 (8 weeks)		68,78
Additional week (up to 12 weeks)		Upon Request
Heterozygous nu/+ 4 weeks	Upon Request	Upon Request

Nomenclature: Crl:NU(NCr)-*Foxn1*^{nu}

Origin: This immunodeficient nude mouse originated from NIH and was originally thought to be a BALB/c congenic. It was later determined that it was not inbred and is therefore maintained as an outbred. It is not associated with any stock or strain. The animal lacks a thymus, is unable to produce T cells, and is therefore immunodeficient. To Charles River from NCI in 2010.

Coat Colour: Hairless, albino background.

Research Applications: Tumor biology and xenograft research.

CD-1[®] Nude

STRAIN CODE: 086 (Homozygous)
087 (Heterozygous)

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
Homozygous nu/nu 28-34 (4 weeks)	69,16	69,16
35-41 (5 weeks)	78,04	78,04
42-48 (6 weeks)	85,76	85,76
49-55 (7 weeks)	93,45	93,45
56-62 (8 weeks)	101,16	101,16
Additional week (up to 12 weeks)	5,23	5,23
Heterozygous nu/+ 4 weeks	35,52	35,52

Nomenclature: Crl:CD1-*Foxn1*^{nu}

Origin: Developed from the transfer of the nude gene to a CD-1[®] mouse through a series of crosses and back-crosses, beginning in 1979 at Charles River, Wilmington, MA. The animal does not have a thymus and is therefore unable to produce T-cells and is consequently immunodeficient.

Coat Colour: Homozygotes: hairless, unpigmented. Heterozygotes: haired, albino.

Research Applications: Tumor biology and xenograft research.

Swiss Nude

STRAIN CODE: 620 (Homozygous)
664 (Heterozygous)

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
Homozygous nu/nu 28-34 (4 weeks)	69,16	69,16
35-41 (5 weeks)	78,04	78,04
42-48 (6 weeks)	85,76	85,76
49-55 (7 weeks)	93,45	93,45
56-62 (8 weeks)	101,16	101,16
Additional week (up to 12 weeks)	5,23	5,23
Heterozygous nu/+ 4 weeks	35,52	35,52

Nomenclature: Crl:NU(lco)-Foxn1^{nu}

Origin: The mutation occurred in 1962, in a colony of albino outbred mice maintained at the Ruchill Hospital in Glasgow. In 1966, Flanagan gave the first detailed description of this mutant. It was not until 1968, however, that it was first noticed that the thymus was missing (Pantelouris EM). These nude mice originate from the Swiss strain. In 1974, The Gustave Roussy Institute (Villejuif, France) obtained the mice from Dr Carl Hansen's department at the NIH, Bethesda, MD, USA. The first pairs were introduced into Charles River France in 1976.

Coat Colour: Homozygotes: hairless, unpigmented. Heterozygotes: haired, albino.

Research Applications: Tumor biology and xenograft research.

NMRI Nude

STRAIN CODE: 639 (Homozygous)
663 (Heterozygous)

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
Homozygous nu/nu 28-34 (4 weeks)	69,16	69,16
35-41 (5 weeks)	78,04	78,04
42-48 (6 weeks)	85,76	85,76
49-55 (7 weeks)	93,45	93,45
56-62 (8 weeks)	101,16	101,16
Heterozygous nu/+ 4 weeks	35,52	35,52

Nomenclature: Crl:NMRI-Foxn1^{nu}

Origin: The first nude mouse appeared at the Virus Laboratory, Ruchill Hospital in Glasgow in 1962 in Dr. N.R. Grist's laboratory. Dr. Grist sent the mutation to Edinburgh for investigation. The mutation arose in a closed but not deliberately inbred albino stock. The genetics of the mutant nude mouse was studied at the institute of Animal Genetics Edinburgh. Absence of thymus was described by Pantelouris (1968). In December 1968, Dr. Rygaard obtained two heterozygous pairs (nu/+) from the Institute for Animal Genetics in Edinburgh, Scotland. Due to poor viability and fertility of the nude mice obtained from Glasgow, Dr. Rygaard decided to transfer the gene to another genetic background. He chose the NMRI outbred strain as the background and soon had a very productive breeding system.

Coat Colour: Hairless, albino background.

Research Applications: Oncology.

BALB/c-Nude Mice



Age in Days	MALE	FEMALE
	Price - €	Price - €
Homozygous nu/nu		
28-34 (4 weeks)	127,58	127,58
35-41 (5 weeks)	132,07	132,07
42-48 (6 weeks)	139,40	139,40
49-55 (7 weeks)	144,96	144,96
56-62 (8 weeks)	149,17	149,17
Additional week (up to 12 weeks)	6,45	6,45
Heterozygous nu/+ 4 weeks	78,09	78,09

STRAIN CODE: 194 (Homozygous), 195 (Heterozygous)

+ Learn more

Nomenclature: CAnN.Cg-Foxn1^{nu}/CrI

Origin: Developed through crosses and backcrosses between BALB/cABom-nu and BALB/cAnNCrj-nu at Charles River Japan (CRJ). Pedigreed pregnant females of BALB/cAnNCrj-nu were received from CRJ in 1985. This mouse is inbred, and genetic monitoring results confirm it to be a BALB/c nude. It also lacks a thymus and is therefore T-cell deficient.

Coat Colour: Homozygotes: hairless, unpigmented. Heterozygotes: haired, albino.

Breeding Location: Germany, USA, UK.

STRAIN CODE: 633 (Homozygous), 657 (Heterozygous)

+ Learn more

Nomenclature: JAX[®] Mice Strain: CByJ.Cg-Foxn1^{nu}/J

Origin: The breeding colony for this strain is derived from and systematically reinfused with pedigreed JAX[®] Mice stock obtained from The Jackson Laboratory. Charles River adheres to The Jackson Laboratory's breeding protocols and genetic quality program to maintain this breeding colony. Mice from this colony are genetically equivalent to those bred by The Jackson Laboratory and are considered authentic JAX[®] Mice strains which are designated with a 'J' as the final letter in the strain nomenclature. JAX[®] Mice Strains are for internal research use only and should not be propagated for distribution or sale.

Coat Colour: Homozygotes: hairless, unpigmented. Heterozygotes: haired, albino.

Breeding Location: France.

Strain Characteristics: For comprehensive strain information, see the strain data sheet at jax.org/strain/000711.

Research Applications: Tumor biology and xenograft research.



SCID Mice

STRAIN CODE: 236

+ Learn more



Age in Days	MALE	FEMALE
	Price - €	Price - €
28-34 (4 weeks)	98,66	98,66
35-41 (5 weeks)	101,61	101,61
42-48 (6 weeks)	104,66	104,66
49-55 (7 weeks)	108,27	108,27
56-62 (8 weeks)	112,94	112,94
Additional week (up to 10 weeks)	5,85	5,85

Nomenclature: CB17/Icr-Prkdc^{scid}/IcrIcoCrI

Origin: The scid autosomal recessive mutation, was detected in 1980 by MJ Bosma and his group in an inbred strain (C.BKa-Ighb/Icr also known as C.B-17) of specific pathogen free mice at the Fox Chase Cancer Center, Philadelphia, PA, USA. Mice homozygous for the scid mutation, hereafter designated SCID mice, were established as a coisogenic partner strain of the normal C.B-17 strain. In 1989, Charles River France obtained SCID mice under licence from FCCC.

Coat Colour: Albino.

Research Applications: Tumor biology and xenograft research.

SCID Beige

STRAIN CODE: 250

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
28-34 (4 weeks)	110,72	110,72
35-41 (5 weeks)	114,05	114,05
42-48 (6 weeks)	117,47	117,47
49-55 (7 weeks)	121,52	121,52
56-62 (8 weeks)	126,76	126,76

Nomenclature: CB17.Cg-Prkdc^{scid}Lys^{tbg-J}/Crl

Origin: A congenic mouse that possesses both genetic autosomal recessive mutations SCID and beige. This mouse was developed by Croy, et al. at the University of Guelph by an intercross of C.B-17 SCID/SCID to C57BL/6 bg/bg mice. To Charles River USA in 1993 and to Charles River Germany in 2007. To Charles River UK in 2015.

Coat Colour: White (Albino).

Research Applications: Tumor biology and xenograft research.

NOD SCID Mice*

STRAIN CODE: 394

[+ Learn more](#)

Age in Days	MALE	FEMALE
	Price - €	Price - €
28-34 (4 weeks)	127,50	127,50
35-41 (5 weeks)	133,69	133,69
42-48 (6 weeks)	137,79	137,79
49-55 (7 weeks)	142,13	142,13
56-62 (8 weeks)	147,09	147,09
63-69 (9 weeks)	153,40	153,40
Additional week	4,59	4,59

Nomenclature: NOD.CB17-Prkdc^{scid}/NCrCrl

Origin: The SCID mutation has been transferred onto a non-obese diabetic background. Animals homozygous for the SCID mutation have impaired T and B cell lymphocyte development. The NOD background additionally results in deficient natural killer(NK)cell function. To Charles River in 2003 from NIH. To Charles River UK in 2009.

Coat Colour: Albino.

Research Applications: Tumor biology and xenograft research.

**Prices are subject to exchange rate variation.*

JAX® Mice Strain: NOD SCID

STRAIN CODE: 634



[+ Learn more](#)

Age in Days	MALE	FEMALE
	Price - €	Price - €
28-34 (4 weeks)	173,97	173,97
35-41 (5 weeks)	173,97	173,97
42-48 (6 weeks)	180,34	180,34
49-55 (7 weeks)	186,52	186,52
56-62 (8 weeks)	192,93	192,93
63-69 (9 weeks)	198,97	198,97

Nomenclature: NOD.CB17-Prkdc^{scid}/J

Origin: The breeding colony for this strain is derived from and systematically reinfused with pedigreed JAX® Mice stock obtained from The Jackson Laboratory. Charles River adheres to The Jackson Laboratory's breeding protocols and genetic quality program to maintain this breeding colony. Mice from this colony are genetically equivalent to those bred by The Jackson Laboratory and are considered authentic JAX® Mice strains which are designated with a 'J' as the final letter in the strain nomenclature. JAX® Mice Strains are for internal research use only and should not be propagated for distribution or sale.

Coat Colour: Albino.

Strain Characteristics: For comprehensive strain information, see the strain data sheet at jax.org/strain/001303. For physiological strain data, see Mouse Phenome Database at jax.org/mpd-001303.

Research Applications: Tumor biology and xenograft research.



The Jackson Laboratory's Genetic Stability Program is covered by 2009 US patent 7,592,501 and 2012 US patent 8,110,721.

JAX® Mice strain: NOD SCID gamma (NSG®) Mice

STRAIN CODE: 614



[+ Learn more](#)

Use of NSG® Mice by companies or for-profit entities requires a [JAX® Leap License](#) prior to shipping. This includes mice shipped as part of our Animal Model Evaluation Program. Purchases of NSG® Mice by companies or for-profit entities are subject to commercial pricing. Please contact your local Charles River office for further information or assistance.

Age in Days	MALE	FEMALE
	Price - €	Price - €
21-41 (3-5 weeks)	196,53	196,53
42-48 (6 weeks)	206,61	206,61
49-55 (7 weeks)	216,70	216,70
56-62 (8 weeks)	225,08	225,08
63-69 (9 weeks)	235,18	235,18
70-76 (10 weeks)	245,25	245,25

Nomenclature: NOD.Cg-Prkdc^{scid} Il2rg^{tm1Wjl}/SzJ

Origin: The breeding colony for this strain is derived from and systematically reinfused with pedigreed JAX® Mice stock obtained from The Jackson Laboratory. Charles River adheres to The Jackson Laboratory's breeding protocols and genetic quality program to maintain this breeding colony. Mice from this colony are genetically equivalent to those bred by The Jackson Laboratory and are considered authentic JAX® Mice strains which are designated with a 'J' as the final letter in the strain nomenclature. JAX® Mice Strains are for internal research use only and should not be propagated for distribution or sale.

Coat Colour: White (albino).

Strain Characteristics: For comprehensive strain information, see the strain data sheet at jax.org/strain/005557. For physiological strain data, see Mouse Phenome Database at jax.org/mpd-005557.

Research Applications: Oncology, immunology, virology research, xenograft/transplant host (outstanding utility in the studies of islet transplantation, hematopoietic stem cells and cancer stem cells).



The Jackson Laboratory's Genetic Stability Program is covered by 2009 US patent 7,592,501 and 2012 US patent 8,110,721.

SRG Rats

STRAIN CODE: 707

+ Learn more

NEW



Age in Days	MALE	FEMALE
	Price - €	Price - €
21-27 (3 weeks)	467,35	402,33
28-34 (4 weeks)	487,47	419,65
35-41 (5 weeks)	507,60	436,98
42-48 (6 weeks)	527,72	454,30
49-55 (7 weeks)	547,85	471,63
56-62 (8 weeks)	567,97	488,95
63-69 (9 weeks)	588,10	506,28
70-76 (10 weeks)	608,22	523,60
77-83 (11 weeks)	628,35	540,93
84-90 (12 weeks)	648,47	558,25
91-97 (13 weeks)	668,60	575,58
98-104 (14 weeks)	688,72	592,90

Nomenclature: Sprague Dawley-Rag2^{em2hera}/12rg^{em1hera}/HblCrl

Origin: The SRG rat was transferred from Transposagen to Hera Biolabs in 2016. To Charles River from Hera Biolabs in 2021.

Coat Colour: White.

Research Applications: Tumor biology, oncology, immunology, xenograft transplant research

Nude Rats

STRAIN CODE: 316 (Homozygous)
118 (Heterozygous)

+ Learn more



Age in Days	MALE	FEMALE
	Price - €	Price - €
28-34 (4 weeks)	158,66	158,66
35-41 (5 weeks)	185,42	185,42
42-48 (6 weeks)	212,11	212,11
49-55 (7 weeks)	242,48	242,48
Additional week	25,13	25,13

Nomenclature: Crl:NIH-Foxn1^{nu}

Origin: The NIH nude rat was developed in 1979/80 through a series of matings involving 8 inbred rat strains. To Charles River USA from the NIH Animal Genetic Resources. Caesarian derived in 2001. This athymic model shows depleted cell populations in thymus-dependant areas of peripheral lymphoid organs.

Coat Colour: Homozygotes: White, black or black and white, hairless.
Heterozygotes: White, black or black and white, haired.

Research Applications: Tumor biology, immunology, and xenograft research.

Other Immunodeficient Models Available from Charles River

NIH-III Mouse

STRAIN CODE: 201 (Homozygous)
202 (Heterozygous)

Nomenclature: Crl:NIH-*Lyst^{tg-J} Foxn1^{nu} Btk^{cid}*

Research Applications: Tumor biology and xenograft research.

[+ Learn more](#)

Nude Mouse

STRAIN CODE: 088 (Homozygous)
089 (Heterozygous)

Nomenclature: Crl:NU-*Foxn1^{nu}*

Research Applications: Tumor biology and xenograft research.

[+ Learn more](#)

Dedicated Supply of JAX® Mice

As a result of the collaborative agreement between The Jackson Laboratory and Charles River, Charles River's European facilities are able to offer you dedicated supplies of certain JAX® Mice strains that are typically only available as imported strains or recovered embryos.

[+ Learn more](#)

SCID Hairless Outbred Mice (SHO®)

STRAIN CODE: 474

Nomenclature: Crl:SHO-*Prkdc^{scid} Hr^{hr}*

Research Applications: Tumor biology and xenograft research.

[+ Learn more](#)

SCID Hairless Congenic (SHC) Mice

STRAIN CODE: Cryopreserved

Nomenclature: CB17.Cg-*Prkdc^{scid} Hr^{hr} /lcr*Crl

Research Applications: Tumor biology and xenograft research.

[+ Learn more](#)

Rabbit, Guinea Pig, Gerbil, and Hamster Models



New Zealand White - Rabbits

STRAIN CODE: 052

[+ Learn more](#)



Age in Days	MALE	FEMELLE
	Price - €	Price - €
35-41 (5 weeks)	199,28	199,28
42-48 (6 weeks)	211,50	211,50
49-55 (7 weeks)	252,84	252,84
56-62 (8 weeks)	294,98	294,98
63-69 (9 weeks)	316,54	316,54
70-76 (10 weeks)	326,61	326,61
77-83 (11 weeks)	335,25	335,25
84-90 (12 weeks)	341,01	341,01
91-97 (13 weeks)		364,07
98-104 (14 weeks)		381,68
105-111 (15 weeks)		402,88
112-118 (16 weeks)		428,75
119-125 (17 weeks)		515,70
126-132 (18 weeks)		536,50
133-139 (19 weeks)		557,28
Time mated females		Upon Request
Social pair (up to 12 weeks)		Upon Request

Nomenclature: Crl:KBL(NZW)

Origin: To Charles River Canada in 1991 from Kitayama Breeding Laboratories, Japan. To Charles River France in 1999.

Coat Colour: Albino.

Research Application: General multipurpose model.

Custom breeding of GM rabbits, immunisation and genealogical data available on request. Please consult us.

Chinchilla Bastard - Rabbits

STRAIN CODE: 602

[+ Learn more](#)

Age in Days	MALE	FEMALE
	Price - €	Price - €
35-41 (5 weeks)	416,69	416,69
42-48 (6 weeks)	416,69	416,69
49-55 (7 weeks)	456,25	456,25
56-62 (8 weeks)	524,04	524,04
63-69 (9 weeks)	524,04	524,04
70-76 (10 weeks)	524,04	524,04
77-83 (11 weeks)	524,04	524,04
84-90 (12 weeks)	592,16	592,16
91-97 (13 weeks)	622,13	622,13

Nomenclature: Crl:Crlg(CHB)

Origin: Pure Chinchilla stock obtained by Charles River Germany from Boehringer Ingelheim Biberach in 1977. Charles River Germany bred F1 hybrids called CHB (Chinchilla Bastard - progeny of Chinchilla-KBL crossing) until 2012.

Coat Colour: Grey-black.

Research Application: Ophthalmology.

Charles River France breeds Chinchilla Bastard rabbits (progeny of CHB-KBL crossing) thanks to revitalization of cryopreserved Chinchilla sperm. Chinchilla Bastard rabbits have pigmented eyes. Please contact your local customer service department for an estimated lead time for orders.

Dunkin Hartley - Guinea Pigs

STRAIN CODE: 051

[+ Learn more](#)



Weight in Grams	MALE	FEMALE
	Price - €	Price - €
≥ 200	95,45	95,45
201-250	103,87	103,87
251-300	115,58	115,58
301-350	125,42	125,42
351-400	135,73	135,73
>400	Upon Request	Upon Request

Nomenclature: Crl:HA

Origin: To Charles River in 1968 from Medical Research Council, Mill Hill. Caesarian derived in 1969.

Coat Colour: Albino.

Research Application: General multipurpose model, surgical model.

Gerbils

STRAIN CODE: 243

[+ Learn more](#)



Age in Days	MALE	FEMALE
	Price - €	Price - €
35-41 (5 weeks)	103,08	103,08
42-48 (6 weeks)	105,56	105,56
49-55 (7 weeks)	116,88	116,88
56-62 (8 weeks)	Upon Request	Upon Request

Nomenclature: Crl:MON(Tum)

Origin: The stock was obtained from Tumblebrook Farms in 1995. Rederived in 1996.

Coat Colour: Predominantly agouti with some black.

Research Application: General multipurpose model.

Syrian Hamsters

STRAIN CODE: 049

[+ Learn more](#)



Nomenclature: Crl:LVG(SYR)

Research Application: SARS-CoV-2, carcinogenicity, behavioral studies, toxicity, infectious disease, general multipurpose model

Limited availability, upon reservation from Charles River USA.

