

STOCK *Hba*^{tm1Paz} *Hbb*^{tm1Tow} Tg(HBA-HBBs)41Paz/J

Stock No: 003342 | Berkeley model

 Targeted Mutation, Transgenic

Live mice available in varying quantities. Ask Customer Service for details.

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(*Hba*^{0/0} *Hbb*^{0/0} Tg(Hu-miniLCR α 1^G γ ^A δ β ^S) are called sickle cell mice (Berkeley model). These mice display the major genetic, hematologic and histopathologic features observed in humans with sickle cell anemia and may be useful in studying sickle cell disease.

Donating Investigator

Dr. Chris Paszty, Amgen, Inc.

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GENETIC OVERVIEW

Genetic Background

Generation

N1F7G42
(2021-01-09 00:00:00)

Hba^{tm1Paz}

Alele Type

Targeted (Null/Knockout)

Gene Symbol

Hba

Gene Name

hemoglobin alpha chain complex

Hbb^{tm1Tow}

Alele Type

Targeted (Null/Knockout)

Gene Symbol

Hbb

Gene Name

hemoglobin beta chain complex

Tg(HBA-HBBs)41Paz

Alele Type

Transgenic (Inserted expressed sequence, Humanized sequence)

VIEW GENETICS

RESEARCH APPLICATIONS

Hematological Research
Mouse/Human Gene Homologs

[VIEW ALL RESEARCH APPLICATIONS](#)

BASE PRICE

Starting at:

\$333.00 Domestic price for female 4-week

666.00 Domestic price for breeder pair

[VIEW PRICE LIST](#)

Details

Detailed Description

These mice harbor

- 1) the *Hba*^{tm1Paz} null mutation (also called *Hba*⁰; designed with both of the adult hemoglobin genes [$\alpha 1$ and $\alpha 2$] deleted),
- 2) the *Hbb*^{tm1Tow} null mutation (also called *Hbb*⁰; designed with deletion of the entire hemoglobin beta- $\beta 1$ [major] and the 5' portion of the hemoglobin beta- $\beta 2$ [minor]),
- 3) the Tg(HBA-HBBs)41Paz transgene (also called Tg(Hu-miniLCR $\alpha 1^G \gamma^A \gamma \delta \beta^S$)); designed with the human sequences encoding the hemoglobin subunits alpha 1 (*HBA1*), gamma 2 (*HBG2*), gamma (*HBG1*), delta (*HBD*), and the beta sickle allele (*HBB^S*), and the locus control region (LCR).

Mice homozygous for the alpha-globin null allele, homozygous for the beta-globin null allele and carrying the sickle transgene (*Hba*^{0/0} *Hbb*^{0/0} Tg(Hu-miniLCR $\alpha 1^G \gamma^A \gamma \delta \beta^S$) are called sickle cell mice (Berkeley model). They exclusively express human sickle hemoglobin, and do not express mouse *Hba* or *Hbb*. Although chronically anemic, most of these mice survive for 2 to 9 months and are fertile. A significant percentage of sickle cell mice do not survive to adulthood. These mice display the major genetic, hematologic and histopathologic features observed in humans with sickle cell anemia; including irreversibly sickled red blood cells, anemia and multiorgan pathology. Typically, ~20% of sickling mutant mice die between weaning and 14 weeks of age.

This strain does not carry the retinal degeneration allele *Pde6b*^{rd1}.

Development

Expression Data

[+ Control Suggestions](#)

[+ Selected References](#)

[- Genetics](#)

[+ *Hba*^{tm1Paz}](#)

[+ *Hbb*^{tm1Tow}](#)

[+ Tg\(HBA-HBBs\)41Paz](#)

[- 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

End Point Analysis:[Hbb-PROBE](#)

Separated PCR:[Hbbalternate3](#)

Standard PCR:[Hba Alternate2](#)

Standard PCR:[Tg\(HBA-HBBs\)41Paz](#)

QPCR:[Tg\(HBA-HBBs\)41Paz](#)

QPCR:[Tg\(HBA-HBBs\)41Paz](#)

Probe:[Hba Probe](#)

Probe:[Pde6b Probe](#)

[Genotyping resources and troubleshooting](#)

Dietary Information

LabDiet® 5K52 formulation (6% fat)

Breeding Considerations

The breeding strategy utilized by The Jackson Laboratory follows a general scheme of mating non-sickling females with sickling males:

Type 1:

homozygous for Hba^{tm1Paz} , heterozygous for Hbb^{tm1Tow} , hemizygous for Tg(HBA-HBBs)41Paz (-/-, +/-, Tg/0, non-sickling)

