



# C . 1 2 9 5 6 x 2 1 / J

Stock No: 004432

Congenic, Targeted Mutation



CRYO RECOVERY

P L A C E O R D E R

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

## Overview

This *Tbx21* (or T-bet) knock-out mutant mouse strain represents a model that may be useful in studies of acute and chronic human asthma, chronic intestinal inflammation, metabolic physiology and obesity-associated insulin resistance.

### Donating Investigator

Dr. Laurie H. Glimcher, Dana Farber Cancer Institute

R E A D M O R E +

## GENETIC OVERVIEW

Genetic Background

Generation

*Tbx21<sup>tm1Glm</sup>*

Allele Type

Gene Symbol

Gene Name

Targeted (Null/Knockout)

*Tbx21*

T-box 21

V I E W   G E N E T I C S

## RESEARCH APPLICATIONS

Immunology, Inflammation and Autoimmunity Research

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

## 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

#### Detailed Description

The *Tbx21* gene encodes a transcription factor that controls expression of interferon-gamma and is involved in Th1 cell lineage development. Mice that are homozygous for this targeted mutation of *Tbx21*, in which a NEO cassette replaces 2 Kb of sequence (exon 1 and flanking sequence), are viable and fertile. No gene product (mRNA or protein) is detected in isolated lymph node T-cells by Northern or Western blot analysis. T cells from the homozygotes do not produce the TH1 type cytokine, interferon-gamma, and secrete elevated levels of TH2 type cytokines in vitro to TCR cross-linking and in vivo to protein antigen immunization. Additionally, mice homozygous for the targeted mutation on the BALB/c genetic background are susceptible to *Leishmania major* infections. Without induced sensitization or challenge, female homozygotes display airway hyper responsiveness (AHR) with resulting airway remodeling similar to characteristics of asthma. Histological analysis of lung from female homozygous mice, aged 4 to 6 weeks, reveals eosinophil and lymphocyte infiltration of peribronchial and perivenular tissue, thickening of the subepithelial collagen layer, and increased numbers of myofibroblast cells in bronchial tissue. Bronchial alveolar lavage fluid contains elevated levels of TGF-beta1, TNF-alpha, IL-4 and IL-13. Mice heterozygous for the targeted mutation display an intermediate phenotype. Homozygous male mice, at 8 weeks to 28 weeks of age, weigh more than wildtype controls. Although food intake on a low fat diet was similar for all genotypes, homozygous mice exhibit a lower food intake on a high fat diet compare to wildtype controls. Homozygotes also display increased intra-abdominal or visceral adipose tissue mass and increased adipocyte size when compared to controls. Homozygotes at 8 weeks and 6 months of age exhibit lower fasting and fed serum insulin levels, better glucose tolerance and enhanced insulin

sensitivity than wildtype controls. Adipose tissue in homozygotes have fewer CD45+, CD4+, CD8+, and NK cells and reduced cytokine secretion.

## + Development

## + Control Suggestions

## + Selected References

## - Genetics

### + *Tbx21<sup>tm1Glm</sup>*

## - Disease/Phenotype

### + Disease Terms

### + Research Areas By Genotype

### + Mammalian Phenotype Terms by Genotype

### + References

## - Technical Support

C H A T   O  F L I N E

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: *Tbx21<sup>tm1Glm</sup>*

[Genotyping resources and troubleshooting](#)

## Breeding Considerations

When maintaining a live colony, these mice are bred as homozygotes. Coat color expected from breeding is Albino.

[Additional Breeding and Husbandry Support](#)

## Citation

When using the C<sub>129</sub>S6-*Tbx21<sup>tm1Glm</sup>*/J mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #004432 in your Materials and Methods section.

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

## - Pricing & Availability



Cryo Recovery

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

## Domestic International

Pricing effective for USA, Canada and Mexico shipping destinations

### Cryorecovery - Domestic Pricing

SERVICE	GENOTYPE	PRICE
Cryo Recovery	Homozygous for Tbx21<tm1Glm>, 1 pair minimum	\$2,854.50

We will fulfill your order by providing at least two carriers for each strain ordered. The total number, sex, and genotypes provided will vary, although typically 8 or more animals are provided. Please check genotypes which will be recovered. While the genotypes of all animals produced will be communicated to you prior to scheduling shipment, the genotypes of animals provided may not reflect the mating scheme and genotypes described in the strain description. Animals are typically ready to ship in 11-14 weeks. If a second recovery is required to produce the minimum number of animals, then delivery time would increase to approximately 25 weeks. If we fail to produce animals of the correct genotype, you will not be charged. We cannot guarantee the reproductive success of mice shipped to your facility. If the mice are lost after the first three days (post-arrival) or do not produce progeny at your facility, a new order and fee will be necessary.

Cryorecovery to establish a [Dedicated Supply](#) for greater quantities of mice. Mice recovered can be used to establish a dedicated colony to contractually supply you mice according to your requirements. Price by quotation.

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Phone: 207-288-6470

Email: [TechTran@jax.org](mailto:TechTran@jax.org)

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*Leading the search for*

# TOMORROW'S CURES

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