Preconditioning Services

Preconditioning services can help alleviate the space, time and labor costs involved with refining a model to meet your unique research requirements. Whether you are looking for animals fed a special diet, altered through surgery or reared to a certain age, Charles River has the state-of-the-art animal facilities, professional animal care and robust model selection to deliver study-ready animals right to your door.



[+ Learn more](#)

Preconditioning Services

Charles River Preconditioning Services allow researchers to save valuable resources by purchasing animals ready to use for your research. Charles River offers preconditioning studies from standardised to highly individualised protocols to suit your requirements.

Feeding Studies / Surgical and Chemical Manipulations

Charles River offers customised preconditioned models in accordance with the objectives/requirements of your experiments.

Models can be pre-fed with special diets to induce obesity, hypertension, stroke or other conditions. Our team can advise you on the selection of the appropriate diet depending on the model.

Charles River offers specific disease induction by injection or irradiation (e.g. diabetes induced by streptozotocin injection, pristanisation...).

Physiological modifications or specific diseases can be induced by surgical manipulation upon request.

Pre-ID™ Services

Quite often you require more than just the animal model. As part of our preconditioning services, we offer animal identification services.

Description	Mice	Rats	Guinea Pigs	Rabbits
Ear tag	•			
Microchip	•	•	•	
Ear notch	•	•		
Tattoo	•		•	•

Please note that some Pre-ID™ services listed in this table may be not available from all of European breeding sites. Please enquire.



Disease Induced Models and Contract Research Services

In some models, disease conditions develop only as the animal ages. Charles River can hold and care for the animals in a barriered preconditioning room and deliver them to you as needed. In addition, Charles River also offer 'off the shelf' aged models. Please enquire with Customer Services for availability.

Aged Animals	Age
JAX® Mice strain C57BL/6J	Up to 15 months*



* Older ages available through a special breeding contract in our transgenic services (breeding in isolator).

Therapeutic Field	Induced Model	Surgically Induced Model	Contract Research Service
Metabolic and Cardiovascular	Type 1 or 2 Diabetes (Rat / Mouse) Diet Induced Obesity Models <ul style="list-style-type: none"> • C57BL/6 DIO Mouse • CD® DIO Rat • Obese Prone Rat STZ Injection	Left Coronary Artery Ligation (Myocardial infarction) Ischemia/perfusion*	Custom Diet Administration <ul style="list-style-type: none"> • High Fat / Energy Diet • Cholesterol Diet • Cafeteria Diet Organ / Tissue Collection
Nephropathy and Hypertension	Diet Induced Models <ul style="list-style-type: none"> • Dahl/Salt Sensitive Rat • Stroke Prone Rat 	Renal Failure Model (Unilateral or 5/6 Nephrectomy) Ischemia/perfusion	Custom Diet Administration <ul style="list-style-type: none"> • High Salt Diet Organ/Tissue Collection
Gerontology and Neurodegeneration	Aged Animals	Parkinson's Model (6-OH Induction) ALZET® Osmotic Pump implantation Brain cannulation	Custom Aging Organ/Tissue Collection Histopathology
Endocrinology	Aged Animals	Ovariectomy Hysterectomy / Castration ALZET® Osmotic Pump Implantation Pellets	Custom Aging Custom Diet Administration Compound Administration
ADME & PK		Vascular catheterisation Non Vascular catheterisation	Compound Administration Intermediate / End Point Blood Sampling Clinical Observation Organ collection

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Surgery Services

At Charles River Laboratories, the 3Rs guide what we do. We offer a range of top-class surgical services, including catheterization, to reduce the number of animals used and refine sampling. All procedures are performed in our state-of-the-art operating room by fully licensed and dedicated surgical technicians and under the supervision of the veterinary team who ensure asepsis, analgesia, and quality of care. All procedures are approved by our Ethics Committee and by the Ministry of Higher Education and Research.

Standard surgical procedures are performed on CD® rats, Lewis rats, Wistar rats, Wistar Han rats, CD-1® mice and NMRI mice according to animal specificities in terms of sex, age, and weight. Other procedures and strains available on request, please contact us.

NEW All procedures are available on SOPF (VAF/Elite®) animals

Catheters

	Rats	Mice
Carotid artery	•	•
Femoral vein	•	•
Jugular vein	•	•
Portal vein (through mesenteric vein) For infusion only	•	
Double catheterisation duodenum - bile duct	•	

External Catheter Access System

	Rats	Mice
VAB (Vascular Access Button)	One channel	•
	Double channel	•
VAH (Vascular Access Harness)	One channel	•
	Double channel incl.connector for bile duct	•
PinPort™	•	•

We can combine on request two vascular catheterisations or a non-vascular catheterisation with a vascular catheterisation (Rats only), please contact us.

Excision Surgery*

	Rats	Mice
Orchidectomy (castration)	•	•
Ovariectomy	•	•
Vasectomy	•	•

*Sham-operated animal upon request. Excision surgery can be combined with catheterisation.

Device Implantations*

	Rats	Mice
ALZET® Osmotic Pumps implantations		
- Connected to a catheter	•	•
- Subcutaneous	•	•
- Intraperitoneal	•	•
Blood pressure telemetry	•	•
Electroencephalogram sensor (EEG)	•	•
Hormonal pellets	•	•
Temperature sensor	•	•

*Telemetry implant provided by the customer or by Charles River.

PinPort™ is a trademark of Instech Laboratories, Inc., Plymouth Meeting, Pennsylvania, USA. ALZET® is a registered trademark of DURECT Corporation

Training

- **Customised Training Sessions:** Charles River offers specific training programmes that meet exactly your requirements and aim to provide you with the good practices of surgery and peri operative care technics. Topics include: anesthesia, analgesia, asepsis, peri operative care, surgical procedures.

Contact us: askcharlesriver@crl.com.

- Charles River and **Professor René Rémie** are combining their expertise to offer surgery training courses combining lectures with “hands-on” exercises to ensure that you receive the most comprehensive training experience.

[+ Learn more](#)



Customised Surgical Procedures

Many of our specialised surgical offerings were developed based on customer demand.

If you are interested in a surgically altered model that is not listed on the previous pages, please contact technical assistance to discuss the development of a customised procedure. Contact us: askcharlesriver@crl.com.

On-site Surgery

Charles River offers surgical procedures performed by our surgeons at your site. Quotations are established individually for each project depending on the complexity and the number of procedures to be performed. Contact us: askcharlesriver@crl.com.

In Vivo Studies, Surgical Models and Protocols

Charles River offers *in vivo* studies with protocols to support your research including:

- Pharmacokinetic and pharmacodynamic studies
 - Many routes of administration (oral gavage, subcutaneous, intraperitoneal, intravenous injections, etc.)
 - Fluids collection and preparation (blood, serum, plasma)
- Breeding under a specific diet (low fat diet, ketogenic diet, etc.) and DIO (Diet-induced obesity) models
- Cellular or biomedical characterization of blood (glucose and lipids metabolism, etc.)
- Aging studies
- Surgical manipulations (disease models, excision surgery, vascular and non-vascular catheterisation, neurological procedures, device implantation, etc.)
- Biospecimens: collection of tissues, organs and blood products
- Model characterization and transgenic lines harmful phenotype assessment
- Identification
- Necropsy and histology

These studies can be performed on standard and genetically modified rat and mouse models.

Please contact technical assistance to discuss your project and see how Charles River could help you design and perform your *in vivo* protocols.

[+ Learn more](#)

Biospecimens

Tissues and Organs

Charles River is able to supply normal tissues and organs from various species. The prices relate to the cost per biospecimen, not per donor animal. Surcharges will be added to cover special handling where individually sampled biospecimens, and custom collection protocols are required. Specimens are frozen at -20°C after sampling then stored at -80°C. Freezing with liquid nitrogen or storage at 4°C in various buffers is available on request. Specimens are shipped in insulated dry ice igloos or exelntainer.

Rats & Mice

Adrenals	Bladder	Bones	Brain
Colon	Eyes	Fat Tissue	Jejunum
Heart	Ileum	Kidneys	Liver
Lungs	Muscles	Oesophagus	Ovaries
Pancreas	Pituitary	Gland	Prostate
Salivary Gland	Stomach	Skin	Spinal Cord
Spleen	Tail	Testis	Thymus
Thyroid	Trachea	Uterus	Vessels

Guinea pigs & rabbits: Upon request. Please enquire for availability of other biospecimens.

Blood Products

Blood, serum and plasma can be collected from various species including rodents and rabbits.

Collection of blood, serum and plasma

Serum samples are collected in dry sterile tubes, or by using a coagulation accelerator.

Blood and plasma are collected in sterile tubes containing an anticoagulant.

After centrifugation, serum and plasma are packaged in tubes of different capacities.

Standard anticoagulants:

- Lithium-heparin (15 UI heparin/ml blood)
- Sodium-heparin
- Potassium-EDTA K3 or K2 (1,6 mg/ml blood)
- Sodium citrate solution (0.5ml citrate solution/ml blood)
- Alsever's solution 25% or 50%

Transport of blood, serum and plasma

Serum and plasma are stored at -20°C after collection and usually transported with dry ice.

Blood is transported at +4°C.

Blood products will be transported by our own delivery trucks. Transportation charges are calculated according to the destination and the means of transport used.

Other fluids are available upon request.

[+ Learn more](#)

ALZET® Osmotic Pumps

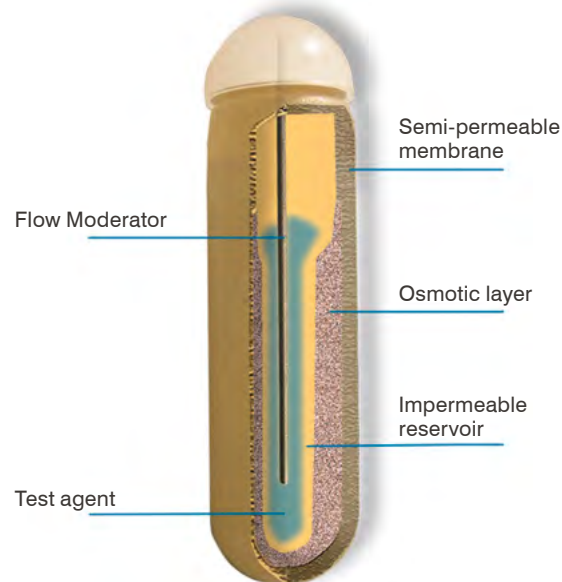
ALZET® Osmotic Pumps

Charles River is the exclusive distributor of ALZET® Osmotic Pumps for France, Germany, Austria, Switzerland, Belgium, Netherlands, Spain, Portugal, Italy, Hungary, Czech Republic, UK and Ireland. ALZET® Osmotic Pumps are miniature infusion systems that deliver test agents at controlled rates into mice, rats, and other laboratory animals. In addition to systemic administration, targeted delivery to an area remote from the site of implantation can be achieved by attaching a catheter to the pumps. ALZET® Osmotic Pumps offer a good alternative to repeated animal dosing by injection or oral gavage. Their continuous delivery eliminates peak and trough fluctuations and allows the effects of test agents to develop fully and reproducibly, particularly those with short half-lives.

ALZET® Osmotic Pumps help minimise animal stress that develops through frequent handling. They can eliminate the necessity for weekend and nighttime dosing. During infusion, no external connections are required, and the animals are untethered and unrestrained. Since ALZET® Osmotic Pumps are fully implanted, they are tamperproof. Individual caging of the animals is not required.

Comprehensive technical information is available on [ALZET® Osmotic Pumps website](#)

Osmotic Pump Mechanism

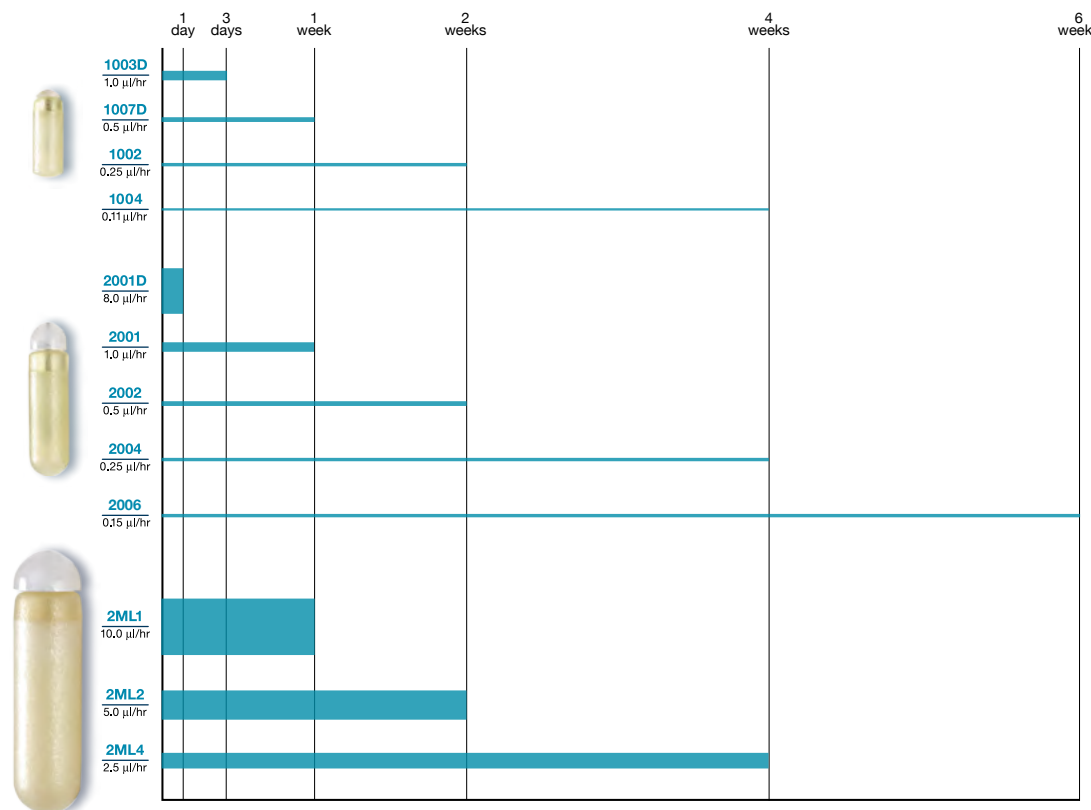


Choose the best pump model for your study design

Presently, there are 12 pump models available that differ in volume (100 µl - 2 ml), duration (1 day - 6 weeks) and delivery rate (0,11 µl/hr - 10 µl/hr).

Dosage variability can be achieved by modifying agent concentration; duration can be extended by serial implantation of the pumps.

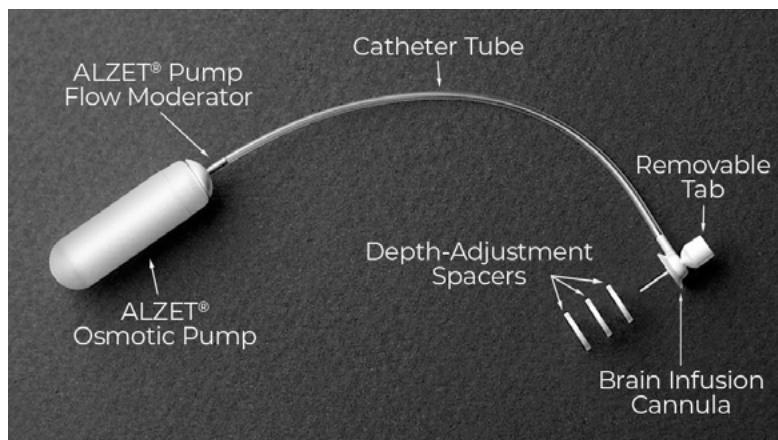
Note: Nominal specifications are listed for each pump model. Individual lots of pumps will vary from this target within limits. The actual pumping rate and fill volume of a particular lot (derived by statistical testing) are listed on the top of the instruction sheet included with the pumps.



ALZET® is a registered trademark of DURECT Corporation

Bypass the Blood-Brain Barrier

For direct delivery to the cerebral ventricles and brain tissue, the pumps can be combined with the Brain Infusion Kit 1, 2 or 3.



Animal Considerations

Choose the right pump model to suit your animal and route of delivery. The table below lists the estimated minimum animal size required for implantation of ALZET® Osmotic pumps.

Pump Model	Mice		Rat	
	Subcutaneous	Intraperitoneal	Subcutaneous	Intraperitoneal
1003D				
1007D				
1002	10 g	20 g	10 g	20 g
1004				
2001D				
2001				
2002	20 g	N/A	20 g	150 g
2004				
2006				
2ML1				
2ML2	N/A	N/A	150 g	300 g
2ML4				

Note: The minimum animal size estimates are based on experience with male Sprague Dawley® rats and Swiss Webster mice. When using the pumps with other types or genders of rats and mice, or with animals other than rats and mice, these guidelines should be modified accordingly.

ALZET® is a registered trademark of DURECT Corporation

Price

Pump Model	Volume	Duration	Release Rate	Product Code	1 pack of 10 - €*
1003D	100 µl	3 days	1,0 µl/hr	0000289	462,90
1007D	100 µl	1 week	0,5 µl/hr	0000290	544,78
1002	100 µl	2 weeks	0,25 µl/hr	0004317	669,25
1004	100 µl	4 weeks	0,11 µl/hr	0009922	798,07
2001D	200 µl	1 day	8,0 µl/hr	0000294	669,25
2001	200 µl	1 week	1,0 µl/hr	0000292	462,90
2002	200 µl	2 weeks	0,5 µl/hr	0000296	544,78
2004	200 µl	4 weeks	0,25 µl/hr	0000298	669,25
2006	200 µl	6 weeks	0,15 µl/hr	0007223	796,38
2ML1	2 ml	1 week	10,0 µl/hr	0000323	670,61
2ML2	2 ml	2 weeks	5,0 µl/hr	0000325	798,07
2ML4	2 ml	4 weeks	2,5 µl/hr	0000327	957,47

* Each pack contains 10 osmotic pumps, 10 flow moderators, 1 disposable filling tube and 1 instruction specification sheet.

Note: Nominal specifications are listed for each pump model. Individual lots of pumps will vary from this target within limits. The actual pumping rate and fill volume of a particular lot (derived by statistical testing) are listed on the top of the instruction sheet included with the pumps.

Accessories	Product Code	Price per pack of 10 - €
Filling Tubes - 100 µl pumps	0007988	40,46
Filling Tubes - 200 µl pumps	0007987	40,46
Filling Tubes - 2 ml pumps	0007986	40,46
PEEK Tubing - 100 µl pumps	0002612	27,98
PEEK Tubing - 200 µl pumps	0002496	27,98
PEEK Tubing - 2 ml pumps	0002511	27,98
Flow Moderators - 100 µl pumps	0002602	51,70
Flow Moderators - 200 µl pumps	0002486	51,70
Flow Moderators - 2 ml pumps	0002501	51,70
Coloured Flow Moderators - 100 µl pumps BLUE	0002609	74,28
Coloured Flow Moderators - 100 µl pumps TEAL	0002607	74,28
Coloured Flow Moderators - 200 µl pumps BLUE	0002489	74,28
Coloured Flow Moderators - 200 µl pumps TEAL	0002488	74,28
Coloured Flow Moderators - 2 ml pumps BLUE	0002504	74,28
Coloured Flow Moderators - 2 ml pumps TEAL	0002503	74,28
ALZAID Test Kit		Price each - €
The ALZAID® Test Kit contains enough material to test up to 4 substances	0004750	48,33
Brain Infusion Kits (BIK)*		Price each - €*
BIK 1 - 28 gauge; 3-5 mm penetration depth from skull surface, pack of 10	0004760	201,73
BIK 2 - 28 gauge; 3-5 mm penetration depth from skull surface, pack of 10	0008663	201,73
BIK 3 - 30 gauge; 1-3 mm penetration depth from skull surface, pack of 10	0008851	201,73
Cyanoacrylate Adhesive (Loctite 454), 1 tube	0008670	15,83
Cannula Holder 1	0008860	446,44
Cannula Holder 2	0008861	649,37

* Brain Infusion Kit units contain: 10 infusion cannulas, 10 vinyl catheter tubes, 40 spacers, 1 instruction leaflet. Pumps sold separately.