Type 2:

homozygous for Hba^{tm1Paz} , homozygous for Hbb^{tm1Tow} , homozygous for Tg(HBA-HBBs)41Paz (-/-, -/-, Tg/Tg, sickling)

Currently, trio matings are being used to maximize colony breeding. Sickling females are not suitable for breeding. Approximately 50% of progeny are homozygous for both Hba and Hbb targeted alleles and are hemizygous or homozygous for the transgene (sickling mutant mice). Of these sickling mutant mice, ~81% will be hemizygous for the transgene and the other ~19% will be homozygous. Only ~40% of the sickling mutants will be male. Typically, ~20% of sickling mutant mice die between weaning and 14 weeks of age.

Breeding units supplied to the customer will consist of one non-sickling female (Type 1 [-/-, +/-, Tg/0]) and one sickling male (homozygous for Hba^{tm1Paz} , homozygous for Hbb^{tm1Tow} , hemizygous for Tg(HBA-HBBs)41Paz [-/-, -/-, Tg/0]). The Jackson Laboratory does not offer triple homozygous males or females because they do not survive shipping. Mating mice that are both homozygous for the transgene results in undersized litters and a small percentage of sickling pups.

Additional Breeding and Husbandry Support

Mating System

HOM HET HEMI X HOM HOM HOM (NO RECIP)

Appearance

Expected coat color from matings is black and agouti.

Citation

When using the Berkeley model mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #003342 in your Materials and Methods section.

Animal Health Reports

[Facility Barrier Level Descriptions](#)

 [AX11 \(Maximum\)](#)

🔵 Pricing & Availability



Live mice available in varying quantities. Ask Customer Service for details.

Available

Domestic International

Pricing effective for USA, Canada and Mexico shipping destinations

LIVE MOUSE

AGE

SEX

GENOTYPE

PRICE

$tm1Paz$

$tm1Tow$

		SEX	HBBs)41Paz Homozygous for Hba ^{tm1Paz} , Homozygous for Hbb ^{tm1Tow} , Hemizygous for Tg(HBA- HBBs)41Paz	PRICE
12 weeks	Female		Homozygous for Hba ^{tm1Paz} , Heterozygous for Hbb ^{tm1Tow} , Hemizygous for Tg(HBA- HBBs)41Paz	\$333.00
	Male		Homozygous for Hba ^{tm1Paz} , Heterozygous for Hbb ^{tm1Tow} , Hemizygous for Tg(HBA- HBBs)41Paz	\$333.00
12 weeks	Female		Homozygous for Hba ^{tm1Paz} , Heterozygous for Hbb ^{tm1Tow} , Homozygous for Tg(HBA-HBBs)41Paz	\$333.00
	Male		Homozygous for Hba ^{tm1Paz} , Heterozygous for Hbb ^{tm1Tow} , Homozygous for Tg(HBA-HBBs)41Paz	\$333.00
12 weeks	Female		Homozygous for Hba ^{tm1Paz} , Homozygous for Hbb ^{tm1Tow} , Hemizygous for Tg(HBA- HBBs)41Paz	\$333.00
	Male		Homozygous for Hba ^{tm1Paz} , Homozygous for Hbb ^{tm1Tow} , Hemizygous for Tg(HBA- HBBs)41Paz	\$333.00

BREEDER PAIR			
SEX	GENOTYPE		PRICE
Female	Homozygous for Hba ^{tm1Paz} , Heterozygous for Hbb ^{tm1Tow} , Hemizygous for Tg(HBA-HBBs)41Paz		\$666.00
Male	Homozygous for Hba ^{tm1Paz} , Homozygous for Hbb ^{tm1Tow} , Hemizygous for Tg(HBA-HBBs)41Paz		

PAYMENT TERMS AND CONDITIONS

Terms are granted by individual review and stated on the customer invoice(s) and account statement. These transactions are payable in U.S. currency within the granted terms. Payment for services, products, shipping containers, and shipping costs that are rendered are expected within the payment terms indicated on the invoice or stated by contract. Invoices and account balances in arrears of stated terms may result in The Jackson Laboratory pursuing collection activities including but not limited to outside agencies and court filings.

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Terms Of Use

TERMS OF USE

[General Terms and Conditions](#)

ADDITIONAL USE RESTRICTIONS APPLY

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LICENSING INFORMATION

Phone: 207-288-6470

Email: TechTran@jax.org

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All

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