B6;129S-Tnfrsf1a<sup>tm1lmx</sup> Il1r1<sup>tm1lmx</sup>/J

Stock No: 003244 | p55<sup>−/−</sup>;IL-1R<sup>−/−</sup>

Targeted Mutation

Also Known As: Tnfr1, p55<sup>−/−</sup>;IL-1R<sup>−/−</sup>

Estimated Removal of Live Colony date: 08 November 2018

Mice homozygous for both targeted mutations lack both interleukin-1 beta type 1 receptor (IL1R1) and tumor necrosis factor alpha p55 (type 1) receptor (TNFR1). They exhibit reduced inflammatory responses and delayed-type hypersensitivity response. They are also susceptible to Listeria monocytogenes infection and have defects in Peyer’s patch development, splenic architecture, formation of germinal centers and liver regeneration.

Donating Investigator

Dr. Jacques Peschon, Amgen

GENETIC OVERVIEW

<table>
<thead>
<tr>
<th>Genetic Background</th>
<th>Generation</th>
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<tbody>
<tr>
<td></td>
<td>F7×N1F30</td>
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Il1r1<sup>tm1lmx</sup>

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<tr>
<th>Allele Type</th>
<th>Gene Symbol</th>
<th>Gene Name</th>
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<tbody>
<tr>
<td>Targeted (Null/Knockout)</td>
<td>Il1r1</td>
<td>interleukin 1 receptor, type I</td>
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Tnfrsf1a<sup>tm1lmx</sup>

<table>
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<tr>
<th>Allele Type</th>
<th>Gene Symbol</th>
<th>Gene Name</th>
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<tr>
<td>Targeted (Null/Knockout)</td>
<td>Tnfrsf1a</td>
<td>tumor necrosis factor receptor superfamily, member 1a</td>
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RESEARCH APPLICATIONS

Immunology, Inflammation and Autoimmunity Research
Details

Detailed Description
Mice homozygous for both targeted mutations (called TNFRp55\((-/-\))\)-IL-1R\((-/-\)), TNFR1/IL1R1 or IL-1R1/TNFR1 KO) are viable and fertile, lacking both interlekin-1 beta type 1 receptor (IL1R1) and tumor necrosis factor alpha p55 (type 1) receptor (TNFR1). Double homozygotes exhibit characteristics of both the single ‘knockouts’ including reduced inflammatory responses, reduced delayed-type hypersensitivity response, and remain highly susceptible to infection by Listeria monocytogenes. Homozygous mutant mice also have defects in Peyer’s patch development, splenic architecture, formation of germinal centers and liver regeneration. Furthermore, IL-1R1/TNFR1 KO mice exhibit alterations in rapid eye movement sleep (REMS) and non-rapid eye movement sleep (NREMS) (a sleep phenotype different from that observed for mice singly homozygous for one or the other of these cytokine receptors), as well as differences in NREMS and REMS following sleep deprivation compared to control mice.

Control Suggestions

Selected References

Genetics

\(\text{Il1r1}^{+/-}\)

\(\text{Tnfrsf1a}^{-/-}\)

Disease/Phenotype

Disease Terms

Research Areas By Genotype

Mammalian Phenotype Terms by Genotype

References
Genotyping Protocols
High Resolution Melting: \(\text{Il1r1}^{\text{tm1lmx}}\)-Alternate 1
High Resolution Melting: \(\text{Tnfrsf1a}^{\text{tm1lmx}}\)-Alternate 3
Genotyping resources and troubleshooting

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

Breeding Considerations
The strain is maintained by mating mice homozygous for both targeted mutations together (HOM HOM x HOM HOM). Expected coat color from breeding is White Bellied Agouti or Black.
Additional Breeding and Husbandry Support

Mating System
Homozygote x Homozygote
Maintain by HOM HOM x HOM HOM

Appearance
white-bellied agouti
Related Genotype: \(A^w/A^w\)

Citation
When using the \(\text{Il1r1}^{\text{tm1lmx}}\) mouse strain in a publication, please cite the originating article(s) and include JAX stock #003244 in your Materials and Methods section.
Facility Barrier Level Descriptions

Pricing & Availability
Live colonies of this strain will be removed soon

Domestic | International
Pricing effective for USA, Canada and Mexico shipping destinations

<table>
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<tr>
<th>AGE</th>
<th>SEX</th>
<th>GENOTYPE</th>
<th>PRICE</th>
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<tr>
<td>Approx 4-8 weeks</td>
<td>Female</td>
<td>Homozygous for Tnfrsf1a(^{\text{tm1lmx}}), Homozygous for Il1r1(^{\text{tm1lmx}})</td>
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<tr>
<td></td>
<td>Male</td>
<td>Homozygous for Tnfrsf1a(^{\text{tm1lmx}}), Homozygous for Il1r1(^{\text{tm1lmx}})</td>
<td>$271.00</td>
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### Related Strains

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<tr>
<td>By Gene</td>
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<tr>
<td>By Collection</td>
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</table>

All Related Strains
Leading the search for
TOMORROW'S CURES