Catheters, Medical grade polyethylene (PE) and vinyl tubing - Sterile	Product Code	Price per 10 - €
PE60 - OD 1,22 mm; ID 0,76 mm ; appr. 15 cm length	0007750	52,35
Vinyl - OD 1,24 mm; ID 0,69 mm ; appr. 15 cm length	0007760	51,20
Special Catheters		Price each - €
Rat Jugular Catheter	0007710	23,93
Rat Femoral Catheter	0007720	20,10
Rat Femoral Tapered Catheter - Custom order	0007730	Upon Request
Rat Intrathecal Catheter	0007740	38,10
Rat Intrathecal Catheter - Short	0007741	38,10
Rat Intraperitoneal (IP) Catheter	0007770	26,11
Mouse Jugular Catheter	0007700	22,83
Mouse Jugular Catheter - Adjustable Length	0007701	23,71
Mouse Jugular Catheter - Large Tip	0007702	23,71
Mouse Intrathecal Catheter	0007743	36,51
Mouse Intraperitoneal (IP) Catheter	0007771	26,11
AutoClip® Wound Closure System (9 mm)		Price - €
AutoClip® 100 clips	0009950	48,16
AutoClip® Kit 100 (includes Applier, Remover and 100 clips)	0009953	559,88
AutoClip® Kit 500 (includes Applier, Remover and 500 clips)	0009954	708,02
AutoClip® Applier	0009956	360,18
AutoClip® Remover	0009957	195,53
Reflex Wound Closure System (7 mm)		Price - €
Reflex 100 clips	0009971	87,73
Reflex Kit 100 (includes Applier, Remover and 100 clips)	0009972	710,07
Reflex Kit 500 (includes Applier, Remover and 500 clips)	0009973	1032,64
Reflex Applier	0009974	360,18
Reflex Remover	0009976	288,14

[+ Learn more](#)

Associated Services Overview

Antibody Production

Charles River offers monoclonal and polyclonal antisera production in a variety of species, such as mice, rats, rabbits, guinea pigs, chicken, sheep, and goats. Projects can be customized to client-specific requirements or follow Charles River standard protocols. Routes of injection are dependent on species of animal used but include: intradermal (ID), subcutaneous (SC), intramuscular (IM), intravenous (IV), and intraperitoneal (IP).

Monoclonal Antibody Production Services

Charles River develops and produces monoclonal antibodies by production of hybridomas. We can offer our standard services or customize development and production services based on client needs.

Production Steps

Immunization and harvesting of B cells

Hybridoma generation (mice and rats only)	Fusion to immortal B cells
	Analysis and selection of antibody
	Subcloning
Obtainment of Antibodies	Production of cell culture supernatant
	Purification of monoclonal antibodies
	Labeling of monoclonal antibodies

Polyclonal Antibody Production Services

Charles River offers polyclonal antibody production services such as antigen synthesis, purification, and analysis. In addition, we can design studies in terms of number of immunizations, duration, sample bleeds, analysis, etc. to meet each individual customer's needs.

Production Steps

Antigen design, synthesis, and conjugation

Immunization and blood harvest

Serum isolation

Titer determination by ELISA

Purification of serum antibodies (isolation of total immunoglobulin fraction by chromatography or isolation of antigen specific antibodies with affinity matrices)

Labeling of polyclonal antibodies

Fragmentation of antibodies – production of mouse Fab or F(ab)-2 fragments

Specific assay development

[+ Learn more](#)

Pharmaceutical Quality Control (Biological Tests)

Charles River offers a set of tests conducted in compliance with EU / US Good Manufacturing Practices in our Pharmaceutical Establishment.

Sample Preparation

All types of preparation can be performed (raw materials and drug products or medical devices): weighing, dilution, cold or hot extraction, autoclaving...

Sample preparation	Custom protocol
--------------------	-----------------

In vivo Pyrogen Testing

Tests are performed in a protected area including two housing rooms, one sample preparation room and one testing room. This is equipped with a fully integrated test management system, from temperature recording to interpretation of the results, in compliance with the European, US, Russian, Chinese and Japanese Pharmacopoeias (other Pharmacopoeias on request). Tests are performed using rabbits that are bred in SPF units on the same site.

In vivo Pyrogen test	Custom protocol
----------------------	-----------------

Abnormal Toxicity Test, Safety Tests

Our test unit includes housing rooms and a laboratory. Tests are performed in compliance with the US, Russian, Chinese, Japanese, and European Pharmacopoeias (version 9.5) (other Pharmacopoeias on request) using SPF mice and Guinea pigs sourced from Charles River barrier rooms.

Abnormal toxicity test, Systemic injection test, Safety tests

Mouse	Custom protocol
Mouse + Guinea pig	Custom protocol

Biological Insuling Testing

Tests are performed in compliance with several pharmacopeia (Russian, US, Chinese and other on request) using rabbits or mice sourced from Charles River barrier rooms (SPF). Glucose dosage from rabbits blood samples and statistical analysis are performed by Charles River.

Prolonged action of insulin products	Custom protocol
Method for determination of the biological activity of insulin	Custom protocol

Other Biological Testing

All biological tests (haemolysis test, hormone test, potency tests, LD 50) described in any Pharmacopoeia or Sponsor references can be performed. Species used are: rabbit, rat, mouse and guinea pig. Please contact askcharlesriver@crl.com for further information.

Biological testing	Custom protocol
--------------------	-----------------

Research Animal Diagnostic Services

Charles River Research Animal Diagnostics Services is the only comprehensive partner that offers solutions from prevention to resolution. Through innovations like PathogenBinder™, the HemaTIP™ Microsampler, Laboratory Testing Management® (LTM™), MALDI-TOF for microbial identification, and Exhaust Air Dust (EAD®) testing with our PCR Rodent Infectious Agent (PRIA®) panels, we can manage your animal health surveillance programme effectively and efficiently. (PRIA®) panels, we can manage your animal health surveillance program effectively and efficiently.



Research Animal Diagnostic Services

Diagnostic Laboratory Locations

We have multiple diagnostic laboratories to provide a local, convenient option to you. We receive live animals and samples for diagnostic testing at all of our laboratories:

- North America (Massachusetts and California, US)
- Europe (France)

The same techniques and technologies are implemented at all of our diagnostic sites worldwide, giving you confidence that we will provide the consistent results that you have come to expect from Charles River.

Complimentary Shipping Materials

We provide our clients with International Air Transport Association (IATA)- compliant sample and animal shipping containers (sample shipping materials, shipping labels and containers, live-animal shippers, etc.).

Consultation and Education

Since health concerns vary greatly with facility size and research type, our Professional and Technical staff members can provide one-on-one consultation and educational presentations on topics, including but not limited to:

- Routine and quarantine health surveillance programme design or refinement, including FELASA recommendations
- Results interpretation
- Prevalent infectious agents, outbreak detection and management
- Technical training for users of serology reagents and [LTM™](#)

Submission Forms

In order to expedite the submission process, ensure the safety of our staff, and adhere to regulations, we wish to remind you to please sign the Health Hazards Declaration Form, which includes the presence of zoonotic or class 2 agents as mentioned on the Submission Form. [Click here](#) to learn more about sample submission and shipping.

Research Animal Health Surveillance

- PRIA (PCR Rodent Infectious Agent) panels for Mouse, Rat, Gerbil, Rabbit, Hamster, Guinea pig
- Health monitoring, serology, microbiology and additional tests for: Mouse, Rat, Gerbil, Rabbit, Hamster, Guinea pig, Zebrafish

Cell Line and Research Biologics Screening

PCR Panels to screen for:

- Rodent infectious agents
- Human infectious agents

Cell Line Examination and Report (CLEAR) Panel to detect cell line contamination

Environmental Monitoring

- Microbial/bioburden testing for water, feed and bedding
- Surface testing

Health Data Management

- Laboratory Test Management ([LTM™](#))
- [LTM™](#) is our online, interactive order entry and results management system that centralises your health and genetic testing programmes into one virtual location.

Use [LTM™](#) to search for tests and sample submission information, create and track orders, as well as archive and trend your testing results.

[+ Learn more](#)

[+ Learn more](#)

Health Monitoring (HM) Programmes

Charles River offers several testing options that can either reduce or completely remove the use of sentinels from your health surveillance programmes. Below we outline alternative, hybrid and traditional health monitoring programmes.

Alternative (Sentinel-Free) Programmes

Charles River offers the new PathogenBinder™ collection method and Exhaust Air Dust (EAD®) sample testing as alternative approaches to screening the health of your animal colonies. The increased sensitivity and specificity of our PCR testing in combination with these sampling method enables us to detect viruses, bacteria, and parasites in any housing scenario utilizing soiled bedding sampling, screening ventilated caging systems or swabbing other environmental surfaces. This approach not only reduces or eliminates the need for sentinels, but it also increases the probability of detecting those infectious agents that are not readily detected by sentinels exposed to soiled bedding. Any of our standard [PRIA® panels](#) can be used or customized to more specifically meet your needs.

Rack Type	Sampling Level	Sample Types Options
Individually ventilated cages (IVC)	Rack-level	PathogenBinder™ EAD® swab* Pre-filter media Rack collection device** Direct***
Individually ventilated cages (IVC) with cage-level filtration	Cage-level	PathogenBinder™ Cage filter media Direct***
Static-top filter cages	Rack-level	PathogenBinder™ Direct***
Conventional open-top cages	Rack-level	PathogenBinder™ Environmental swab**** Direct***

* E.g., plenum swab, pre-filter swab and/or exhaust hose swab.
 ** Caging manufacturer sample collection device.
 *** E.g., fecal pellets, body swab, oral swab.
 **** Swab various surfaces that are in contact with resident animals.

Hybrid Programmes

Hybrid programmes allow for a combination of alternative (environmentally-based) samples to be submitted in combination with direct animal (antemortem) samples such as fecal pellets, body swabs and oral swabs, as well as sentinel serology.

Rack Type	Sampling Level	Sample Types Options
Individually ventilated cages (IVC)	Mixed	Blood/serum Direct** EAD® swab* Rack or cage filter media Cage swab
Static-top filter cages	Mixed	Blood/serum Direct** Cage swab
Conventional open-top cages	Mixed	Blood/serum Direct** Environmental swab***

* E.g., plenum swab, pre-filter swab and/or exhaust hose swab.
 ** E.g., fecal pellets, body swab, oral swab.
 *** Swab various surfaces that are in contact with resident animals.

[+ Learn more](#)

Traditional Whole-Animal Programmes

Whole animals can be submitted for a Health Monitoring (HM) protocol - samples will be collected in our necropsy laboratory and will be screened for the presence of infectious agents. Also, services offered as part of a HM protocol are available individually - samples can be collected at your facility and directly submitted to our laboratory for testing. Custom testing is available upon request.

Shipping crates containing hydration, food and bedding. Crate delivery. Animal pickup service available on request.

Protocol	Species	Serology	PCR	Microbiology	Parasitology	Pathology
HM Standard	Mouse, rat, g. pig, and rabbit	Tracking Performed on nu/+ for Sentinel Programmes		Upper respiratory and gastrointestinal tracts included Performed on nu/nu for Sentinel Programmes	Endoparasite and ectoparasite exams included Performed on nu/nu for Sentinel Programmes	Gross necropsy with collection of organs in case of lesion (histology upon request)
HM Assessment	Mouse, rat, hamster, g. pig, rabbit, and gerbil	Assessment	<i>Helicobacter</i> & <i>Lawsonia</i> (Hamster only)			
HM Plus	Mouse and rat	Assessment Plus Performed on nu/+ for Sentinel Programmes	<i>Helicobacter</i>			
HM Quarterly FELASA*	Mouse, rat, g.pig, and rabbit	FELASA Quarterly Performed on nu/+ for Sentinel Programmes	<i>Helicobacter</i>			
HM Annually FELASA*	Mouse, rat, hamster, g.pig, and rabbit	FELASA Annually Performed on nu/+ for Sentinel Programmes	<i>Helicobacter</i>			
Custom Protocol	Mouse, rat, hamster, g. pig, rabbit, and gerbil					

* FELASA compliant, without opportunistic agents (available upon request).

HM Protocol pricing includes all tests indicated in the table above. Once you are ready to submit animals, visit [LTM™](#) to create your order online. Prices and other panels are available on request, please consult us.

Mouse PRIA® Panels - Direct Animal, PathogenBinder™, Exhaust Air Dust (EAD®), and Environmental Sampling

	Immunocompetent		Immunodeficient		2023 Mouse Comprehensive PRIA	Mouse FELASA Basic (3-month) PRIA	Mouse FELASA Complete (Annual) PRIA
	2023 Mouse Quarterly IC PRIA	2023 Mouse Annual IC PRIA	2023 Mouse Quarterly ID PRIA	2023 Mouse Annual ID PRIA			
Viruses							
Mouse parvoviruses (MVM/MPV 1-5)	•	•	•	•	•	•	•
Murine norovirus (MNV)	•	•	•	•	•	•	•
Mouse coronavirus (MHV)	•	•	•	•	•	•	•
Murine rotavirus (MRV/EDIM)	•	•	•	•	•	•	•
Mouse theilovirus (TMEV, GDVII)	•	•	•	•	•	•	•
Adenovirus type 1 & 2 (MAV-1 & MAV-2)	•	•	•	•	•		•
Reovirus type 1, 2, 3, 4					•		•
Murine orthopneumovirus (Pneumonia virus of mice/PVM)					•		•
Sendai virus					•		•
Ectromelia (mousepox)					•		•
Lymphocytic choriomeningitis virus (LCMV)					•		•
New World hantaviruses					•		
Old world hantaviruses (will not detect Hantaan)					•		
Hantaan hantavirus					•		
Lactate dehydrogenase-elevating virus (LDV)		•		•	•		
Astrovirus 1					•		
Astrovirus 2					•		
Murine chapparravirus (MCPV)	•	•	•	•	•		
Mouse thymic virus (MTLV)					•		
Mouse cytomegalovirus (MCMV)					•		
Mouse polyomavirus					•		

Continued on next page.

Mouse PRIA® Panels - Direct Animal, PathogenBinder™, Exhaust Air Dust (EAD®), and Environmental Sampling

	Immunocompetent		Immunodeficient		2023 Mouse Comprehensive PRIA	Mouse FELASA Basic (3-month) PRIA	Mouse FELASA Complete (Annual) PRIA
	2023 Mouse Quarterly IC PRIA	2023 Mouse Annual IC PRIA	2023 Mouse Quarterly ID PRIA	2023 Mouse Annual ID PRIA			
Bacteria							
<i>Helicobacter</i>	•	•	•	•	•	•	•
<i>Citrobacter rodentium</i>							•
<i>Mycoplasma pulmonis</i>					•		•
<i>Streptobacillus moniliformis</i>							•
<i>Rodentibacter pneumotropicus</i>	•	•	•	•	•	•	•
<i>Rodentibacter heylii</i>	•	•	•	•	•	•	•
<i>Clostridium piliforme</i>							•
<i>Pseudomonas aeruginosa</i>		•	•	•	•		
<i>Salmonella</i>					•		•
<i>Campylobacter</i>					•		
<i>Bordetella bronchiseptica</i>		•		•	•		
<i>Bordetella hinzii/B. pseudohinzii</i>		•	•	•	•		
<i>Corynebacterium kutscheri</i>							•
<i>Corynebacterium bovis</i>		•	•	•	•		
<i>Staphylococcus aureus</i>		•	•	•	•		
<i>Streptococcus pneumoniae</i>		•	•	•	•	•	•
<i>Klebsiella pneumoniae</i>		•	•	•	•		
<i>Klebsiella oxytoca</i>		•	•	•	•		
Beta hemolytic Streptococcus group A (<i>S. pyogenes</i>)			•	•		•	•
Beta hemolytic Streptococcus group B: (<i>S. agalactiae</i> , <i>S. dysgalactiae</i> subsp. <i>equisimilis</i> *)			•	•	•	•	•
Beta hemolytic Streptococcus group C (<i>S. equi</i> subsp. <i>equi</i> and <i>zooepidemicus</i>)		•	•	•	•	•	•
Beta hemolytic Streptococcus group G (<i>S. dysgalactiae</i> subsp. <i>dysgalactiae</i> and subsp. <i>equisimilis</i>)		•	•	•	•	•	•
<i>Chlamydia muridarum</i>		•		•	•		
<i>Pasteurella multocida</i>					•		
<i>Proteus mirabilis</i>			•	•			
<i>Staphylococcus xylosus</i>					•		

* In rare cases, *S. dysgalactiae* subsp. *equisimilis* may present the Group B Lancefield phenotype

Continued on next page.

Mouse PRIA® Panels - Direct Animal, PathogenBinder™, Exhaust Air Dust (EAD®), and Environmental Sampling

	Immunocompetent		Immunodeficient		2023 Mouse Comprehensive PRIA	Mouse FELASA Basic (3-month) PRIA	Mouse FELASA Complete (Annual) PRIA
	2023 Mouse Quarterly IC PRIA	2023 Mouse Annual IC PRIA	2023 Mouse Quarterly ID PRIA	2023 Mouse Annual ID PRIA			
Parasites							
Fur mites (Myobia, Myocoptes, Radfordia)	•	•	•	•	•	•	•
Pinworms (Aspicularis, Syphacia)	•	•	•	•	•	•	•
<i>Demodex</i>			•	•	•		
<i>Tropical Rat Mite (Ornithonyssus bacoti)</i>					•		
Protozoa							
<i>Giardia</i>		•		•	•	•	•
<i>Spironucleus muris</i>		•		•	•	•	•
<i>Cryptosporidium</i>		•		•	•	•	•
<i>Entamoeba</i>		•		•	•	•	•
<i>Eimeria (Coccidia; Cyclospora and Isospora)</i>					•		
<i>Hexamastix</i>		•		•	•		
<i>Chilomastix (also detects Retortamonas)</i>		•		•	•		
<i>Tritrichomonas</i>		•		•	•		
Fungi							
<i>Pneumocystis</i>		•	•	•	•		

This list represents updated recommendations based on agent current prevalence data. All custom and legacy PRIA® panels (e.g. Surveillance plus, Prevalent, etc. and/or institution-specific panels) remain in LTM and are available for use.

Mouse PRIA® - Additional Assays

Custom panels available upon request, which can include any agents shown on previous pages and any agents noted in the additional assays table below. In addition, individual agent testing available for all.

Group	Agent
Viruses	
	Murine Alphacoronavirus
	Boone Cardiovirus
	Murine Kobuvirus 1
	Murine Kobuvirus 2
	Murine Picornavirus
	Murine Sapovirus
	Rodent Papillomavirus
	Sarbecovirus (COVID/SARS-CoV2)
	Mouse pneumonitis virus (K virus)
Bacteria	
	<i>Filobacterium rodentium</i> (CAR bacillus)
	<i>Leptospira</i>
	<i>Francisella tularensis</i>
Parasites	
	Rodent Tape Worms (<i>Hymenolepis [Rodentolepis]</i>)
Fungi	
	<i>Encephalitozoon cuniculi</i>

Rat PRIA® Panels - Direct Animal, PathogenBinder™, Exhaust Air Dust (EAD®), and Environmental Sampling

	Immunocompetent		Immunodeficient		2023 Rat Comprehensive PRIA	Rat FELASA Basic (3-month) PRIA	Rat FELASA Complete (Annual) PRIA
	2023 Rat Quarterly IC PRIA	2023 Rat Annual IC PRIA	2023 Rat Quarterly ID PRIA	2023 Rat Annual ID PRIA			
Viruses							
Rat parvoviruses (H-1, KRV, RPV, RMV)	•	•	•	•	•	•	•
Rat polyoma virus 2 (RatPyV2)	•	•	•	•	•	•	•
Rat coronavirus (RCV, SDAV)	•	•	•	•	•	•	•
Rat theilovirus (RTV)	•	•	•	•	•	•	•
Adenovirus type 1 & 2 (MAV-1 & MAV-2)	•	•	•	•	•		•
Reovirus type 1, 2, 3, 4		•		•	•		•
Murine orthopneumovirus (Pneumonia virus of mice/PVM)		•		•	•		•
Sendai virus		•		•	•		•
Ectromelia (mousepox)		•		•	•		•
Lymphocytic choriomeningitis virus (LCMV)		•		•	•		•
Old World hantavirus (Seoul)		•		•	•		
Rat rotavirus (Infectious diarrhea of infant rats/IDIR)					•		
Boone Cardiovirus					•		
Rat Polyomavirus					•		

Continued on next page.

