Also Known As: Swiss Jim Lambert, SJL

SJL mice display a very high incidence of reticulum cell sarcomas resembling Hodgkin's disease by approximately one year of age. This strain is also characterized by extreme aggression in males and its susceptibility to experimental autoimmune encephalomyelitis (EAE) for multiple sclerosis research. SJL/J mice develop a spontaneous myopathy resulting from a splice-site mutation in the Dysferlin gene resulting in decreased levels of dysferlin protein in SJL/J mice and making this strain a good model for limb girdle muscular dystrophy 2B. SJL mice, fed an atherogenic diet (1.25% cholesterol, 0.5% cholic acid and 15% fat), fail to develop atherosclerotic aortic lesions in contrast to several highly susceptible strains of mice. SJL are immunocompetent but have elevated levels of circulating T cells.
RESEARCH APPLICATIONS
Cardiovascular Research
Cancer Research
Sensorineural Research
Diabetes and Obesity Research
Research Tools
Immunology, Inflammation and Autoimmunity Research
Mouse/Human Gene Homologs
Dermatology Research

Important Note
This strain is homozygous for the retinal degeneration allele Pde6b<sup>rd1</sup>.

Detailed Description
SJL mice display a very high incidence of reticulum cell sarcomas resembling Hodgkin’s disease by approximately one year of age. Sarcomas first appear in the Peyer’s patches and mesenteric lymph nodes and later in the spleen, liver, thymus and other lymph nodes. Most of the tumors are mixed-cell types classified as type B reticulum cell neoplasms, but a few are type A histiocytomas. This strain is also characterized by extreme aggression in males and its susceptibility to experimental autoimmune encephalomyelitis (EAE) for multiple sclerosis research. SJL/J mice develop a spontaneous myopathy resulting from a splice-site mutation in the Dysferlin gene. This Dys<sup>rd</sup> allele has been shown to result in decreased levels of dysferlin protein in SJL/J mice and makes this strain a good model for limb girdle muscular dystrophy 2B. This spontaneous myopathy is characterized by a progressive loss of muscle mass and strength corresponding with an increase in muscle pathology including muscle fibers with central nuclei, size variation, splitting, inflammatory infiltrate, necrosis, and eventual replacement of muscle fiber with fat. While muscle weakness can be detected as early as three weeks of age the greatest pathology occurs after six months of age. SJL/J mice have also been shown to have an increased rate of muscle regeneration after injury when compared to BALB/c mice. Due to a mutation in Ceacam1 SJL/J mice are resistant to infection by certain strains of mouse hepatitis virus MHV-4.
SJL mice, fed an atherogenic diet (1.25% cholesterol, 0.5% cholic acid and 15% fat), fail to develop atherosclerotic aortic lesions in contrast to several highly susceptible strains of mice (e.g. C57BL/6J, Stock No. 000664; C57L/J, Stock No. 000668, C57BR/cdJ, Stock No. 000667, and SMU, Stock No. 000687). SJL/J are also useful as a control strain for studying immune defects in NOD/ShiLtJ mice (Stock No. 001976), a model for type 1 diabetes (IDDM). Both NOD and SJL/J are derived from Swiss mice; SJL are immunocompetent but have elevated levels of circulating T cells.

In 2019-2020, researchers at The Jackson Laboratory discovered this inbred strain contains the $\text{Trem2}^{S148E}$ allele - a naturally occurring variant at position 48351151-48351152 on Chr 17 (rs108080490 and rs107649577; Ensembl GRCh38.p6). This TC to GA transition results in a serine to glutamic acid substitution at amino acid 148 (S148E).

**Genetics**

- $Oca2^+$
- $Pde6b^{rd1}$
- $Dystm$
- $Ahr^d$
- $\text{Ceacam1}^{Hv2-r}$
- $\text{Disc1}^{del}$
- $Rmc^{p}$
- $Il2^{m1}$
- $Gpr84^{del}$
- $Ogg1^{m1}$
- $Ogg1^{m2}$
- $\text{Cd5}^{b}$
- $Mx1^{s1}$
Genotyping Protocols
Genotyping resources and troubleshooting
Inbred mouse strains are maintained through sibling (sister x brother) matings; no genotyping required.

Dietary Information
LabDiet® 5K52 formulation (6% fat)

Breeding Considerations
This strain is a good breeder.

Additional Breeding and Husbandry Support

Mating System
Sibling x Sibling

Appearance
albino

Related Genotype: Oca2<sup>b</sup> Tyr<sup>c</sup> /Oca2<sup>b</sup> Tyr<sup>c</sup> A/A

Citation
When using the SJL mouse strain in a publication, please include JAX stock #000686 in your Materials and Methods section.

Animal Health Reports
Facility Barrier Level Descriptions

- MP16 (Standard)
- MP13 (Maximum)
- RB04 (Maximum)
Pricing & Availability

Sized to accommodate orders of up to 100 or more. Ask Customer Service for details.

### Domestic

Pricing effective for USA, Canada and Mexico shipping destinations

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<thead>
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<th>AGE</th>
<th>SEX</th>
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<td>10 weeks</td>
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### International

Pricing effective for international shipping destinations

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### VOLUME PRICING DETAILS

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<th>QUANTITY</th>
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<tr>
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**Volume Pricing Program**

Quantities: Volume pricing is automatically applied when a minimum quantity per strain for a shipment is reached

Sexes: Sexes of the same strain may be combined to reach minimum quantity levels to receive the volume pricing

Shipment: All shipping destinations qualify

This strain is available from some international Charles River (CR) breeding facilities in Japan and/or Europe. For more information, see the [Worldwide Distributor List for JAX® Mice](#).

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Terms Of Use

TERMS OF USE

General Terms and Conditions

LICENSING INFORMATION

Phone: 207-288-6470
Email: TechTran@jax.org

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