

Summary

Using a variety of techniques, Charles River performs routine health monitoring of the immunocompetent mice and rats raised in our barrier production colonies. Animals are tested at regular intervals for a wide variety of pathogens and opportunistic agents.



RESEARCH MODELS AND SERVICES EUROPE

Routine Health Monitoring of Mice and Rats

Testing for European Barrier Production Colonies

The immunocompetent rodents raised in Charles River barrier production colonies are referred to as specific pathogen-free (SPF), or VAF Plus® animals. These animals have been tested and are free of an extensive list of viruses and other pathogens. Of note, our immunodeficient models, and certain immunocompetent animals such as the SOPF (VAF Elite®) mice and rats, are raised using different housing, husbandry and biosecurity techniques, and health monitoring programs for those animals are described separately.

Schedule

Every four weeks, Charles River uses the exquisitely sensitive TaqMan® PCR to gain a snapshot of whole-room health status. Ten environmental samples are collected from a variety of sites, including air exhaust grates and bedding disposal equipment. This PCR-based testing includes common agents whose detection would trigger immediate cessation of shipping.

Every four weeks, at the two-week point between PCR tests, Charles River performs serologic monitoring using the sensitive Multiplexed Fluorometric ImmunoAssay® on 16 animals from each mouse and rat production room. In barrier production rooms with multiple strains of animals, the 16 in the test set includes eight from two different strains.

Every 13 weeks (quarterly), Charles River evaluates 12-16 animals at three different age groups from each barrier room. Necropsy samples are evaluated by direct parasitology examination, microbiological cultures, gross pathology and limited PCR testing.

Annually, Charles River uses an innovative PCR rodent infectious agent (PRIA) panel to evaluate 12-16 animals at three different age groups from each barrier room for an extensive list of viruses, bacteria, fungi and parasites.

EVERY STEP OF THE WAY

Communication

We communicate the health status of the barrier production colonies primarily through the Charles River website, where colony health status reports are updated weekly to include any new results. Delivery documentation in some regions may also include hard copy health monitoring reports. In addition to the pathogens included on our SPF (VAF/Plus®) lists whose confirmed presence would result in immediate colony termination, Charles River also reports surveillance results for some agents currently considered of unlikely consequence in immunocompetent animals, primarily human commensal bacteria. These agents are reported as a service to clients whose specialized areas of research may require consideration of additional microorganisms. Colony health reports include a description of which action would be taken for each listed agent.

It remains Charles River's policy to inform our customers in a timely manner of any breaches in animal health or genetic

integrity, providing urgent colony health information via email or other method.

Table 1 summarizes agents tested and the methods used to monitor all Charles River mouse and rat production colonies in Europe. We also perform alternate procedures to enable confirmatory testing in order to corroborate unexpected positive results. We routinely review our complete health monitoring program to ensure that Charles River colonies are evaluated in a scientifically rigorous, valid and cost-effective manner.

Further Information

For assistance regarding specific information on Charles River monitoring procedures, additional data on animals, or interpretation of the monitoring information, contact us at askcharlesriver@crl.com.

Table 1: Summary of Methods Used to Screen Charles River European Immunocompetent Mouse and Rat Colonies

Viruses	Sampling Site or Method	Rat Testing Frequency (Weeks)	Mouse Testing Frequency (Weeks)
Ectromelia Virus (ECTRO)	Serum	-	13
Hantaan Virus (HANT)	Serum	13	13
Kilham Rat Virus (KRV)	Serum	4	-
Lactate Dehydrogenase-Elevating Virus (LDV)	Serum	-	13
Lymphocytic Choriomeningitis Virus (LCMV)	Serum	13	13
Minute Virus of Mice (MVM)	Serum	-	4
Mouse Adenovirus (MAV1&2)	Serum	13	13
Mouse Cytomegalovirus (MCMV)	Serum	-	13
Mouse Hepatitis Virus (MHV)	Serum	-	4
Mouse Parvovirus (MPV)	Serum	-	4
Mouse Pneumotropic Virus (K)	Serum	-	13
Mouse Rotavirus (EDIM)	Serum	-	4
Mouse Thymic Virus (MTLV)	Serum	-	13
Murine Norovirus (MNV)	Serum	-	4
Pneumonia Virus of Mice (PVM)	Serum	4	13
Polyoma Virus (POLY)	Serum	-	13
Rat Coronavirus (RCV/SDAV)	Serum	4	-
Rat Minute Virus (RMV)	Serum	4	-
Rat Parvovirus (RPV)	Serum	4	-
Rat Theilovirus (RTV)	Serum	4	-
Reovirus (REO)	Serum	4	13
Sendai Virus (SEND)	Serum	4	13
Theiler's Murine Encephalomyelitis Virus (TMEV-GDVII)	Serum	-	4
Toolan's H-1 Virus (H1)	Serum	4	-

Bacteria/Fungus	Sampling Site or Method	Rat Testing Frequency (Weeks)	Mouse Testing Frequency (Weeks)
Beta-hemolytic <i>Streptococci</i>	Respiratory tract	13*	13*
<i>Bordetella bronchiseptica</i>	Respiratory tract	13	13
CAR bacillus	Serum	13	13
<i>Citrobacter rodentium</i>	Gastrointestinal tract	-	13
<i>Corynebacterium kutscheri</i>	Respiratory tract	13	13
<i>Helicobacter sp</i>	Fecal pellets	13	13
<i>Helicobacter bilis</i>	Fecal pellets	13	13
<i>Helicobacter hepaticus</i>	Fecal pellets	13	13
<i>Helicobacter typhlonius</i>	Fecal pellets	-	13
<i>Mycoplasma pulmonis</i>	Serum	4	13
<i>Pasteurella pneumotropica</i>	Respiratory tract	13	13
<i>Pasteurella multocida</i>	Respiratory tract	13	13
<i>Pneumocystis carinii</i>	Serum	4	-
<i>Salmonella spp</i>	Gastrointestinal tract	13	13
<i>Streptobacillus moniliformis</i>	Clinical and/or gross exam	13	13
<i>Streptococcus pneumoniae</i>	Respiratory tract	13	13
Tyzzler's Disease	Clinical and/or gross exam	13	13
Parasites	Sampling Site or Method	Rat Testing Frequency (Weeks)	Mouse Testing Frequency (Weeks)
Ectoparasites	Direct exam	13	13
<i>Encephalitozoon cuniculi</i> (ECUN)	Serum	13	13
Enteric pathogenic protozoa (<i>Cryptosporidium spp</i> ; <i>Eimeria spp</i> , <i>Giardia spp</i> , <i>Spiroplasma muris</i>)	Direct exam	13	13
Helminths	Direct exam	13	13

*Beta-hemolytic *Streptococci* Lancefield groups A & G reported for rats and A, B, C & G for mice.