Rat PRIA® Panels - Direct Animal, PathogenBinder™, Exhaust Air Dust (EAD®), and Environmental Sampling

	Immunocompetent		Immunodeficient		2023 Rat Comprehensive PRIA	Rat FELASA Basic (3-month) PRIA	Rat FELASA Complete (Annual) PRIA
	2023 Rat Quarterly IC PRIA	2023 Rat Annual IC PRIA	2023 Rat Quarterly ID PRIA	2023 Rat Annual ID PRIA			
Bacteria							
<i>Helicobacter</i>	•	•	•	•	•	•	•
<i>Citrobacter rodentium</i>							•
<i>Mycoplasma pulmonis</i>		•		•	•		•
<i>Streptobacillus moniliformis</i>		•		•	•		•
<i>Rodentibacter pneumotropicus</i>	•	•	•	•	•	•	•
<i>Rodentibacter heylii</i>	•	•	•	•	•	•	•
<i>Clostridium piliforme</i>					•		•
<i>Filobacterium rodentium</i>					•		
<i>Pseudomonas aeruginosa</i>			•	•	•		
<i>Salmonella</i>					•		•
<i>Campylobacter</i>		•		•	•		
<i>Bordetella bronchiseptica</i>		•		•	•		
<i>Bordetella hinzii/B. pseudohinzii</i>					•		
<i>Corynebacterium kutscheri</i>					•		•
<i>Corynebacterium bovis</i>				•	•		
<i>Staphylococcus aureus</i>			•	•	•		
<i>Streptococcus pneumoniae</i>			•	•	•	•	•
<i>Klebsiella pneumoniae</i>			•	•	•		
<i>Klebsiella oxytoca</i>			•	•	•		
<i>Beta hemolytic Streptococcus group A (S. pyogenes)</i>			•	•	•	•	•
<i>Beta hemolytic Streptococcus group B: (S. agalactiae, S. dysgalactiae subsp. equisimilis*)</i>		•	•	•	•	•	•
<i>Beta hemolytic Streptococcus group C (S. equi subsp. equi and zooepidemicus)</i>		•	•	•	•	•	•
<i>Beta hemolytic Streptococcus group G (S. dysgalactiae subsp. dysgalactiae and subsp. equisimilis)</i>		•	•	•	•	•	•
<i>Pasteurella multocida</i>					•		
<i>Proteus mirabilis</i>		•	•	•	•		

* In rare cases, *S. dysgalactiae subsp. equisimilis* may present the Group B Lancefield phenotype

Continued on next page.

Rat PRIA® Panels - Direct Animal, PathogenBinder™, Exhaust Air Dust (EAD®), and Environmental Sampling

	Immunocompetent		Immunodeficient		2023 Rat Comprehensive PRIA	Rat FELASA Basic (3-month) PRIA	Rat FELASA Complete (Annual) PRIA
	2023 Rat Quarterly IC PRIA	2023 Rat Annual IC PRIA	2023 Rat Quarterly ID PRIA	2023 Rat Annual ID PRIA			
Parasites							
Fur mites (Myobia, Myocoptes, Radfordia)	•	•	•	•	•	•	•
Pinworms (Aspicularis, Syphacia)	•	•	•	•	•	•	•
<i>Demodex</i>			•	•	•		
<i>Tropical Rat Mite (Ornithonyssus bacoti)</i>		•		•	•		
Protozoa							
<i>Giardia</i>		•		•	•	•	•
<i>Spiroucleus muris</i>		•		•	•	•	•
<i>Cryptosporidium</i>		•		•	•	•	•
<i>Entamoeba</i>		•		•	•	•	•
<i>Eimeria (Coccidia, Cyclospora and Isospora)</i>					•		
<i>Hexamastix</i>		•		•	•		
<i>Chilomastix (also detects Retortamonas)</i>		•		•	•		
<i>Tritrichomonas</i>		•		•	•		
Fungi							
<i>Encephalitozoon cuniculi</i>					•		
<i>Pneumocystis</i>		•	•	•	•		

This list represents updated recommendations based on agent current prevalence data. All custom and legacy PRIA® panels (e.g. Surveillance plus, Prevalent, etc. and/or institution-specific panels) remain in LTM and are available for use.

Rat PRIA® - Additional Assays

Custom panels available upon request, which can include any agents shown on previous pages and any agents noted in the additional assays table below. In addition, individual agent testing available for all.

Group	Agent
Viruses	
	Rodent Papillomavirus
	<i>Rat Astrovirus (Murine Astrovirus 2)</i>
	Murine Alphacoronavirus
	Murine Kobuvirus 1
	Murine Kobuvirus 2
	Murine Picornavirus
	Orthopoxvirus
	Sarbecovirus/COVID-plex/SARS-CoV2
Bacteria	
	<i>Staphylococcus xylosus</i>
	<i>Leptospira</i>
	<i>Francisella tularensis</i>
Parasites	
	Rodent Tape Worms (<i>Hymenolepis [Rodentolepis]</i>)

Rabbit PRIA® Panels - Direct Animal Sampling*

Custom testing is available on request.

	FELASA Basic (3-Month)	FELASA Complete (Annual)	Surveillance Plus	FELASA Parasite Add-On	Parasite-Only
Viruses					
Group A rotavirus	•	•	•		
Lymphocytic choriomeningitis virus			•		
Rabbit picobirnavirus			•		
Rabbit hepatitis E virus			•		
Sarbecovirus					
Bacteria					
<i>Helicobacter</i>			•		
<i>Rodentibacter heylji</i> ***			•		
<i>Rodentibacter pneumotropicus</i> ****			•		
<i>Clostridium piliforme</i>	•	•	•		
<i>Filobacterium rodentium</i> **		•	•		
<i>Pseudomonas aeruginosa</i>			•		
<i>Salmonella</i>		•	•		
<i>Bordetella bronchiseptica</i>	•	•	•		
<i>Staphylococcus aureus</i>			•		
<i>Lawsonia</i>			•		
<i>Pasteurella multocida</i>	•	•	•		
<i>Treponema paraluis-cuniculi</i>			•		
Parasites/Protozoa/Fungi					
<i>Eimeria (Coccidia)(Cyclospora and Isospora)</i>			•	•	•
Pinworms (<i>Passalurus ambiguus</i>)	•	•	•	•	•
<i>Francisella tularensis</i> ***				•	•
<i>Cryptosporidium</i>	•	•	•	•	•
<i>Entamoeba</i>			•	•	•
<i>Encephalitozoon cuniculi</i>	•	•	•	•	•
<i>Demodex</i>			•	•	•
<i>Giardia</i>				•	•

* Fecal pellets, body swab, and oral swab required for all rabbit and gerbil PRIA® panels.

** Formely classified as CAR Bacillus.

*** Available as an add-on assay.

**** Formerly classified as *Pasteurella pneumotropica* (Heyl & Jawetz).

Gerbil PRIA® Panels - Direct Animal Sampling*

Custom testing is available on request.

	Surveillance Plus	Parasite-Only
Viruses		
Murine rotavirus (MRV/EDIM)	•	
Sendai virus	•	
Lymphocytic choriomeningitis virus	•	
Sarbecovirus		
Bacteria		
<i>Helicobacter</i>	•	
<i>Rodentibacter heylji</i> **	•	
<i>Rodentibacter pneumotropicus</i> **	•	
<i>Pseudomonas aeruginosa</i>	•	
<i>Salmonella</i>	•	
<i>Bordetella bronchiseptica</i>	•	
<i>Staphylococcus aureus</i>	•	
<i>Streptococcus pneumoniae</i>	•	
<i>Klebsiella pneumoniae</i>	•	
<i>Klebsiella oxytoca</i>	•	
Beta hemolytic <i>Streptococcus</i> group B	•	
Beta hemolytic <i>Streptococcus</i> group C	•	
Beta hemolytic <i>Streptococcus</i> group G	•	
<i>Pasteurella multocida</i>	•	
Parasites/Protozoa/Fungi		
Fur mites	•	
Pinworms	•	
<i>Giardia</i>	•	•
<i>Spiroplasma muris</i>	•	
<i>Cryptosporidium</i>	•	•
<i>Entamoeba</i>	•	•
<i>Demodex</i>		•

* Fecal pellets, body swab, and oral swab required for all rabbit and gerbil PRIA® panels.

** Formerly classified as *Pasteurella pneumotropica* (Heyl & Jawetz).

Hamster PRIA® Panels - Direct Animal Sampling*

Custom testing is available on request.

	FELASA Basic (3-Month)	FELASA Complete (Annual)	Surveillance Plus	Parasite-Only
Viruses				
Parvovirus (HPV/MVM/MPV1-5)			•	
Murine rotavirus (MRV/EDIM)			•	
Reovirus type 1, 2, 3, 4			•	
Pneumonia virus of mice			•	
Sendai virus	•	•	•	
Lymphocytic choriomeningitis virus	•	•	•	
Polyoma virus			•	
Sarbecovirus				
Bacteria				
<i>Helicobacter</i>		•	•	
<i>Rodentibacter heylji</i> **	•	•	•	
<i>Rodentibacter pneumotropicus</i> **	•	•	•	
<i>Clostridium piliforme</i>		•	•	
<i>Pseudomonas aeruginosa</i>			•	
<i>Salmonella</i>		•	•	
<i>Campylobacter</i>			•	
<i>Bordetella bronchiseptica</i>			•	
<i>Corynebacterium kutscheri</i>		•	•	
<i>Corynebacterium bovis</i>			•	
<i>Staphylococcus aureus</i>			•	
<i>Streptococcus pneumoniae</i>			•	
<i>Klebsiella pneumoniae</i>			•	
<i>Klebsiella oxytoca</i>			•	
Beta hemolytic <i>Streptococcus</i> group A			•	
Beta hemolytic <i>Streptococcus</i> group B			•	
Beta hemolytic <i>Streptococcus</i> group C			•	
Beta hemolytic <i>Streptococcus</i> group G			•	

* Fecal pellets, body swabs, and oral swabs required for all hamster PRIA® panels.

** Formerly classified as *Pasteurella pneumotropica* (Heyl & Jawetz).

Continued on next page.

Hamster PRIA® Panels - Direct Animal Sampling*

Custom testing is available on request.

	FELASA Basic (3-Month)	FELASA Complete (Annual)	Surveillance Plus	Parasite-Only
Bacteria (cont.)				
<i>Proteus mirabilis</i>			•	
<i>Pasteurellaceae</i>			•	
<i>Lawsonia</i>			•	
<i>Pasteurella multocida</i>			•	
Parasites/Protozoa/Fungi				
Fur mites	•	•	•	•
Pinworms	•	•	•	•
<i>Giardia</i>	•	•	•	•
<i>Spironucleus muris</i>	•	•	•	•
<i>Cryptosporidium</i>	•	•	•	•
<i>Entamoeba</i>	•	•	•	•
<i>Encephalitozoon cuniculli</i>			•	•
<i>Demodex</i>	•	•	•	•

* Fecal pellets, body swabs, and oral swabs required for all hamster PRIA® panels.

Guinea Pig PRIA® Panels - Direct Animal Sampling*

Custom testing is available on request.

	FELASA Basic (3-Month)	FELASA Complete (Annual)	Surveillance Plus	Parasite-Only
Viruses				
Murine rotavirus (MRV/EDIM)			•	
Reovirus type 1, 2, 3, 4			•	
Sendai virus	•	•	•	
Lymphocytic choriomeningitis virus			•	
Guinea pig adenovirus	•	•	•	
Guinea pig cytomegalovirus		•	•	
Guinea pig PIV 3	•	•	•	
Sarbecovirus				
Bacteria				
<i>Helicobacter</i>			•	
<i>Mycoplasma pulmonis</i>			•	
<i>Streptobacillus moniliformis</i>		•	•	
<i>Rodentibacter heylji</i> **			•	
<i>Rodentibacter pneumotropicus</i> **			•	
<i>Clostridium piliforme</i>		•	•	
<i>Pseudomonas aeruginosa</i>			•	
<i>Salmonella</i>		•	•	
<i>Campylobacter</i>			•	
<i>Bordetella bronchiseptica</i>	•	•	•	
<i>Corynebacterium kutscheri</i>	•	•	•	
<i>Staphylococcus aureus</i>			•	
<i>Streptococcus pneumoniae</i>	•	•	•	
<i>Klebsiella pneumoniae</i>			•	
<i>Klebsiella oxytoca</i>			•	

* Fecal pellets, body swabs, and oral swabs required for all guinea pig PRIA® panels.

** Formerly classified as *Pasteurella pneumotropica* (Heyl & Jawetz).

Continued on next page.

Guinea Pig PRIA® Panels - Direct Animal Sampling*

Custom testing is available on request.

	FELASA Basic (3-Month)	FELASA Complete (Annual)	Surveillance Plus	Parasite-Only
Bacteria (cont.)				
Beta hemolytic <i>Streptococcus</i> group A	•	•	•	
Beta hemolytic <i>Streptococcus</i> group B	•	•	•	
Beta hemolytic <i>Streptococcus</i> group C	•	•	•	
Beta hemolytic <i>Streptococcus</i> group G	•	•	•	
<i>Pasteurella multocida</i>			•	
Parasites/Protozoa/Fungi				
<i>Eimeria</i> (Coccidia) (<i>Cyclospora</i> and <i>Isospora</i>)				•
<i>Retortamonas</i>				•
<i>Giardia</i>	•	•	•	•
<i>Cryptosporidium</i>	•	•	•	•
<i>Entamoeba</i>	•	•	•	•
<i>Encephalitozoon cuniculli</i>		•	•	•
<i>Demodex</i>				•

* Fecal pellets, body swabs, and oral swabs required for all hamster PRIA® panels.

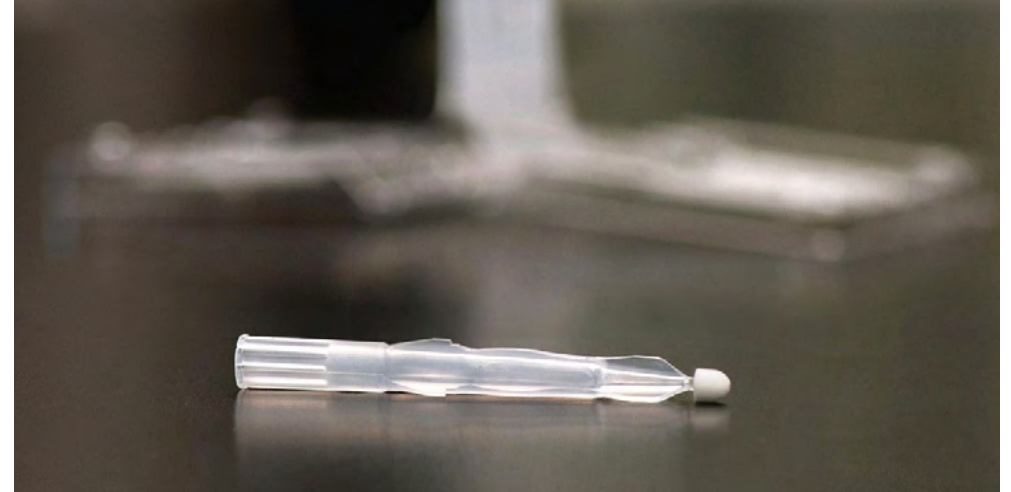
Serology Profiles

[+ Learn more](#)

Our primary serology testing method is the Multiplexed Fluorometric Immuno-Assay® or MFIA®. Additionally, we utilize other methods such as the Indirect Fluorescent Antibody Test (IFA), Enzyme-Linked Immunosorbent Assay (ELISA) or Western Blot to confirm questionable or positive results, as well as to screen select rare agents. Blood or diluted serum samples collected at your facility can be submitted directly to our laboratory for testing. Once you are ready to submit samples, visit [LTM™](#) to create your order online.

The [HemaTIP™ blood microsampler](#) simplifies the blood collection process by placing the media on the tip of an easy-to-hold stylus.

The tip only needs to touch the blood, and its super-absorptive matrix media wicks the sample in 3-6 seconds.



Mouse Serology Profiles

Agent	2023 Mouse Quarterly MFIA	2023 Mouse Annual MFIA	2023 Mouse Comprehensive MFIA	Mouse FELASA Basic (3-month) MFIA	Mouse FELASA Complete (Annual) MFIA
Viruses					
Mouse parvoviruses (MVM/MPV 1-5)	•	•	•	•	•
Murine norovirus (MNV)	•	•	•	•	•
Mouse coronavirus (MHV)	•	•	•	•	•
Murine rotavirus (MRV/EDIM)	•	•	•	•	•
Mouse theilovirus (TMEV, GDVII)	•	•	•	•	•
Adenovirus type 1 & 2 (MAV-1 & MAV-2)	•	•	•		•
Reovirus type 1, 2, 3, 4			•		•
Murine orthopneumovirus (Pneumonia virus of mice/PVM)			•		•
Sendai virus			•		•
Ectromelia (mousepox)			•		•
Lymphocytic choriomeningitis virus (LCMV)			•		•
New World hantaviruses (including Prospect Hill virus)			•		
Hantaan hantavirus			•		
Lactate dehydrogenase-elevating virus (LDV)		•	•		
Astrovirus 2			•		
Mouse thymic virus (MTLV)			•		
Mouse cytomegalovirus (MCMV)			•		
Mouse polyomavirus			•		
COVID-Plex (COVID/SARS-CoV2)*					
Mouse pneumonitis virus (K virus)*					
Bacteria					
<i>Mycoplasma pulmonis</i>			•		•
<i>Clostridium piliforme</i>					•
Fungi					
<i>Pneumocystis</i>	•	•	•		
<i>Encephalitozoon cuniculi</i>			•		

* Can be ordered as additional assays.

Rat Serology Profiles

Agent	2023 Rat Quarterly MFIA	2023 Rat Annual MFIA	2023 Rat Comprehensive MFIA	Rat FELASA Basic (3-month) MFIA	Rat FELASA Complete (Annual) MFIA
Viruses					
Rat parvoviruses (H-1, KRV, RPV, RMV)	•	•	•	•	•
Rat polyoma virus 2 (RatPyV2)	•	•	•	•	•
Rat coronavirus (RCV, SDAV)	•	•	•	•	•
Rat theilovirus (RTV)	•	•	•	•	•
Adenovirus type 1 & 2 (MAV-1 & MAV-2)	•	•	•		•
Reovirus type 1, 2, 3, 4		•	•		•
Murine orthopneumovirus (Pneumonia virus of mice/PVM)		•	•		•
Sendai virus		•	•		•
Lymphocytic choriomeningitis virus (LCMV)		•	•		•
Old World hantavirus (Hantaan)		•	•		
Rat rotavirus (Infectious diarrhea of infant rats/IDIR)			•		
Sarbecovirus/COVID-plex/SARS-CoV2*					
Bacteria					
<i>Mycoplasma pulmonis</i>		•	•		•
<i>Clostridium piliforme</i>			•		•
<i>Filobacterium rodentium</i> (CAR bacillus)			•		
Fungi					
<i>Encephalitozoon cuniculi</i>			•		
<i>Pneumocystis</i> (<i>P. carinii</i>)	•	•	•		

* Can be ordered as additional assays.

