B6.Cg-Thy1\(^d\)/Cy Tg(TcraTcrb)8Rest/J

Stock No: 005023 | pmel-1

Congenic, Transgenic

REPOSITORY LIVE

PLACE ORDER

0–2 week average lead time for 10 or more mice with age range

Also Known As: C57BL/6-Tg(TcraTcrb)8Rest/J, pmel-1, B6.Cg Thy1\(^d\)-Tg(TcraTcrb)8Rest/J

This transgenic strain carries a rearranged T cell receptor transgene specific for the mouse homologue (pmel\(^{SI}\) or pmel\(^{-17}\)) of human premelanosome protein (referred to as PMEL, SILV or gp100), and the T lymphocyte specific Thy1\(^a\) (Thy1.1) allele. About 1/3 of transgenic mice develop lymphomas by 5 to 7 months of age. These transgenic mice provide a tumor model system for studies related to immunotherapy, and for studying in vivo T-cell biology.

Donating Investigator

Nicholas P. Restifo, National Cancer Institute

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GENETIC OVERVIEW

<table>
<thead>
<tr>
<th>Genetic Background</th>
<th>Generation</th>
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**Tg(TcraTcrb)8Rest**

**Allele Type**

Transgenic (Inserted expressed sequence)

**Thy1\(^a\)**

<table>
<thead>
<tr>
<th>Allele Type</th>
<th>Gene Symbol</th>
<th>Gene Name</th>
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<tr>
<td>Not Applicable</td>
<td>Thy1</td>
<td>thymus cell antigen 1, theta</td>
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VIEW GENETICS

RESEARCH APPLICATIONS

Immunology, Inflammation and Autoimmunity Research
Research Tools
Details

Detailed Description

This transgenic strain carries a rearranged T cell receptor transgene specific for the mouse homologue (pmel-17) of human SILV (gp100), an enzyme involved in pigment synthesis that is expressed by the majority of malignant melanoma cells including B16 melanoma, as well as by normal melanocytes. In mice from founder line 8 the transgenic integration was determined to be on Chromosome 2, in the 3' UTR of the serine threonine kinase 39 (Stk39) gene. STK39 is involved in the cellular stress response pathway. The strain is also homozygous for the T lymphocyte specific Thy1a (Thy1.1) allele. CD8+ T cells express a Tcra-V11/Tcrb-V13-transgenic TCR that recognizes an epitope of pmel-17 corresponding to amino acids 25-33 of gp100 presented by H2-Db MHC class I molecules. Greater than 95% of the CD8+ T cells in transgenic mice expressed the transgenic TCR based on the expression of Vbeta13, amounting to about 20% of all splenocytes. T cells in blood and spleen generally expressed baseline levels of the activation effector markers CD25, CD44, and CD69, indicating that most of the transgenic cells were in the naive state. In The Jackson Laboratory Repository colony, approximately 30% of transgenic mice develop lymphomas, found predominantly in the thymus and lymph nodes, at 5 to 7 months of age.

These transgenic mice in conjunction with the poorly immunogenic B16 melanoma, a highly aggressive tumor in C57BL/6 mice, provide a physiologically relevant tumor model system for studies related to immunotherapy. In addition, 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.

Development

Expression Data

Control Suggestions

Selected References

Genetics

Tg(TcraTcrb)8Rest

Thy1a

Disease/Phenotype
Genotyping Protocols
QPCR: Tg(TcraTcrrb)8Rest
Standard PCR: Tg(TcraTcrrb)8Rest
End Point Analysis: Thy1.2 End Point
Genotyping resources and troubleshooting

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

Breeding Considerations
Transgenic constructs containing the mouse alpha-chain and beta-chain of a T-cell receptor were used to create transgenic animals on a C57BL/6 background. The mice were then crossed to B6.PL-Thy1.2/Cy.J (Stock No.00406). The strain is maintained homozygous for the transgenic insert and homozygous for the Thy1.2 allele.

Additional Breeding and Husbandry Support

Mating System
Homozygote x Homozygote

Citation
When using the mouse strain in a publication, please cite the originating articles and include JAX stock #005023 in your Materials and Methods section.

Animal Health Reports
Facility Barrier Level Descriptions
AX11 (Maximum)

Pricing & Availability
0–2 week average lead time for 10 or more mice with age range
Repository Live

Domestic | International
Pricing effective for USA, Canada and Mexico shipping destinations
Live Mouse
<table>
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<tr>
<th>AGE</th>
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<tr>
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