

C57BL/6-*Itgb7*^{tm1Mshi}/J

Stock No: **007707**

 Coisogenic, Targeted Mutation

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interactions (VCAM-1, fibronectin, MadCAM-1, E-cadherin), intraepithelial lymphocytes, and inflammatory bowel diseases.

Donating Investigator

Motomu Shimaoka, Immune Disease Institute (formerly CBRI)

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GENETIC OVERVIEW

Genetic Background

Generation

Itgb7^{tm1Mshi}

Alele Type

Targeted (Constitutively active)

Gene Symbol

Itgb7

Gene Name

integrin beta 7

VIEW GENETICS

RESEARCH APPLICATIONS

Immunology, Inflammation and Autoimmunity Research

Research Tools

Developmental Biology Research

Internal/Organ Research

Hematological Research

Virology Research

Cancer Research

Cell Biology Research

BASE PRICE

Starting at:

\$2,854.50 Domestic price Cryo Recovery

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Details

Detailed Description

Mice homozygous for this β_7 (D146A) targeted mutation are viable and fertile. DNA sequencing confirms an aspartate (D) to alanine (A) substitution at position 146 of the targeted β_7 integrin gene. As such, homozygotes have a mutant ADMIDAS (adjacent to metal ion-dependent adhesion site) cation binding/exchange site in the β_7 integrin head (A-domain). The resulting imbalance between the non-adhesive and adhesive states of leukocyte integrins skews toward a persistently adhesive state. Homozygous mutants exhibit impaired leukocyte migration, perturbed lymphocyte trafficking in the gut, and reduced T- and B-cell numbers in small/large bowel and gut-associated lymphoid tissues (less T-cells in Peyer's patches (PP), fewer intraepithelial lymphocyte (IEL) and lamina propria lymphocyte (LPL) compartments in the small intestine; and less B-cells in PP and the large intestine). In addition, $CD4^+ CD45RB^{high}$ T cells isolated from β_7 (D146A) homozygotes have reduced colitogenic potential compared to $CD4^+ CD45RB^{high}$ T cells taken from wildtype mice following adoptive transfer. As the mouse integrin β_7 chain is found as a cell surface heterodimer in association with either of two alpha chains (α_4 or α_E), these β_7 (D146A) mutant mice may be useful in studying intestinal leukocyte migration and trafficking, integrin/ligand interactions (VCAM-1, fibronectin, MadCAM-1, E-cadherin), intraepithelial lymphocytes, and inflammatory bowel diseases.

Of note, many strains harboring integrin beta mutant alleles are available from The Jackson Laboratory, including *Itgb1*-deficient (beta-1 null; Stock No. [003096](#)), *Itgb1*-flox (Stock No. [004605](#)), *Itgb2*-hypomorph (CD18-hypo; Stock No. [002128](#)), *Itgb2*-deficient (CD18-null or beta2-null; Stock No. [003329](#)), *Itgb3*-deficient (beta3-null; Stock No. [004669](#)), *Itgb5*-deficient (beta5-null; Stock No. [004166](#)), *Itgb7*-deficient (beta7-null; Stock No. [002965](#) and Stock No. [004944](#)), and *Itgb7*^{D146A} mutant (Stock No. [007707](#)) strains.

Development

Control Suggestions

Selected References

Genetics

[+](#) *Itgb7^{tm1Mshi}*

[-](#) Disease/Phenotype

[+](#) Disease Terms

[+](#) Research Areas By Phenotype

[+](#) Mammalian Phenotype Terms by Genotype

[+](#) References

[-](#) Technical Support

C O N T A C T T E C H N I C A L S U P P O R T

Genotyping Protocols

Standard PCR:[Itgb7](#)

[Genotyping resources and troubleshooting](#)

Breeding Considerations

When maintaining a live colony, these mice may be bred as homozygotes.

[Additional Breeding and Husbandry Support](#)

Citation

When using the C57BL/6-*Itgb7^{tm1Mshi}*/J mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #007707 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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SERVICE/PRODUCT	DESCRIPTION	PRICE
Cryo Recovery	Heterozygous for Itgb7<tm1Mshi>	\$2,854.50

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The Jackson Laboratory has rigorous genetic quality control and mutant gene genotyping programs to ensure the genetic background of JAX® Mice strains as well as the genotypes of strains with identified molecular mutations. JAX® Mice strains are only made available to researchers after meeting our standards. However, the phenotype of each strain may not be fully characterized and/or captured in the strain data sheets. **Therefore, we cannot guarantee a strain's phenotype will meet all expectations.** To ensure that JAX® Mice will meet the needs of individual research projects or when requesting a strain that is new to your research, we suggest ordering and performing tests on a small number of mice to determine suitability for your particular project. We do not guarantee [breeding performance](#) and therefore suggest that investigators order more than one breeding pair to avoid delays in their research.

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