Hamster Serology Profiles*

Agent	Assessment	FELASA Quarterly	FELASA Annual
COVID-Plex			
Sendai virus (SEND)	•	•	•
Parainfluenza virus (type 5) (PIV-5)	•		
Pneumonia virus of mice (PVM)	•		
Reovirus (REO)	•		
Lymphocytic choriomeningitis virus (LCMV)	•	•	•
<i>Encephalitozoon cuniculi</i> (ECUN)	•		
<i>Clostridium piliforme</i> (CPIL)			•
Sample suitability control: tissue	•	•	•
Sample suitability control: anti-hamster IgG	•	•	•
System suitability control: hamster IgG	•	•	•

* Applicable for golden Syrian hamsters only. Other strains should be screened using the serology profile for Miscellaneous Rodent Species.

Guinea Pig Serology Profiles

Agent	Assessment	FELASA Quarterly	FELASA Annual
COVID-Plex			
Sendai virus (SEND)	•	•	•
Parainfluenza virus (type 5) (PIV-5)	•		
Pneumonia virus of mice (PVM)	•		
Reovirus (REO)	•		
Lymphocytic choriomeningitis virus (LCMV)	•		
<i>Encephalitozoon cuniculi</i> (ECUN)	•		•
Parainfluenza virus (type 3) (PIV-3)	•	•	•
<i>Mycoplasma pulmonis</i> (MPUL)	•		
<i>Clostridium piliforme</i> (CPIL)			•
Guinea pig adenovirus (GAV)	•		
Guinea pig cytomegalovirus (GpCMV)			•
Sample suitability control: tissue	•	•	•
Sample suitability control: anti-guinea pig IgG	•	•	•
System suitability control: guinea pig IgG	•	•	•

Rabbit Serology Profiles

Agent	Tracking	Assessment	FELASA Quarterly	FELASA Annual
COVID-Plex				
<i>Encephalitozoon cuniculi</i> (ECUN)	•	•	•	•
Cilia-associated respiratory bacillus (CARB)	•	•		•
Treponema paraluis-cuniculi (TREP)	•	•		
Clostridium piliforme (CPIL)		•	•	•
Parainfluenza virus (type 1) (PIV-1)		•		
Parainfluenza virus (type 5) ((PIV-5 (formerly PIV-2))		•		
Reovirus (REO)		•		
Rabbit rotavirus (ROTA)		•	•	•
Lymphocytic choriomeningitis virus (LCMV)		•		
Toxoplasma gondii (TOXO)		•		
Rabbit hemorrhagic disease virus (RHDV)			•	•
Myxomatosis virus (MYXO)*				
Sample suitability control: tissue	•	•	•	•
Sample suitability control: anti-rabbit IgG	•	•	•	•
System suitability control: rabbit IgG	•	•	•	•

* Available as an add-on.

Gerbil and Miscellaneous Rodent* Serology Profiles

Agent	Gerbil Tracking	Gerbil Assessment	Rodent Assessment
COVID-Plex			
Lymphocytic choriomeningitis virus (LCMV)	•	•	•
<i>Clostridium piliforme</i> (CPIL)	•	•	
Mouse hepatitis virus (MHV)		•	•
Reovirus (REO)		•	•
Sendai virus (SEND)		•	•
Pneumonia virus of mice (PVM)		•	•
Minute virus of mice (MVM)		•	•
Rabbit rotavirus (ROTA)		•	•
Parainfluenza virus (type 2) (PIV-2)		•	•
Parainfluenza virus (type 3) (PIV-3)		•	•
Hantaan ((HTNV (HANT))		•	•
Prospect Hill virus (PHV)		•	•
<i>Encephalitozoon cuniculi</i> (ECUN)			•
Sample suitability control: tissue	•	•	•

* For applicable species (e.g., Armenian hamster, cotton rat, *Peromyscus*, ground squirrel), contact Charles River.

[+ Learn more](#)

Microbiology Culture

This service can be used in conjunction with an environmental monitoring (e.g., feed, bedding, water) or animal health surveillance programmes, and diagnostic evaluation. Live animals, samples (e.g., swabs, transport media), and organisms for identification can be collected at your facility and submitted directly to our laboratory for testing. Biochemical analysis (VITEK II) are used for efficient and accurate identification of pure single colonies from culture. See below for a list of agents. Once you are ready to submit samples, visit [LTM™](#) to create your order online.

Upper Respiratory Culture	Mouse	Rat	Rabbit	Gerbil	Hamster	Guinea Pig
<i>Bordetella bronchiseptica</i>	•	•	•	•	•	•
<i>Corynebacterium kutscheri</i>	•	•	•	•	•	•
<i>Klebsiella oxytoca</i>	•	•	•	•	•	•
<i>Klebsiella pneumoniae</i>	•	•	•	•	•	•
<i>Pasteurella multocida</i>	•	•	•	•	•	•
<i>Rodentibacter heylii</i>	•	•	•	•	•	•
<i>Rodentibacter pneumotropicus</i>	•	•	•	•	•	•
<i>Pseudomonas aeruginosa</i>	•	•	•	•	•	•
<i>Staphylococcus aureus</i>	•	•	•	•	•	•
<i>Streptococcus beta hemolytic (A, B, C, F, G)</i>	•	•	•	•	•	•
<i>Streptococcus pneumoniae</i>	•	•	•	•	•	•
<i>Proteus mirabilis</i>	•	•	•	•	•	•
Other bacteria upon request	•	•	•	•	•	•
Gastrointestinal Tract Culture	Mouse	Rat	Rabbit	Gerbil	Hamster	Guinea Pig
<i>Citrobacter rodentium</i>	•					
<i>Klebsiella oxytoca</i>	•	•	•	•	•	•
<i>Klebsiella pneumoniae</i>	•	•	•	•	•	•
<i>Pseudomonas aeruginosa</i>	•	•	•	•	•	•
<i>Salmonella</i>	•	•	•	•	•	•
Other bacteria upon request	•	•	•	•	•	•

Additional Microbiology Services*

Abscess/lesion culture

Aerobic culture

Anaerobic culture

* Euthanasia and collection fees may apply with live animal submissions.

Surface Testing

Environmental swab (culture)

RODAC® plate count

RODAC® plate count with identification

Environmental Monitoring

[+ Learn more](#)

Microbial/bioburden (count)*

Sterility (+/- determination)*

* Sample types include water, rodent feed, and rodent bedding. Subculture identification per colony upon request.

Rodent and Rabbit Parasitology

[+ Learn more](#)

Samples (e.g., feces, swabs, or tapes) collected at your facility can be submitted directly to our laboratory for testing. Once you are ready to submit samples, visit [LTM™](#) to create your order online.

Sample Type	Test
Feces*	Fecal concentration centrifugation (FCC)
Fur swab*	Tape test for ectoparasites
	Tape test for endoparasites
Live animal	Direct exam for ectoparasites
	Direct exam for endoparasites
	Wet mount for protozoa

* Up to eight samples for FCC or 10 samples for PCR can be pooled and tested as a single group with one result reported.

Pathology

As part of a HM protocol, gross lesions are collected for histopathology at no additional charge. Further, we offer full-service diagnostic histopathology, either with live-animal submission or by direct submission of fixed tissues, paraffin blocks or slides. We offer histologic evaluation of tissues from multiple species, complete tissue processing and slide preparation, and routine or specialised staining techniques, as well as contract slide preparation and evaluation. Contact Charles River for details and pricing.

Other Services Available

- Simian (Nonhuman Primate) Health Surveillance
- Ferret Health Surveillance
- Serology Reagents for In-House Animal Health Surveillance (MFIA reagents, ELISA reagents, IFA reagents)
- Biochemistry (Upon request)

[+ Learn more](#)

Microbiome Diagnostic Services

Comprehensive Germ-Free Colony Health Screening

The single most important specification for germ-free mouse colonies is that they remain free of microbes. Charles River offers and recommends that both culture-dependent and culture-independent screening methods be used to assure that even fastidious bacteria that are difficult to isolate are detected. Fecal pellets collected per our recommended specifications can be submitted for all methods of germ-free monitoring described below. For a more complete assessment, whole animals, antemortem samples, or environmental samples can also be submitted to our laboratory for standard health monitoring procedures. Our health monitoring experts are available to provide guidance on establishing a routine germ-free assessment program specific to your colony and research.

Anaerobic and Aerobic Culture

We use state-of-the-art anaerobic chambers, not canister methods, to provide the most sensitive isolation procedures for fastidious obligate anaerobic bacteria, which may take up to 14 days to grow. Fecal pellets submitted for culture are also screened for motile bacteria by wet mount analysis, a culture-independent method.

16S Ribosomal RNA PCR

This PCR screen uses broadly reactive PCR primers to detect all bacterial phyla. This culture independent assay uses technology that prevents false-positive detection commonly caused by other PCR detection methods.

16S Next Generation Sequencing (NGS)

16S Next Generation Sequencing (NGS) analysis provides a snapshot of the bacteria colonizing the intestinal tract of your research mice using GI contents or fecal pellets. 16S NGS analysis is an important part of routine monitoring of your research colonies' microbiome to verify that custom or complex bacteria consortia remain stable. 16S NGS can also be used for microbiome investigations that require monitoring of control and treatment groups before, during, and after experiments. The relative abundance of bacteria at multiple taxonomical levels is provided for each sample so that increases and decreases in bacteria abundance can be determined. We partner with One Codex to provide best-in-class microbiome data analysis including curated database classification and microbial community profiling tools in your own custom data portal.

Services	Tests
Germ-Free Testing	Anaerobic and aerobic culture of fecal pellets or isolator samples with identification via MALDI-TOF
	Motility testing by wet mount analysis of cecum (live animal only), feces, or swab
	Mycotic (i.e., fungal) culture of cage/isolator swab with optional identification
Standard Health Evaluation: Whole animal, antemortem, and environmental screening	16S ribosomal RNA PCR of feces
	Necropsy with histology of gross lesions
	Aerobic culture of upper respiratory and gastrointestinal tracts with identification via MALDI-TOF mass spectrometry
	Anaerobic culture of cecal contents with identification via MALDI-TOF mass spectrometry
	Serologic viral antibody detection
Microbiome Sequencing	PCR Rodent Infectious Agent (PRIA®) testing of postmortem, antemortem, and environmental sampling for viral, bacterial, and fungal/parasitic agents
	16S rRNA bacterial sequencing of fecal pellets or GI contents

[+ Learn more](#)

Zebrafish Health Surveillance

Service	Test Name	Includes	Sampling Unit
Multiple Services	HM Plus	Necropsy Histopathology workup Aerobic and anaerobic culture PCR for common infectious agents	See LTM™ for details: Tank water (filtering)
Bacteriology	Environmental Panel	Bacteriological Panel	Tank water (filtering)
Histopathology	Processing (with H&E Stain)	Trim, embed, create slides, and H&E staining	Per fish
	Special Staining	Multiple special stains available upon request	Per fish
	Pathologist Interpretation	Pathologist interpretation of stained slides	Per fish
Infectious Disease PCR	Mycobacterium Panel	<i>Mycobacterium abscessus</i> <i>M. chelonae</i> <i>M. fortuitum</i> <i>M. haemophilum</i> <i>M. marinum</i> <i>M. peregrinum</i>	Tank biofilm swabs Fish (allows pooling up to 5 fish) Sump/Water sample
	Basic Panel	<i>Mycobacterium</i> Panel <i>Aeromonas hydrophila</i> <i>Pseudocapillaria tomentosa</i> <i>Pseudoloma neurophilia</i>	Tank biofilm swabs Fish (allows pooling up to 5 fish) Sump/Water sample
	Surveillance Plus Panel	Basic Panel <i>Edwardsiella ictaluri</i> <i>Flavobacterium columnare</i> <i>Ichthyophthirius multifiliis</i> <i>Piscinoodinium pillulare</i> <i>Pleistophora hyphessobryconis</i> <i>Saprolegnia brachydanis</i>	Tank biofilm swabs Fish (allows pooling up to 5 fish) Sump/Water sample
	Custom Panel	Visit LTM™ to select from list of zebrafish pathogen assays	Tank biofilm swabs Fish (allows pooling up to 5 fish) Sump/Water sample
	Single Agent Test	Visit LTM™ to select from our full list of zebrafish pathogen assays <i>Myxidium streisingeri</i> <i>Pseudomonas fluorescens</i> Zebrafish Picornavirus, <i>Aeromonas dhakensis</i> <i>Plesiomonas shigelloides</i> (<i>Aeromonas shigelloides</i>) <i>Mycobacterium gordonae</i> <i>Mycobacterium saopaulense</i>	Tank biofilm swabs Fish (allows pooling up to 5 fish) Sump/Water sample

Xenopus Health Surveillance

Agent	Essential	Comprehensive	Recommended Sample Types
Ranavirus (includes Frog virus 3)	•	•	Fecal/detritus, kidney/liver/spleen
Capillaria xenopi (Pseudocapillaroides xenopi)	•	•	Fecal/detritus, dorsal skin swab
Batrachochytrium dendrobatidis	•	•	Toe web skin/ventral skin swab
Mycobacterium chelonae	•	•	Fecal/detritus, biofilm swab, lesion swab, kidney/liver
Mycobacterium marinum	•	•	Fecal/detritus, biofilm swab, lesion swab, kidney/liver
Mycobacterium gordonae	•	•	Fecal/detritus, biofilm swab, lesion swab, kidney/liver
Aeromonas hydrophila		•	Fecal/detritus, biofilm swab, skin swab, water filter, liver/kidney/spleen
Aeromonas dhakensis		•	Fecal/detritus, biofilm swab, skin swab, water filter, liver/kidney/spleen
P. aeruginosa		•	Fecal/detritus, skin swab, water filter
Salmonella species		•	Fecal/detritus
Cryptosporidium species		•	Fecal/detritus

[+ Learn more](#)

Cell Line & Research Biologics Sample Collection Kit

The new Cell Line & Research Biologics Sample Collection Kit is designed to make submitting your samples as quick and easy as possible. Features of the new kit, which may be requested using our Shipping Supply Request form, include:

- Tubes with buffer and CLEAR instructions in a ready-to-use kit
- A buffer that stabilizes samples during shipment. View the [qualification summary](#) from studies completed by our scientists.
- Shipment at ambient temperature; no dry ice needed



[+ Learn more](#)

PCR Panels to Screen Cell Lines and Research Biologics for Rodent Infectious Agents

Our CLEAR (cell line examination and report) PCR Panels are performed non-GXP; this service is available for research purposes only. Once you are ready to submit samples, visit [LTM™](#) to create your order online.

Agent	Mouse Essential Panel	Rat Essential Panel	Mouse/Rat Comprehensive Panel
Sarbecovirus	•	•	•
Murine Sapovirus			
Murine Alphacoronavirus			
Boone Cardiovirus			
Murine Kobuvirus 1			
Murine Kobuvirus 2			
Murine Picornavirus			
Vesivirus			•
<i>C. bovis</i>	•	•	•
<i>M. pulmonis</i>	•	•	•
<i>Mycoplasma genus</i>	•	•	•
Murine norovirus (MNV)	•		•
Mouse parvoviruses* (MPV 1-5, MVM)	•		•
Mouse hepatitis virus (MHV)	•		•
Murine Chapparovirus (MCPV)	•		•
Reovirus (type 1, 2, & 3) (REO)	•	•	•
Lymphocytic choriomeningitis virus (LCMV)	•	•	•
Lactate dehydrogenase-elevating virus (LDV)	•	•	•
Murine rotavirus [EDIM (ROTA-A)]	•		•
Theiler's murine encephalomyelitis virus [TMEV (GDVII)]	•	•	•
Mousepox (ectromelia) (ECTRO)	•		•
Hantavirus hantaan [HTNV (HANT)]	•		•
Hantavirus seoul (SEO)		•	•
Polyoma virus (POLY)	•	•	•
K virus (K)			•
Adenovirus type 1 & 2 (MAV-1 & MAV-2)	•	•	•
Mouse cytomegalovirus (MCMV)			•
Mouse thymic virus (MTLV)			•
Pneumonia virus of mice (PVM)			•
Sendai (SEND)	•	•	•
Rat coronavirus (RCV/SDAV)		•	•
Rat cytomegalovirus (RCMV)		•	•
Rat theilovirus [Theiler's-like virus of rats (RTV)]		•	•
Rat parvoviruses (RPV, KRV, RMV, H-1)		•	•

[+ Learn more](#)

PCR Panels to Screen Cell Lines and Research Biologics for Human Infectious Agents

Our CLEAR (cell line examination and report) PCR Panels are performed non-GXP; this service is available for research purposes only. Once you are ready to submit samples, visit [LTM™](#) to create your order online.

Agent	Human HEP/HIV	Human Essential	Human Comprehensive
Sarbecovirus		•	•
Polyomavirus (John Cunningham virus)		•	•
Polyomavirus (BK virus)		•	•
Herpesvirus type 6		•	•
Herpesvirus type 7		•	•
Herpesvirus type 8		•	•
Parvovirus B19		•	•
Epstein-Barr virus		•	•
Hepatitis A virus	•	•	•
Hepatitis B virus	•	•	•
Hepatitis C virus	•	•	•
Papillomavirus type 16		•	•
Papillomavirus type 18		•	•
Human T-lymphotropic virus (1 & 2)		•	•
Human cytomegalovirus		•	•
Human immunodeficiency virus type 1	•	•	•
Human immunodeficiency virus type 2	•	•	•
Adeno-associated virus (2 & 9)		•	•
Human foamy virus		•	•
Corynebacterium bovis	•	•	•
<i>Mycoplasma</i> (genus) (including <i>Acholeplasma laidlawii</i>)	•	•	•
Lymphocytic choriomeningitis virus			•
Hantavirus hantaan			•
Hantavirus seoul			•
Herpes simplex 1		•	•
Herpes simplex 2		•	•
Human adenovirus		•	•

[+ Learn more](#)

Contamination CLEAR

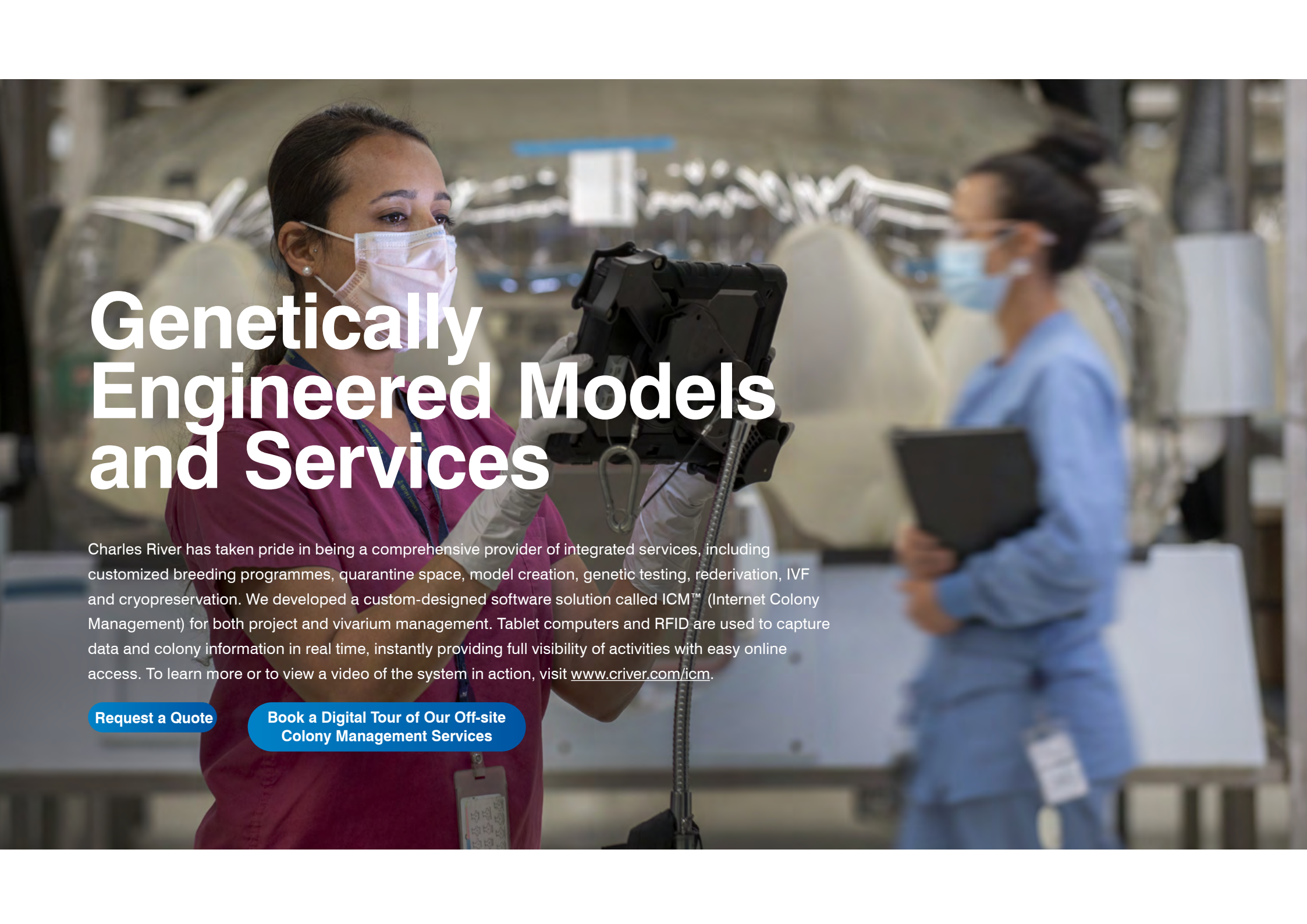
Our CLEAR (cell line examination and report) PCR Panels are performed non-GXP; this service is available for research purposes only. Once you are ready to submit samples, visit [LTM™](#) to create your order online.

