

MRL/MpJ-Fas^{lpr}/2J

Stock No: 006825 | lymphoproliferation

 Coisogenic, Spontaneous Mutation

Typically mice are recovered in 10-14 weeks. Contact Customer Service to place an order or for more information.

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preserve the original phenotype).

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GENETIC OVERVIEW

Genetic Background

Generation

Fas^{lpr}

Alele Type

Spontaneous (Hypomorph)

Gene Symbol

Fas

Gene Name

Fas (TNF receptor superfamily member 6)

VIEW GENETICS

RESEARCH APPLICATIONS

Immunology, Inflammation and Autoimmunity Research

Internal/Organ Research

Apoptosis Research

Cancer Research

Mouse/Human Gene Homologs

VIEW ALL RESEARCH APPLICATIONS

BASE PRICE

Starting at:

\$2,854.50 Domestic price Cryo Recovery

V I E W P R I C E L I S T

Details

Important Note

January 2007: alteration in strain name and phenotype. Please see Strain Description for additional information.

Detailed Description

The current colony (as of fall 2006) of MRL/MpJ-*Fas*^{*lpr*}/J has experienced a progressive loss of lymphoproliferative phenotype over the past several years, as reported by some of our customers and as observed by our technical staff. This loss of phenotype has been manifested by reduced enlargement of brachial and mesenteric lymph nodes, and poor splenomegaly. Also, the life spans of the mice in the current colony have also been found to be much longer than the historically observed and reported 17 weeks for females and 22 weeks for males. However, genotyping continues to show that all the mice in the colony remain homozygous for the *Fas*^{*lpr*} mutation, and the SNP profile in the region of the mutation on Chromosome 19 has not changed.

In an effort to regenerate the desired phenotype, we recovered mice from our embryo archive cryopreserved in 1993. The sixteen-week old cryo-recovered mice have lymph nodes that were 4.5 (females) to 10.1 times (male) larger than age and sex matched individuals from the current colony. Splenomegaly is 3 to 6 times greater and their life spans were also greatly reduced. We have decided to expand the cryo-recovered line to make the mice available for sale to customers.

The cryo-recovered line will retain the name MRL/MpJ-*Fas*^{*lpr*}/J
[Stock No. 000485](#).

The line with the changed phenotype formerly distributed as Stock No. [Stock No. 000485](#) will be renamed MRL/MpJ-*Fas*^{*lpr*}/2J (Stock No. 006825) and distributed as long as there is sufficient demand.

Mice homozygous for the lymphoproliferation spontaneous mutation (*Fas*^{*lpr*}) show systemic autoimmunity, massive lymphadenopathy associated with proliferation of aberrant T cells, arthritis, and immune complex glomerulonephrosis. Starting at about three months of age, levels of circulating immune complexes rise greatly in the MRL-*lpr/lpr* mouse but not the MRL normal (Hewicker 1990). Onset and severity of symptoms associated with the *lpr* gene is strain-dependent. For example, lymphoproliferation varies greatly with congenic strain C57BL/6J-*lpr/lpr* at a 24 fold increase over control lymph node weight, MRL/Mp-*lpr/lpr* at 75 fold and congenic strain C3H/HeJ-*lpr/lpr* highest at 116 fold increase over control lymph node weight (Morse et al 1985). Variance in renal pathology ranks from extensive in MRL/Mp-*lpr/lpr* at 4 to 7 months to negligible at 14 to 16 months in mice with C57BL/6J and C3H/HeJ backgrounds and homozygous for the *lpr* (Kelley and Roths 1985). Spontaneous production of anti-dsDNA autoantibodies is likewise affected with percentage binding of radiolabeled dsDNA in *lpr/lpr* mice varying from 5 percent on C57BL/6J to 26 percent on C3H/HeJ to as high as 49 percent on MRL/Mp (Izui et al 1984). Female MRL/Mp-*Fas*^{*lpr*} mice die at an average age of 17 weeks of age and males at 22 weeks. This compares to between 42 and 52 weeks in females on the C57BL/6J or C3H/HeJ background (Roths 1987). Embryonic stem cell lines have been established with MRL/Mp-*lpr/lpr* mouse strains (Kawase et al 1994). This mouse is a model for systemic lupus erythematosus-like autoimmune syndromes.

MRL/MpJ and one of its ancestral strains LG/J display heightened wound healing relative to a panel of other inbred strains. At 4 weeks post-injury, 2mm ear punch wounds healed to 0-0.4mm in MRL/MpJ mice but were still 1.2-1.6mm in C57BL/6 mice. At 15 days post-injury C57BL/6 showed a maximal closure of 30% reduction in ear hole size while MRL showed 85% reduction. The process of healing in MRL/MpJ mice was faster, more complete, showed increased swelling, angiogenesis, fibroblast migration, extracellular matrix deposition, and decreased scarring and fibrosis. Additionally, hair follicles and accompanying sebaceous glands were regenerated to a much greater degree. The other ancestral strains of MRL/MpJ (C3H, C57BL/6, and AKR) do not display this enhanced healing. Bone marrow transplantation showed that the MRL/MpJ healing phenotype did not readily transfer with bone marrow and did remain in the irradiated host tissues. Enhanced healing of cardiac wounds has also been reported in MRL/MpJ mice. In this model a very high mitotic index (10-20%) was found, similar to that seen in non-mammalian tissue regeneration. Using F2 and backcross mapping of MRL/MpJ-*Fas*^{*lpr*} x B6

progeny McBrearty et al. identified wound healing QTLs: the heal2 and heal3 loci were identified on MRL/MpJ chromosome 13 in the region of D13Mit115 and D13Mit129 respectively; the heal5 locus was identified on MRL/MpJ chromosome 12 in the region of D12Mit233; the heal1 locus was identified on chromosome 8 of C57BL/6 in the region of D8Mit211; and a highly suggestive locus was found on MRL/MpJ chromosome 7 in the region of D7Mit220. (Clark et al., 1998; Leferovich et al., 2001; Kench et al., 1999; McBrearty et al., 1998.)

Microarray analysis and SELDI ProteinChip analysis have identified multiple genes and proteins that have varied expression in the ear punch wounds of MRL/MpJ-*Fas^{lpr}* versus C57BL/6. The changes in expression patterns suggest that in MRL/MpJ mice there is less of an inflammatory response and an earlier transition into tissue repair than is seen in C57BL/6. (Li et al., 2000 and 2001.)

Blankenhorn et al. found that MRL/MpJ females heal faster and more completely than males. Some healQTL are sexually dimorphic with heal 2, 3, 7, 8, 10, and 11 having greater effect in males and heal 4, 5, and 9 having greater effect in females. Castration improves wound healing in MRL/MpJ males to nearly the degree seen in females, but ovariectomy does not improve the degree of healing seen in MRL/MpJ females. (Blankenhorn et al., 2003)

Relative to B10.D2nSnJ mice, MRL/MpJ mice have decreased Neutrophil accumulation in the bronchiolar lavage in response to LPS infusion and tests using bone marrow chimeras revealed that the pulmonary inflammatory response transfers with bone marrow. Transforming growth factor beta 1 autologous induction is reduced in MRL/MpJ splenocytes while macrophages show a reduction in the transforming growth factor beta 1 induction of interleukin 1 beta and tumor necrosis factor alpha production but no significant reduction in transforming growth factor beta 1 production. (Kench et al., 1999.) MRL-*lpr* are also highly susceptible to *Mycobacterium leprae* (Yogi et al., 1989).

+ Development

+ Control Suggestions

+ Selected References

- Genetics

+ *Fas^{lpr}*

- Disease/Phenotype

+ Disease Terms

+ Research Areas By Phenotype

+ Mammalian Phenotype Terms by Genotype

+ References

Technical Support

CONTACT TECHNICAL SUPPORT

Genotyping Protocols

Standard PCR:[Fas](#)

Standard PCR:[Fas MCA](#)

[Genotyping resources and troubleshooting](#)

Breeding Considerations

[This strain is a good breeder.](#)

[Additional Breeding and Husbandry Support](#)

Appearance

albino

Related Genotype: *a/a Tyr^f/Tyr^f*

Citation

When using the lymphoproliferation mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #006825 in your Materials and Methods section.

Animal Health Reports

[Facility Barrier Level Descriptions](#)

Production of mice from cryopreserved embryos or sperm occurs in a maximum barrier room, [G200](#)

Pricing & Availability



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Recovery

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Cryorecovery - Domestic Pricing

SERVICE/PRODUCT	DESCRIPTION	PRICE
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Related Products and Services

Frozen Mouse Embryo	MRL/MpJ-Fas< pr>/2J Frozen Embryos	\$2595.00
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