Detect contamination of cell lines with cells of another species.

Item

Stand-alone service

Add to any rodent or human CLEAR panel or *Mycoplasma* PCR

A woman in a maroon lab coat and a white face mask is using a handheld device. In the background, another person in blue scrubs and a blue face mask is holding a laptop. The setting appears to be a laboratory or a cleanroom with various pieces of equipment.

Genetically Engineered Models and Services

Charles River has taken pride in being a comprehensive provider of integrated services, including customized breeding programmes, quarantine space, model creation, genetic testing, rederivation, IVF and cryopreservation. We developed a custom-designed software solution called ICM™ (Internet Colony Management) for both project and vivarium management. Tablet computers and RFID are used to capture data and colony information in real time, instantly providing full visibility of activities with easy online access. To learn more or to view a video of the system in action, visit www.criver.com/icm.

[Request a Quote](#)

[Book a Digital Tour of Our Off-site Colony Management Services](#)

[+ Learn more](#)

Colony Management

With our revolutionary [Internet Colony Management System \(ICM™\)](#), you will have 24-hour access to review real time data and direct action within your colony from anywhere, while our project management team provides comprehensive support to help you achieve your study goals.



Charles River breeding facilities located in Europe also serve as The Jackson Laboratory's exclusive commercial providers of certain research services using JAX® Mice. Services offered include mouse embryology services and contract breeding of specialised JAX® Models. For more information regarding services related to importation of specialised JAX® Mice strains, please visit our website: www.criver.com/jaxmice.

Quarantine Services

Dedicated, isolator-based space reserved for assessing the health profile of animals coming from outside institutions. Charles River offers several different standard quarantine options and can develop custom protocols to meet animal facility requirements. Please contact us to discuss these custom options.

Service	Description	Estimated Time Line
PRIA® Quarantine	Up to 10 mice	4 weeks
Standard Quarantine	18 cages isolator, including complete health report	11 weeks

Breeding Services

Charles River offers space for holding, breeding, and developing genetically engineered colonies. All colonies are assigned a dedicated Project Manager and clients are granted access to our innovative [Internet Colony Management \(ICM\)](#) system. ICM provides a two-way communication portal with real-time data access, a comprehensive suite of colony management tools, and a complete historical record of all colonies housed at Charles River. Breeding Services are invoiced monthly depending on the real number of cages needed.

Our customised projects can include:

- Husbandry
- Mating
- Weaning
- Animals identification
- Biopsies
- Health monitoring controls
- Dedicated Project Manager

Charles River can also house your harmful phenotype lines and set up required actions including special diets, enrichment, and more.

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[+ Learn more](#)



Embryology Services

Our European embryology lab is one of the largest in the world with more than 20 years of experience in the manipulation of mouse and rat preimplantation embryos. Our knowledgeable team uses the latest technologies including laser assisted IVF and gene editing to offer a wide range of services and industry-leading performance to our clients.

Charles River also serves as The Jackson Laboratory's exclusive commercial providers of research services using JAX® Mice. Services offered include mouse rederivation, cryorecovery and line amplification services.



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Mouse Embryology



Rederivation - Mouse

Rederivation by embryo transfer eliminates unwanted parasites, viruses, bacteria and other opportunistic agents from research colonies.

Service	Description	Objective / Deliverables
Rapid rederivation	Transgenic x wildtype Or transgenic x transgenic	2 visibly pregnant females, no Health Monitoring report
Standard rederivation	Transgenic x wildtype Or transgenic x transgenic	At least 3 SOPF breeding pairs or 10 mice with Health Monitoring report

Options: Biopsies and genotyping of animals upon reception at our facilities

Cryopreservation - Mouse

Cryopreservation of sperm and/or embryos creates a cost-effective backup for live animal colonies in the event of a microbial contamination, catastrophic accident or natural disaster, and/or the cessation or alteration of genetic expression in later generations. Cryopreservation also provides an alternative to maintaining live animals for strains that are not currently being used, but may serve a purpose in the future. Our flexible service portfolio can be adapted to your specific needs, with the benefit of saving both significant cage space and animal care resources, while allowing better management of the active colonies being used for your research.

Service	Description	Objective / Deliverables
EMBRYOS		
Embryos cryopreservation	HE x Wildtype	300 frozen embryos including QC1
	HO x Wildtype	150 frozen embryos including QC1
	HE x HE	200 frozen embryos including QC1
	All other matings	150 frozen embryos including QC1
Embryos Quality Controls	QC1: standard <i>in vitro</i> quality control	Thawing of embryos and monitoring of <i>in vitro</i> development to 4-cell stage
	QC2: optional <i>in vivo</i> quality control, replaces QC1 if selected	Thawing of embryos and reimplantation into 2 recipient females for birth check
SPERM		
Sperm cryopreservation	Freezing and pooling of sperm collected from 2 males with the same genotype	About 15 straws including QC1
Sperm Quality Controls	QC1: standard <i>in vitro</i> quality control	IVF and monitoring of generated embryos development to 2-cell stage
	QC2: optional <i>in vivo</i> quality control	IVF and transfer of generated embryos into 2 recipient females for birth check
STORAGE		
Embryo and sperm Cryostorage	Storage of straws in liquid nitrogen	Storage in 2 geographically distant locations

Cryorecovery - Mouse

While cryopreserving your valuable genetically engineered animals is an important part of protecting your research against unforeseen events, having the ability to recover live animals from the frozen stock quickly and efficiently is equally critical to safeguarding your lines. At Charles River, our skilled embryology laboratory has the techniques and equipment to successfully recover frozen embryos or sperm with short timelines. Our extensive experience combined with advanced technology such as laser-assisted *in vitro* fertilization give you peace of mind that you can obtain live animals from your cryopreserved embryos or sperm exactly when you need them.

Service	Description	Objective / Deliverables
Embryos and sperm cryorecovery	Biological material frozen and stored at Charles River	All SOPF mice with at least 3 breeding pairs or 10 mice
	Biological material from institutions outside Charles River	All SOPF mice

Combined Services - Mouse

Save money by combining embryology services such as rederivation or revitalization and cryopreservation. Our team will design the appropriate combination of services and pricing to respond to your specific needs. Please consult us.

Assisted Reproduction - Mouse

Charles River continually invests in innovations and in sophisticated IVF techniques so animals can be produced more quickly and in greater quantities than with traditional methods. A main criterion for successful IVF is the use of sperm with acceptable motility and concentration. In the case of low quality sperm, laser assisted IVF is utilized to increase fertilization rates and, ultimately increase the number of live offspring returned to you. For this procedure an XYClone™ laser is used to create an aperture in the zona pellucida of each oocyte, providing means for spermatozoa with low fertilizing ability to penetrate the oocyte. This technique greatly enhances the fertilization efficiency of many genetically engineered lines and could stand as a vital tool in the rescue of valuable strains.

Service	Description	Objective / Deliverables
Rapid expansion of colony	IVF from frozen or fresh sperm and reimplantation of generated embryos into recipients females	On demand
Line rescue	Laser assisted IVF from frozen or fresh sperm and reimplantation of generated embryos into recipients females	All SOPF pups
Sperm phenotyping	Computer Assisted Sperm Analysis (CASA)	Report detailing sperm concentration, global motility, progressive motility and sperm morphology

All animals are delivered with a full health monitoring report.

Embryo Kits - Mouse

Charles River has designed tools to facilitate a model creation process at your facility. By offering ready-to-use embryos, the BlastoKit® allows transgenesis laboratories to simplify blastocyst production for ES cell injection. Step-by-step instructions make it easy to do it yourself, guiding you through our proven process.

	Description	Objective / Deliverables
BlastoKit®: C57BL/6N, B6 Albino (C57BL/6N-Ty ^{rc-Brd} /BrdCrCrI), BALB/C-AnNCrI	Small: 400 embryos	10 straws containing frozen morulae
	Large: 1600 embryos	40 straws containing frozen morulae
BlastoKit®: other strains	Please ask for further information	According to customer needs

Mouse Embryo Assay

Our high-throughput embryology laboratory offers the mouse embryo assay (MEA) to screen media and materials for toxicity prior to lot release. The MEA is currently the most widely used bioassay to test for toxicity and functionality of media and materials.

As with all of our services, our MEA testing is supported by a vast network of PhD-level scientists to ensure accurate, high-quality results.

Uses

The MEA is used for toxicity and functionality testing of media, labware, disposables or any device which may come into contact with gametes or embryos.

FDA Guidelines Based Protocol

- Fresh or frozen one- or two-cell embryos from hybrid animals
- A minimum of 21 embryos per test article and 21 control embryos
- Assessment of embryos at 72 or 96 hours; minimum of 80% blastocyst development required for passing test
- General protocols consist of exposing test article to embryos through wash or long-term culture. Disposables, labware or devices are typically flushed with media prior to setting up culture drops for long-term culture.

The information above is only a guideline. Individual testing protocols can be established to suit your specific requirements.

Rat Embryology



Rederivation - Rat

Rederivation can eliminate unwanted parasites, viruses, bacteria and other opportunistic agents from research colonies.

Service	Description	Objective / Deliverables
Rapid rederivation	Transgenic x Wildtype Charles River	2 visibly pregnant females, no Health Monitoring report
Standard rederivation	Transgenic x Wildtype Charles River Or transgenic x transgenic	At least 2 SOPF breeding pairs or 5 rats with Health Monitoring report

Options: Biopsies and genotyping of animals upon reception at our facilities.

Cryopreservation - Rat

Cryopreservation of sperm and/or embryos creates a cost-effective backup for live animal colonies in the event of a microbial contamination, catastrophic accident or natural disaster, and/or the cessation or alteration of genetic expression in later generations. Cryopreservation also provides an alternative to maintaining live animals for strains that are not currently being used, but may serve a purpose in the future. Our flexible service portfolio can be adapted to your specific needs, with the benefit of saving both significant cage space and animal care resources, while allowing better management of the active colonies being used for your research.

Service	Description	Objective / Deliverables
EMBRYOS		
Embryos cryopreservation	HE x Wildtype	300 frozen embryos including QC1
	HO x Wildtype	150 frozen embryos including QC1
	HE x HE	200 frozen embryos including QC1
	All other matings	150 frozen embryos including QC1
Embryos Quality Controls	QC1: standard <i>in vitro</i> quality control	Thawing of embryos and monitoring viability
	QC2: optional <i>in vivo</i> quality control, replaces QC1 if selected	Thawing of embryos and reimplantation into 2 recipient females for birth check
SPERM		
Sperm cryopreservation	Freezing and pooling of sperm collected from 2 males with the same genotype	About 15 straws including QC1
Sperm Quality Controls	QC1: standard <i>in vitro</i> quality control	IVF and monitoring of generated embryos development to 2-cell stage
	QC2: optional <i>in vivo</i> quality control	IVF and transfer of generated embryos into 2 recipient females for birth check
STORAGE		
Cryostorage embryo	Storage of straws in liquid nitrogen	Storage in 2 geographically distant locations

Cryorecovery - Rat

While cryopreserving your valuable genetically engineered animals is an important part of protecting your research against unforeseen events, having the ability to recover live animals from the frozen stock quickly and efficiently is equally critical to safeguarding your lines. At Charles River, our skilled embryology laboratory has the techniques and equipment to successfully recover frozen embryos or sperm within reduced timeline. Our extensive experience combined and advanced technology gives you the peace of mind that you can obtain live animals from your cryopreserved embryos exactly when you need them.

Service	Description	Objective / Deliverables
Embryos cryorecovery	Cryorecovery from embryos frozen and stored at Charles River	SOPF animals with at least 2 breeding pair or 5 rats
	Cryorecovery from embryos from external institutions	All SOPF rats

[+ Learn more](#)

Custom Model Creation Services



Charles River Europe has joined forces with PHENOMIN-ICS, a scientific leader in functional genomics, to deliver a complete and integrated solution for mouse and rat model creation. Our combined expertise provides an optimum environment for creating, characterising, preserving and distributing your transgenic lines.

All types of standard mutations are achievable:

- Knock-out: constitutive, conditional, tissue-specific or inducible
- Knock-in: point mutation, complex and multi-allelic mutations, tag/reporter, targeted transgenesis in Rosa26 & HPRT, inducible or Cre models, humanization CNV and more.

Our experts will work with you to determine the best approach to customise your model to suit your research.

ES Cell Mutagenesis for Mice

ES cell methods may include:

- The use of proprietary C57BL/6N cells
- Optional use of gene editing to boost the frequency of gene replacement
- The use of an IMPC ES cell mutant resource

Gene Editing for Mice and Rats

Depending on allele complexity and genetic background, we can obtain transgenic mice and rats in as few as 3 to 4 months.

Our team of scientists can guide you through project's development and selection from a large genetic background panel for mice.

Random DNA Transgenesis for Mice

With the DNA transgenesis technology, our microinjection experts inject the DNA vector designed and prepared by PHENOMIN-ICS directly into the pronuclei of zygotes, effectively bringing your custom *in vitro* model to life with founders available in as few as 3 to 4 months.

Our team of scientists can guide you through project's development and selection from a large genetic background panel for mice.

[+ Learn more](#)

Microinjection Services

Charles River can help you bridge the gap from *in vitro* to *in vivo* models thanks to its microinjection laboratory located in Europe. Our dedicated team will prepare and inject your ES cells or genetic material. Choose the appropriate package described below and provide us your biological material to receive your SOPF mice.

Service	Description	Deliverables
ES Cells		
ES Cell injection Package I	Expansion of ES cells for injection and freezing ES cells injected into ~80 embryos Reimplantation into SOPF foster female Husbandry • Weaning	All SOPF chimeric animals Technical report
ES Cell injection Package II	Package I + Breeding to F1 generation (includes biopsies for genetic testing)	All SOPF transgenic animals Technical report
Options	Customised genotyping of offspring	Technical report
	Aneuploidy screening (total or partial) in ES clones (Giemsa or ddPCR)	Technical report
	Customised ES cell genetic characterisation (PCR and/or Southern blot)	Technical report
Gene Editing		
Gene Editing Package I	Injection into embryos C57BL/6N Reimplantation into SOPF foster females Husbandry • Weaning • Biopsies for genetic testing	All SOPF transgenic animals Technical report
Gene Editing Package II	Package I + Breeding to F1 generation (includes biopsies for genetic testing)	All SOPF transgenic animals Technical report
Options	Customised genotyping of offspring	Technical report
	Off target analysis on F1 animals	Technical report
	Other genetic backgrounds available on request	
DNA		
Package I Plasmid	Injection into embryos C57BL/6N Reimplantation into SOPF foster females Husbandry • Weaning • Biopsies for genetic testing	All SOPF transgenic animals Technical report
Package II	Package I + F1 generation (includes biopsies for genetic testing)	All SOPF transgenic animals Technical report
Options	Customised genotyping of offspring	Technical report
	Other genetic backgrounds available on request	

All animals are delivered with a full health monitoring report.

Genetic Testing Services

NEW

In-house developed
non-invasive oral swabs genotyping

[+ Learn more](#)

Full-service portfolio of DNA based testing provides details on the genetic background of your models, enabling you to make informed decisions about your breeding programmes and research. Our cloud-based [Laboratory Testing Management](#) system, LTM™, lets you easily schedule sample submissions and view results online for seamless communication with our lab.

Service	Description
Genotyping	
Standard PCR*	Single PCR (1 allele)
	Double PCR (2 alleles)
	Triple PCR (3 alleles)
PCR with restriction digest	e.g. SCID, NOD
qPCR	Zygoty testing in transgenic lines
Single SNP assay	Single Nucleotide Polymorphism Testing
Real Time PCR	Endpoint analysis detection of small inserts or deletions
Relative Copy Number Determination	
qPCR	Relative quantitation of transgenes
Absolute Copy Number Determination	
qPCR	Absolute quantitation of transgenes using calibration row
Assay Set Up & Development	
Assay set up for standard & qPCR	PCR set up with protocol information provided by customer
Standard PCR assay development	Design of a new PCR assay
qPCR assay development	Design of a new qPCR assay
Background Strain Characterisation	
MAX-BAX® Speed Congenics	Marker assisted accelerated backcrossing
384 SNP	Completed background analysis panel
128 SNP	C57BL/6 substrain panel
SNP QC	32 marker assay for contamination detection
Expression Testing	
Expression testing	RNA expression testing
Strain Specific Genetic Variation	
Disease Model Testing	NOD, SCID, <i>Foxn1</i> testing

* For more than 3 alleles, please consult us



Insourcing Solutions[®]

With Charles River's Insourcing Solutions[®], we provide customized workplace solutions that seamlessly integrate into your research programme, becoming an extension of your own facility. Offering staffing, training, consulting and other animal facility support services - we help clients streamline their drug discovery and development programmes to make best use of their resources and achieve optimum results.

Insourcing Solutions®

Due to the dynamic nature of research, you may find your facility needing additional consulting, staffing and training resources to support your research programmes. Charles River Insourcing Solutions® meets this need with our integrated insourcing model.

We work directly with you to implement the research support necessary to meet your programme goals. A partnership with Insourcing Solutions® can provide you with both long and short term functional support for your research programmes.

Staffing and Facility Management

[+ Learn more](#)

Depending on the research requirements, the staff you need may require qualifications ranging from a BA/BS to a PhD. We work with you to define the most appropriate combination of skills and qualifications to fulfill your facility's needs. We can provide a wide range of scientific talent, including, but not limited to:

- Managers (project, laboratory, animal facility, etc.)
- Veterinarians
- Veterinary Technologists
- Licensed Animal Technicians
- "Cage to Benchtop" Transgenic Technicians
- Aquatic Specialists
- Cagewash and Animal Husbandry Personnel
- Scientists
- Regulatory Specialists
- QA and QC Specialists
- Administrative Professionals

Expert Consulting

When establishing a new project or evaluating an existing one, our consulting services can assist you in a number of important ways, including:

- Facility Operations
- Animal Health
- Aquatics
- Regulatory compliance
- Animal care and use programme and facility evaluations
- Facility engineering and design
- Biosecurity practices
- Development, implementation and evaluation of standard operating procedures (SOPs)

With more than 65 years experience, backed by a professional team consisting of 600 PhDs, DVMs, and MDs, we offer both short and long term consultancy options to support your facility and research programmes.

[+ Learn more](#)



Charles River Campus

Convenient and Cost-Effective eLearning for Lab Animal Science

Charles River Campus is our eLearning platform which has been designed to provide high-quality education programmes for scientists, veterinarians, animal technologists and support staff in the field of lab animal science. Our eLearning modules are continually updated, providing a rapidly deployable training solution containing the latest techniques, information and updates on local regulatory requirements. Please note that certain courses require an additional practical or “hands-on” classroom training component, which we can provide.

Comprehensive Training Options

Courses offered include: National Legislation, Ethics Animal Welfare and the 3Rs, Basic and Appropriate Biology, Animal Care Health and Management, Anaesthesia and many more. The flexibility of eLearning lets individuals learn at their own pace, and save money on travel to training seminars.

Institutional Plans

Design your own programme or ask us to help plan, implement and manage your education plan. Courses can include both mandatory modules as well as continuing education courses. Our platform allows you to name managers, assign courses and track results - all from the convenience of your web browser. Modules are available in different languages. National legislation modules cover the transposition of the European Directive 2010/63/EU in several European countries.

Accreditation Courses

Our regulatory programmes include educational materials designed to obtain accreditation through different local authorities with modular programmes for functions A, B, C and D, in compliance with EU directive 2010/63/EU.

[+ Learn more](#)

Customised Training, Regulatory Training and Continuing Education

The European Directive 2010/63/EU requires that all personnel involved with the care and use of laboratory animals must be adequately trained, continuously educated and objectively assessed in terms of competency. According to this new framework, education and training programmes should have a modular, learning outcome-based structure. Moreover, systems must be put in place to assess competence of staff working with animals and assure their continued professional development.

A highly trained staff is an integral component to achieving your research goals. To help you develop and maintain that level of expertise, we offer a wide range of courses that can be customised to meet your staff's specific training needs. We offer both didactic and hands-on instruction in actual and simulated research environments. Our expert trainers can design a programme to fulfill your training requirements, while assuring regulatory compliance and upholding the scientific integrity of your research. Modular training derived from EU Directive 2010/63/EU:

Modules	Functions ⁽¹⁾			
	A	B	C	D
National Legislation				
Ethics, Animal Welfare and the Three Rs (level 1)				
Basic and Appropriate Biology - Species Specific (theory)				
Animal Care, Health and Management - Species Specific (theory)				
Recognition of Pain, Suffering and Distress - Species Specific				
Humane Methods of Killing (theory)				
Basic and Appropriate Biology - Species Specific (practical)	•		•	•
Humane Methods of Killing (skills)				•
Minimally Invasive Procedures Without Anaesthesia - Species Specific (theory)	•	•		
Minimally Invasive Procedures Without Anaesthesia - Species Specific (skills)	•			
Ethics, Animal Welfare and the Three Rs (level 2)		•		
Experimental Design		•		
Design and Management of Procedures and Projects		•		
Anaesthesia for Minor Procedures				
Anaesthesia, Advanced (e.g. for Surgical Procedures)				
Principles of Surgery				

Core Modules⁽²⁾

Task Specific Modules⁽³⁾

Examples of other customised training programmes:

- Substance administration: gavage, subcutaneous, intradermal, intraperitoneal, intravenous and intramuscular injections
- Blood sampling: route, frequency, volumes and methods
- Necropsy and simple collection
- Mouse genetics and colony management
- Aseptic techniques
- Regulations, Ethics, Animal Welfare and Environmental Enrichment
- Hygiene, Cleaning and Disinfection
- Health status and Health monitoring programmes
- Professional Risk Assessment
- Rodent Surgery

(1) functions as defined in Directive 2010/63/EU:

(a) carrying out procedures on animals;
 (b) designing procedures and projects;
 (c) taking care of animals; or
 (d) killing animals.

(2) compulsory modules for all functions and with the same learning outcomes.

(3) additional training for some, but not all, persons carrying out a function (e.g., surgical procedures).

+ Learn more

Modular Buildings A Customizable Turnkey Solution

Modular building provides prefabricated, customizable modular units that can be delivered to your site fully assembled. Additional workspace can easily and quickly be added to your facility. Modular facilities meet and uphold stringent biocontainment and biosecurity requirements and allow space to be added to your facility for a limited upfront investment within considerably shorter deadlines than conventional construction methods.

The biological protection level of these units can be fully customised based on operational requirements. A Modular facility can be built to operate under negative or positive air pressure, depending on intended use (vaccine production, contaminated animal housing, or transgenic animal breeding vs. conventional and clean animal housing). From a temporary, short-term, small module to accommodate a special project to a permanent, 1000 m² complete animal facility, the modular building concept is the answer to your research space needs. Based on space allocation and what it will be used for, our facility design and engineering team can customize a Module to meet your facility's specific needs.

Building design flexibility

- Used alone or in connection with each other or an existing building
- Fully customizable interior design
- Equipped (sterilizer, H2O2 airlocks, shower, ect.)
- Easily transportable

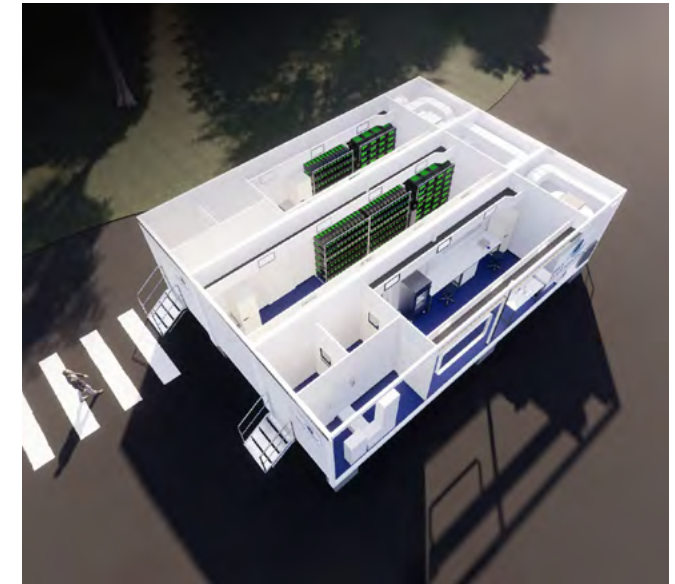
Flexible investment options

- Available for purchase or lease
- Alternative cost-efficient solution to traditional construction methods.
- Short time delivery

Customised solutions to meet your research needs

- Multispecies animal vivarium
- Laboratory facilities
- Containment and exclusion barriers, animal breeding and support space
- Commissioning and validation to GMP/GLP environments

For more information about Insourcing SolutionsSM, please contact us at ask askcharlesriver@crl.com



Resources



Glossary of Terms

If you've run into an unfamiliar acronym, or are wondering which animal models are available in your region, this Glossary and Stocks and Strains Worldwide appendix are here to help.

Agent	Abbreviation	Family/Order	Subfam/Genus	Host Species*
Adenovirus	MAV, RAD	Adenoviridae	Mastadenovirus	M, R
Aleutian disease virus	ADV	Parvoviridae	Amdovirus	F
Cilia-associated respiratory bacillus	CARB	Unclassified	Unclassified	M, R, Rb
<i>Clostridium piliforme</i>	CPIL	Clostridaceae	Clostridium	M, R, Rb, F
Distemper virus	CDV	Paramyxoviridae	Morbillivirus	F
Ectromelia virus (Mousepox)	ECTRO	Poxviridae	Orthopoxvirus	M
Eimeria	EIM	Eimeriidae	Eimeria	M, Rb
<i>Encephalitozoon cuniculi</i>	ECUN	Pleistophoridae	Encephalitozoon	M, R, GP, H, Rb
Encephalomyocarditis virus	EMCV	Picornaviridae	Cardiovirus	M, R
Guinea pig adenovirus	GAV	Adenoviridae	Mastadenovirus	GP
Guinea pig cytomegalovirus	GpCMV	Herpesviridae	Betaherpesvirus	GP
<i>Hantaan</i>	HTNV (HANT)	Bunyviridae	Hantavirus	M, R
Infectious pancreatic necrosis virus	IPNV	Birnaviridae	Aquabirnavirus	Z
Infectious spleen and kidney necrosis virus	ISKNV	Iridoviridae	Megalocytivirus	Z
Influenza A virus	INFA	Orthomyxoviridae	Influenzavirus A	F
Kilham rat virus	KRV	Parvoviridae	Protoparvovirus	R
Lactate dehydrogenase elevating virus	LDV/LDH	Arteriviridae	Arterivirus	M
Ljungan virus	LV	Picornaviridae	Parechovirus	R
Lymphocytic choriomeningitis virus	LCMV	Arenaviridae	Arenavirus	M, R, GP, H
Minute virus of mice	MVM	Parvoviridae	Protoparvovirus	M
Mouse chapparovirus	MuCPV	Parvoviridae	Chapparovirus	M
Mouse cytomegalovirus	MCMV	Herpesviridae	Betaherpesvirus	M
Mouse hepatitis virus	MHV	Coronaviridae	Betacoronavirus	M
Mouse parvovirus	MPV-1/-2/-5	Parvoviridae	Protoparvovirus	M
Mouse pneumonitis virus	K	Polyomaviridae	Polyomavirus	M
Mouse thymic virus	MTLV	Herpesviridae	Roseolovirus	M
Murine norovirus	MNV	Caliciviridae	Norovirus	M
Murine rotavirus	EDIM/ROTA-A	Reoviridae	Rotavirus	M
<i>Mycoplasma arthritis</i>	MARTH	Mycoplasmataceae	Mycoplasma	M, R
<i>Mycoplasma pulmonis</i>	MPUL	Mycoplasmataceae	Mycoplasma	M, R
Myxomatosis virus	MYXO	Poxviridae	Leporipoxirus	Rb
Parainfluenza virus (type 1)	PIV-1	Paramyxoviridae	Respirovirus	Rb
Parainfluenza virus (type 2)	PIV-2	Paramyxoviridae	Rubulavirus	Rb
Parainfluenza virus (type 3)	PIV-3	Paramyxoviridae	Respirovirus	GP
Parainfluenza virus (type 5)	PIV-5	Paramyxoviridae	Rubulavirus	GP, H

* Species: M = mouse, R = rat, GP = guinea pig, H = hamster, Rb = rabbit, F = ferret, Z = zebrafish

Glossary of Terms

If you've run into an unfamiliar acronym, or are wondering which animal models are available in your region, this Glossary and Stocks and Strains Worldwide appendix are here to help.

Agent	Abbreviation	Family/Order	Subfam/Genus	Host Species*
Pneumocystis carinii	PCAR	Pneumocystidaceae	Pneumocystis	R
Pneumonia virus of mice	PVM	Paramyxoviridae	Pneumovirus	M, R, GP, H
Polyoma virus	POLY	Polyomaviridae	Polyomavirus	M
Prospect Hill virus	PHV	Bunyaviridae	Hantavirus	M
Rabbit adenovirus	RbAV	Adenoviridae	Mastadenovirus	Rb
Rabbit adenovirus	RbAV	Adenoviridae	Mastadenovirus	Rb
Rabbit hemorrhagic disease virus	RHDV	Caliciviridae	Lagovirus	Rb
Rabbit picobirnavirus	RPBV	Picobirnaviridae	Picobirnavirus	Rb
Rabbit rotavirus	ROTA	Reoviridae	Rotavirus	Rb
Rat coronavirus/sialodacryoadentitis virus	RCV, SDAV	Coronaviridae	Betacoronavirus	R
Rat cytomegalovirus	RCMV	Herpesviridae	Betaherpesvirus	R
Rat minute virus	RMV	Parvoviridae	Protoparvovirus	R
Rat parvovirus	RPV	Parvoviridae	Protoparvovirus	R
Rat polyomavirus	RatPyV2/RPyV2	Polyomaviridae	Unclassified	R
Rat rotavirus (infectious diarrhea of infant rats)	IDIR/ROTA-B	Reoviridae	Rotavirus	R
Rat theilovirus (Theiler's-like virus of rats)	RTV	Picornaviridae	Theilovirus	R
Reovirus	REO	Reoviridae	Orthoreovirus	M, R, GP, H
Rodent Protoparvovirus NS-1	NS-1	Parvoviridae	Protoparvovirus	M, R
Sendai virus	SEND	Paramyxoviridae	Respirovirus	M, R, GP, H
Seoul virus	SEO	Bunyaviridae	Hantavirus	M, R
Theiler's murine encephalomyelitis virus	TMEV (GDVII)	Picornaviridae	Cardiovirus	M, R
Toolan's H-1 virus	H-1	Parvoviridae	Protoparvovirus	R
Toxoplasma gondii	TOXO	Sarcocystidae	Toxoplasma	Rb
Treponema paraluis-cuniculi	TREP	Spirochaetales	Treponema	Rb

* Species: M = mouse, R = rat, GP = guinea pig, H = hamster, Rb = rabbit, F = ferret, Z = zebrafish

Glossary of Terms

If you've run into an unfamiliar acronym, or are wondering which animal models are available in your region, this Glossary and Stocks and Strains Worldwide appendix are here to help.

Agent	Abbreviation	Family/Order	Subfam/Genus	Host Species
Epstein-Barr virus	EBV	Herpesviridae	Lymphocryptovirus	Simian
Hepatitis A	HEP-A	Picornaviridae	Hepatovirus	Simian
Herpes B virus	HBV	Herpesviridae	Alphaherpesvirus	Simian
Herpes virus papio-2	HVP-2	Herpesviridae	Alphaherpesvirus	Simian
Lymphocryptovirus	LCV	Herpesviridae	Lymphocryptovirus	Simian
Macaque (Rhesus) rhadinovirus	MRV	Herpesviridae	Rhadinovirus	Simian
Malaria (Plasmodium)	MAL	Plasmodiidae	Plasmodium	Simian
Measles virus	MV	Paramyxoviridae	Morbillivirus	Simian
Parainfluenza virus (type 5)	PIV-5 (SV-5)	Paramyxoviridae	Rubulavirus	Simian
Simian agent 8	SA-8	Herpesviridae	Simplexvirus	Simian
Simian cytomegalovirus	SCMV/CMV	Herpesviridae	Cytomegalovirus	Simian
Simian foamy virus	SFV	Retroviridae	Spumavirus	Simian
Simian immunodeficiency virus	SIV	Retroviridae	Lentivirus	Simian
Simian rotavirus	SA-11	Reoviridae	Rotavirus	Simian
Simian T-lymphotropic virus	STLV	Retroviridae	Deltaretrovirus	Simian
Simian type D retrovirus	SRV	Retroviridae	Betaretrovirus	Simian
Simian varicella virus	SVV	Herpesviridae	Varicellovirus	Simian
Simian virus 40	SV-40	Polyomaviridae	Polyomavirus	Simian
Trypanosoma cruzi (Chagas Disease)	T. cruzi/CHA	Trypanosomatidae	Trypanosoma	Simian



General Terms and Conditions of Sale

Charles River Laboratories Research Models and Services, Germany GmbH and Charles River Biopharmaceutical Services, GmbH (“Charles River”) will provide the goods (“Products”), animals (“Models”) and services (“Services”) described in the Charles River acknowledgement, quotation, invoice, protocol, or statement of work (collectively hereinafter, “SOW”) and Charles River’s customer (“Customer”) will purchase the Products, Models and/or Services pursuant to the specifications contained in the SOW and in accordance with these Terms and Conditions. These Terms and Conditions will also apply to all future purchases of Products, Models and/or Services by Customer.

1. Binding Character

- 1.1. Customer’s purchases of Products, Models and/or Services are (a) exclusively governed by these Terms and Conditions, including any mutually agreed special terms and conditions set forth separately and (b) constitutes Customer’s express acceptance of these Terms and Conditions. This provision also applies if Charles River delivers Products or Models or provides Services despite being aware of conflicting or additional standard terms and conditions of Customer.
- 1.2. No other document attempting to negate or otherwise modify the terms hereof, including any purchase order or request for proposal or any deviating or supplementing standard terms and conditions of Customer, will be binding upon Charles River unless expressly agreed to Charles River in writing.

2. Provision of the Products and Conduct of the Services

- 2.1. Customer will adhere to all applicable laws, rules and regulations (“Applicable Law”).
- 2.2. If an amendment to the SOW requires additional or different work on the part of Charles River, Charles River may agree to conduct such work and will be paid an amount mutually agreed to by the parties. Deviations from the SOW may be made in an emergency without Customer’s approval, provided that Charles River use commercially reasonable efforts to obtain Customer’s verbal approval, which will be subsequently confirmed by Customer in writing. The parties acknowledge that during the course of performing the Services in accordance with the SOW, additional costs may be incurred by Charles River as a result of procedural changes, which do not amount to, or require a change in, the SOW, but which are deemed necessary by Charles River to successfully perform the Services, and which could not be foreseen at the time of the preparation of the SOW. If such procedural change occurs, Charles River will advise Customer prior to implementation and solicit Customer’s agreement as to the necessity and additional cost thereof. If Charles River is unable to contact Customer in advance, Customer agrees that in order to maintain the integrity of the Services, Charles River may proceed accordingly, and recover such additional costs from Customer upon presentation of an explanation of such procedural changes and the necessity thereof.
- 2.3. Charles River’s offers are without obligation. Unless expressly confirmed by Charles River in writing, any indicated delivery dates or indicated lead times do not constitute fixed date transactions within the meaning of §323 para. 2 No. 2 German Civil Code (BGB) or §376 German Commercial Code (HGB). Any deliveries are “ex works” (Incoterms 2020) at Charles River’s premises unless expressly agreed otherwise with Customer in writing. Place of performance and delivery is at Charles River’s premises. Title to the Products and/or Models will pass to Customer once the Products and/or Models leave Charles River’s facility or are delivered to a common carrier, as applicable.

3. Restrictions on Use and Breeding

- 3.1. Customer understands that Charles River engages in a comprehensive health monitoring, bioexclusion and quality control program. Customer agrees the results of this program only provide retrospective information relating to the timing and effectiveness of sampling and that Charles River’s program is not a substitute for customer’s own health monitoring and bioexclusion practices. Charles River does not warrant the Products and/or Models will be free of infectious agents or other defects at time of delivery. Charles River will provide assistance for monitoring and testing to Customer upon written request subject to the availability of such assistance and Customer paying the standard fees for such assistance.
- 3.2. Customer will use Models and Products in accordance with all Applicable Laws. Customer agrees and will ensure that all Models purchased from Charles River will not be: (i) used for any purpose other than the internal research of Customer, (ii) bred (for sale or otherwise), unless Charles River provides Customer with prior written consent, (iii) provided to any agent or other third party for any reason, including, but not limited to, breeding or other services, unless Charles River provides Customer with prior written authorization, or (iv) modified in any way without the prior written authorization of Charles River, except for modifications for internal research purposes only. Models from Charles River include: (i) the purchased animals themselves, (ii) all descendants of those purchased animals derived by inbreeding or crossbreeding, including modified and unmodified derivatives of those animals or their descendants, or by any other reproductive technologies, and (iii) animals purchased from Charles River that have been modified in any way (genetically or otherwise) and their descendants. Customer will not, without the prior written consent of Charles River, return Products, Models or shipping containers to Charles River.
- 3.3. The purchase of any Products or their components, Models or Services conveys to Customer the non-transferable, non-sublicensable, non-exclusive right to internally use the Model, Product, and the components of the Product, only in research conducted by Customer and specifically in accordance with the SOW. Customer cannot sell, transfer, or make available to a third party the Products or their components, Models including if modified, or the Services for Commercial Purposes without prior written consent. “Commercial Purposes” means any activity for cash or other consideration not expressly permitted by Charles River including, but not limited to sale, resale, and/or distribution of the Products and/or Models (including if modified), or their components or materials made using the Product or their components, except by licensed distributors of Charles River, whether or not resold for use in research. The foregoing limitations are required by Charles River given the nature and sensitivity of the Products, Models and Services provided by Charles River. To the extent that Charles River owns or controls (with the right to sublicense) patent rights or other intellectual property rights applicable to the Models or Products, those rights are licensed to Customer on a limited, revocable, non-exclusive, non-transferable, and non-sublicensable basis only for the internal uses expressly permitted above. If Customer fails to comply with the foregoing limitations, in addition to any other remedies available to Charles River, the rights granted under this section will automatically terminate.
- 3.4. These Terms and Conditions are expressly made subject to any laws, regulations, orders, or other restrictions on the export or import of the Products, Models or Services or information about such Products, Models or Services which may be imposed from time to time by any applicable government or government entity, including, but not limited to, the United States of America. Customer will not export the Products, Models or information about the Products, Models or Services without the prior written consent of Charles River and compliance with such

laws, regulations, orders, or other restrictions. Customer represents and warrants that (a) it is not located in a country that is subject to a U.S. Government or other internationally regulated embargo, or that has been designated by the U.S. Government or other international regulatory agency as a “terrorist supporting” country; and (b) Customer is not listed on any U.S. Government or other applicable international list of prohibited or restricted parties.

4. Compensation

- 4.1. Unless otherwise agreed to by the parties, prices will be as per the price list (if applicable, price of Models is based on highest weight range) on the day of delivery, and do not include taxes, packaging, insurance or shipment expenses. Charles River may modify the price list by notice to customer from time to time. Customer will pay Charles River as set forth in the SOW for Services, Products and/or Models. All invoices are due and payable thirty (30) days from the date of the invoice without any deductions and Customer agrees to pay all invoices submitted. Customer will not withhold payment, assert a right of retention or set off any counterclaims unless Customer’s counterclaims have been finally adjudicated by a competent court or have been acknowledged by Charles River in writing. All amounts not paid by Customer when due will accrue interest from the applicable due date until paid, at the highest rate permitted under Applicable Law. Charles River may also elect to cease or suspend the supply of the Models or Products and any work on the Services, or withhold required reports or other deliverables if Customer does not make payments when due and payable.
- 4.2. All termination, delay or cancellation fees are set forth in the applicable Research Models and Services catalog or the SOW.
- 4.3. If in the judgment of Charles River, Customer’s financial condition is precarious or there has been a materially adverse change in Customer’s financial condition, Charles River will have the right to demand payment or other assurances which it deems adequate before providing any Products, Models or Services.

5. Test Articles

- 5.1. Customer will provide Charles River with sufficient amounts of compounds, materials, animals, substances, devices and protocols meeting relevant specifications, including health and genetic data (“Test Articles”) with which to perform the Services. Customer will provide Charles River with complete and accurate data to apprise Charles River of the identity, strength, purity, stability, composition or other characteristics, proper storage and safe handling requirements of the Test Articles, including a Material Safety Data Sheet (MSDS) or equivalent documentation. Customer will certify to Charles River that the methods of synthesis, fabrication, or derivation of the Test Articles have been documented. All costs associated with shipping the Test Articles to Charles River will be the responsibility of Customer, and Charles River will not be responsible for any loss, damage or destruction of the Test Articles while in transit. All Test Articles and materials used in connection with the Services will remain the property of Customer.

6. Reports

- 6.1. Charles River will keep complete and accurate records of the status and progress of the Services if agreed in the SOW or as required by Applicable Law. Charles River will furnish a report or data containing information as specified in the SOW. All reports will be prepared in the standard format of Charles River.

- 6.2. Neither Charles River nor Customer will publish any report or data prepared for Customer by Charles River without the prior written consent of the other party, which will not be unreasonably withheld.
- 6.3. If Charles River provides electronic access to the data, records, reports and other documentation and Customer elects to use such electronic access, the use of such electronic access will be governed by Charles River’s standard access terms and conditions which are available on request.

7. Inspections

- 7.1. Upon reasonable advance written notice, at mutually agreeable and during regular business hours, Charles River will permit Customer to visit the Charles River facilities where the Services are performed to monitor Charles River’s performance of the Services, in compliance with Charles River’s biosecurity measures, Charles River’s business requirements and ensuring an uninterrupted course of business at Charles River’s premises.
- 7.2. Charles River will notify Customer as soon as practical in the event of any regulatory inspection of Charles River’s facilities that directly impact the Services provided to Customer.

8. Ownership

- 8.1. Any inventions, techniques, intellectual property, technology, commercial and/or industrial secrets, regardless of whether patented or registered, for providing the Models or Products or performing the Services are, and will remain, Charles River’s exclusive property including, but not limited to, present and future documentation, scientific and technical data, test procedures and other information that is owned or licensed by Charles River and is not developed hereunder. Charles River will have the right to use concurrent control data as part of its general historical database. Any data, discoveries or inventions developed or generated, which directly relate to any information or materials provided by Customer will be the property of Customer. Charles River agrees to assist Customer in securing any patents, copyrights or other proprietary rights in such data, discoveries or inventions, and to perform all reasonable acts that may be reasonably required to vest in Customer all right, title and interest in such data, discoveries or inventions, and Charles River will be compensated at its standard rates for such assistance. All costs and expenses associated with establishing Customer’s rights therein will be Customer’s responsibility.

9. Archiving

- 9.1. Provided that Customer is not in financial default under this Terms and Conditions or under any SOW, all reports and supporting documentation resulting from the Services are Customer’s property (“Materials”). Charles River will retain the Materials for the period set forth in the SOW. At the end of such period, Charles River will contact Customer to determine whether to, all options at Customer’s expense: (a) extend storage of the Materials; (b) return the Materials to Customer or (c) disposal of Materials. If Customer requests Charles River to continue to store the Materials and Charles River agrees, Charles River will invoice Customer at Charles River’s then current rates. If Customer fails to give such instructions, Charles River will notify Customer, and if instructions are not forthcoming within thirty (30) days of said notification, Charles River will have the option of continuing to store the Materials or returning the Materials to Customer at Customer’s expense. Customer will be liable for storage charges until the Materials are returned to Customer. While the Materials are in transit to Customer, all risk of loss or exposure to the Materials will be borne by Customer.

- 9.2. If the Materials require special storage conditions, additional charges for storage will be assessed and invoiced to Customer. Invoices will be issued annually in advance and are due and payable upon receipt.

10.Warranties

- 10.1. Customer warrants that it owns all rights, title and interest in the Test Articles furnished to Charles River and the intellectual property related thereto, and that Charles River’s use of the Test Articles does not infringe any third party rights.
- 10.2. Subject to section 3, Charles River warrants that the Products and Services will conform to the specifications contained or agreed in the applicable SOW and any Applicable Law at the time of delivery or performance. Charles River does not warrant or represent that the results of the Services will be acceptable to any regulatory or governmental agency nor that the results of the Services will enable Customer to further develop, market or otherwise exploit the Test Articles or any other product or service.
- 10.3. THE WARRANTY BY CHARLES RIVER SET FORTH HEREIN IS IN LIEU OF ANY AND ALL OTHER REPRESENTATIONS OR WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SUITABILITY OF THE PRODUCTS, MODELS AND SERVICES FOR CUSTOMER’S PURPOSES, IMPACT OF THE PRODUCTS, MODELS AND SERVICES ON CUSTOMER’S OPERATIONS, OR NON-INFRINGEMENT OF A PATENT, TRADEMARK OR OTHER INTELLECTUAL PROPERTY RIGHT.
- 10.4 Any claim for breach of warranty must be made in writing to Charles River within ten (10) business days after the Products or Models are delivered or the completion of Services, or per Applicable Law, after which time the Products, Models or Services will be deemed finally accepted. Subject to the limitations set forth in Section 11, if Charles River commits a breach of the warranty as set forth in this Section, Charles River’s sole liability, and Customer’s sole remedy, will be for Charles River to replace the Products or Models, or issue a credit therefore, or conform the work or portion of the Services affected by the breach to the relevant specification. Charles River will be entitled, at its sole election, to correct or replace the defective Product, Model or Service or to issue a credit. The delivery of a defective Product, Model or Service will not constitute a violation of a material contractual obligation by Charles River.

11.Limitation of Liability

- 11.1. Charles River will not be liable for penalties or liquidated damages or for special, indirect, consequential, punitive, exemplary or incidental damages of any type or kind (including, without limitation, lost profits) regardless of whether any such losses or damages are characterized as arising from breach of contract, breach of warranty, tort, negligence, strict liability or otherwise, even if Charles River is advised of the possibility of such losses or damages, or if such losses or damages are foreseeable.
- 11.2. Charles River’s liability, regardless of the form of action, will be limited to actual and foreseeable damages and will not exceed the total price paid for the Products, Models or Services pursuant to which such liability arises. Charles River will not be liable for any damages arising from, or in connection with, any decision by Customer or any third party to further research, develop or market the Test Articles or any derivative or product or service related thereto, or the use made of the Products, Models, Services or Test Articles derivative or service related thereto.

- 11.3. In the case of a delay in delivery for which Charles River is responsible, Charles River’s maximum liability is limited to an amount of 5% of the value of the delivery affected by the delay.
- 11.4. The limitations period for any claims against Customer is twelve (12) months unless mandatory statutory provisions require a longer period of limitation.
- 11.5. The limitations of liability contained in this section 11 will not apply to (a) any damages that are attributable to gross negligence or willful misconduct of Charles River or its vicarious agents, (b) any culpable damages to a person’s life, body or health, (c) any foreseeable damages that are caused by a culpable violation of a material contractual obligation by Charles River or its vicarious agents, and (d) mandatory statutory liability of Charles River under the German Product Liability Act.
- 11.6. To the extent that the liability of Charles River is excluded or limited under this section 11, the same exclusion or limitation also applies to the liability of Charles River’s affiliates.

12.Indemnities

- 12.1. Customer will defend, indemnify, save and hold harmless Charles River, its parent, subsidiaries and affiliates and their respective directors, officers, employees and agents from and against any claims, demands, suits, actions, causes of action, losses, damages, fines and liabilities, including reasonable professional fees arising out of or in connection with or attributable to (a) the research, development, manufacture, distribution, use, sales or other disposition by Customer, or any distributor, collaborator, customer, sublicensee, representative or agent of Customer, of the Test Articles and/or any other substances upon which the Services were performed or any use made of the Products and/or Models, (b) any infringement of any third party’s patent or other intellectual property rights or unauthorized use or misappropriation of its know-how or trade secrets, (c) Customer’s gross negligence, willful misconduct, or breach of this agreement or (d) personal injury related to contact with the Products or Models during visits to Charles River’s facilities or after delivery of the Products or Models to Customer.

13.Insurance

- 13.1. Each party will have insurance sufficient to cover its interest or potential liabilities hereunder including, but not limited to, worker’s compensation, if applicable, and comprehensive general liability.

14.Confidentiality

- 14.1. In the course of providing the Products or Models or performing the Services, Charles River and Customer may exchange proprietary and confidential information. The parties will identify, in writing, such information as confidential and/or proprietary. If a party intends to disclose confidential information to the other party orally, the disclosing party will (i) alert the other party of the confidential nature of the disclosure prior to the disclosure and (ii) provide written notice to the other party of the confidential nature and contents of such disclosure within ten (10) days of the original disclosure. Each party will use its commercially reasonable efforts to maintain such information in confidence and will employ reasonable and appropriate procedures to prevent its unauthorized disclosure unless required by Applicable Law to disclose such information provided that, to the extent permitted by Applicable Law, the receiving party provides prompt written notice of such disclosure to the disclosing party and takes reasonable and lawful actions

to avoid and/or minimize the extent of such disclosure or seek confidential handling of such information, all at the cost and expense of disclosing party. Neither party will use the other party's proprietary and/or confidential information for any purpose other than in performance of this Agreement. The obligations of confidentiality set forth in this Section will survive termination or expiration of this Agreement for a period of five (5) years.

- 14.2. These confidentiality provisions will not apply to any information, which (i) is known to the receiving party at the time it was obtained from the disclosing party; (ii) is acquired by receiving party from a third party, and such third party did not obtain such information directly or indirectly from the disclosing party under obligation not to disclose; (iii) is or becomes published or otherwise in the public domain other than by violation of this Agreement by the receiving party; (iv) is independently developed by the receiving party without reference to or reliance upon the information provided by the disclosing party; or (v) is required to be disclosed by the receiving party to comply with Applicable Laws or governmental regulations; provided that the receiving party provides prompt written notice of such disclosure to the disclosing party and cooperates with the disclosing party's reasonable and lawful actions to avoid and/or minimize the extent of such disclosure, at the disclosing party's expense.
- 14.3. During any remote monitoring, audit or inspection of Charles River, Customer agrees not to (a) take photographs or use any other method of recording information regarding the site; (b) access or attempt to access or view any of the work product or network systems that are being used by Charles River without the express permission and in the presence of the Charles River representative that is hosting the remote audit; or (c) remove any document, equipment or other materials from the remote study monitoring or audit without Charles River's prior written permission.

15. Termination

- 15.1. Unless otherwise specified in the SOW, Customer may terminate the SOW at any time without cause upon thirty (30) days prior written notice to Charles River. In the event of such termination, Charles River will be paid for all Products and/or Models provided or Services rendered through the effective date of termination, together with any additional expenses incurred in connection with the shutdown of the Services including, without limitation, any irrevocably committed costs and any cancellation or termination fee set forth in the SOW.
- 15.2. Either party may terminate these Terms and Conditions or SOW, as applicable, at any time upon thirty (30) days prior written notice to the other party, for material breach of the Terms and Conditions by the other party if such breach is not remedied to the non-breaching party's reasonable satisfaction within the thirty (30) day notice period.
- 15.3. Upon termination, neither party will have any further obligations, except that (i) the liabilities accrued through the date of termination and (ii) the obligations which by their terms survive termination, including the applicable confidentiality, record keeping, regulatory compliance, intellectual property and indemnification provisions of these Terms and Conditions, will survive termination.

16. Force Majeure

- 16.1. Except with respect to the payment of any amount due hereunder, neither party will be considered in default of the performance of any obligation hereunder to the extent that the performance of

such obligation is prevented or delayed by fire, flood, earthquake, hurricane, explosion, disease, contamination, pandemic/epidemic, strike, acts of terrorism, war, insurrection, embargo, government requirement, civil or military authority, animal activism, act of God, or any other event, occurrence or condition which is not caused, in whole or in part, by that party, and which is beyond the reasonable control of that party.

17. Governing Law and Dispute Resolution

- 17.1. These Terms and Conditions and any dispute arising from or in connection with the sale of the Products, Models and/or Services are governed by, and will be construed in accordance with, German law, excluding the United Nations Convention on the International Sale of Goods and without regard to any choice of law principle that would dictate the application of the law of another jurisdiction.
- 17.2. The parties will attempt to resolve through negotiations any controversy, claim, or dispute. If the negotiations are not successful, the controversy, claim, or dispute will be submitted to third party mediation upon terms reasonably acceptable to the parties. If such claim, controversy or dispute is not resolved through mediation, upon written demand of either party, the claim, controversy or dispute will be submitted to arbitration. Such arbitration will take place in Munich, Germany, will be conducted in English, and will proceed in accordance with the Arbitration Rules of the German Institution of Arbitration (DIS) without recourse to the ordinary courts of law. A record and transcript of the proceedings will be maintained. Any award will be made in writing and in reasonable detail, setting forth the findings of fact and conclusion of law supporting the award. The determination of a majority of the panel of arbitrators will be the decision of the arbitrators, which will be binding regardless of whether one of the parties fails or refuses to participate in the arbitration. The arbitrators will decide on the recovery of the costs of the arbitration and statutory attorneys' fees.

18. Miscellaneous

- 18.1. All notices from one party to the other will be in writing. Notices will be sent by internet transmission, overnight courier, or certified mail, return receipt requested. All notices will be effective upon receipt.
- 18.2. The business relationship of Charles River to Customer is that of an independent contractor and not of a partnership, joint venture, employer, agent or any other kind of relationship.
- 18.3. These Terms and Conditions, and the rights and obligations hereunder, may not be assigned or transferred by either party without the prior written consent of the other party.
- 18.4. These Terms and Conditions together with the SOW set forth the entire agreement and understanding between the parties, superseding any and all previous statements, negotiations, documents, agreements and understandings, whether oral or written, as to the subject matter hereof.
- 18.5. In the event that any one or more of the provisions contained in these Terms and Conditions is held to be invalid, illegal or unenforceable in any respect, that invalidity, illegality or unenforceability will not affect any other term or condition, and all other terms and conditions will remain in full force and effect.
- 18.6. Any modification or waiver of these Terms and Conditions will require written form and Charles River approval. This written form requirement also applies to a waiver or modification of the written form requirement itself.

19. Intellectual Property

Charles River® and Charles River Laboratories® are registered trademarks of Charles River Laboratories, Inc. VAF/Plus®, VAF/Elite®, BlastoKit®, CD®, CD-1®, CFW®, EAD®, Gnoto-safe®, PRIA®, SHO®, THE POUND MOUSE®, Multiplexed Fluorometric ImmunoAssay® (MFIA®), Laboratory Testing Management® and MAX-BAX® are registered trademarks of, or are under license by, Charles River Laboratories, Inc. CDF™, CF-1™, EAD™, PRIA™, Sew Easy™, ICM™ and LTM™ are trademarks of, or are under license by, Charles River Laboratories, Inc. The SourceSM is a service mark of Charles River Laboratories, Inc. Sprague Dawley® is a registered trademark of Harlan Sprague Dawley, Inc. SD™ is a Harlan Sprague Dawley trademark. Fox Chase SCID® is a registered trademark of the Fox Chase Cancer Center. Fox Chase CB17™ is a trademark of the Fox Chase Cancer Center. HydroGel™ is a trademark of ClearH2O®. Immortomouse® is a registered trademark of the Ludwig Institute for Cancer Research. TARGATT™ is a trademark of Applied StemCell. Polymerase Chain Reaction (PCR) analysis is performed pursuant to licensing arrangements with Roche Molecular Systems, Inc. and The Perkin-Elmer Corporation. Microsatellite analysis is performed pursuant to licensing arrangements with the Marshfield Clinic. Purina #5008 is a trademark of Nestle Purina Petcare Company. Research Diets is a trademark of BioDAQ®. genOway is a registered trademark of genOway S.A. OpenArray® is a registered trademark of Biotrove, Inc. RODAC™ is a registered trademark of Becton, Dickinson and Company. TaqMan TaqMan® is a registered trademark of Roche Molecular Systems, Inc.

Nothing in these terms and conditions should be construed as granting, by implication, estoppel, waiver or otherwise, any license or right of use to any Charles River trademark. Client will not use these, or any other Charles River trademark, for any purpose, including in any publicity, promotion, news release or other public disclosure without the prior written permission of Charles River, except, in each case, as may be required by law.

20. Privacy

The Charles River privacy policy can be found at <https://www.criver.com/about-us/privacy-policy>.

21. JAX® Mice

The sale by Charles River of JAX® Mice will be governed by the terms and conditions of The Jackson Laboratory, which can be found at <https://www.jax.org/about-us/legal-information/terms-and-conditions-of-product-use-crl>.


charles river
