

## B6.Cg-Tg(ACTA1-Scd1)282Ptn/J

Stock No: 022794

 Congenic, Transgenic

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running farther and longer than wildtype mice. Fatty acid composition of the muscle reveals a striking increase in polyunsaturated fatty acid (PUFA) content of triglycerides.

### Donating Investigator

Dr. James Ntambi, University of Wisconsin-Madison

Chad Paton, Texas Tech University

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## GENETIC OVERVIEW

Genetic Background

Generation

### Tg(ACTA1-Scd1)282Ptn

#### Alele Type

Transgenic (Inserted expressed sequence)

VIEW GENETICS

## RESEARCH APPLICATIONS

Diabetes and Obesity Research

Metabolism Research

VIEW ALL RESEARCH APPLICATIONS

## 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

*Scd1* (stearoyl-Coenzyme A desaturase 1) is a key lipogenic enzyme regulating skeletal muscle lipid metabolism. It is expressed in nearly all tissues of humans and mice where it converts primarily stearate into oleate and, to a lesser extent, palmitate into palmitoleate. Mice lacking SCD1 expression have been shown to be resistant to the detrimental effects of high fat diets.

These transgenic animals overexpress mouse *Scd1* (stearoyl-Coenzyme A desaturase 1) under the control of the human skeletal muscle-specific alpha actin promoter (*ACTA1*). After 8 weeks of free-wheel running, hemizygous body weights are significantly lower in exercised mice versus sedentary mice. A slight but non-significant increase in heart weight becomes significant after 4 weeks of exercise training. They display approximately 10-fold higher muscle SCD1 mRNA in soleus and gastrocnemius muscle, while brain, small intestine, liver, and lung levels remain unchanged. Diaphragm muscle mRNA expression is increased over 3,000-fold. SCD1 overexpression is associated with increased triglyceride content. Fatty acid composition of the muscle reveals a striking increase in polyunsaturated fatty acid (PUFA) content of triglycerides including linoleate. Animals display significantly increased treadmill exercise capacity, running farther and longer than wildtype mice. Hemizygous mice also exhibit decreased fasting plasma glucose, GLUT1 mRNA, fatty acid oxidation, mitochondrial content, and increased PPARG (peroxisome proliferator activated receptor gamma) and PGC1 (PPARGC1A, peroxisome proliferative activated receptor, gamma, coactivator 1 alpha) protein expression. This strain is useful in studies of glucose and lipid metabolism in type 2 diabetes, metabolic disease and obesity.

#### Development

#### Expression Data

#### Control Suggestions

#### Selected References

### Genetics

#### Tg(ACTA1-Scd1)282Ptn

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## – Disease/Phenotype

+ [Disease Terms](#)

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+ [Research Areas By Phenotype](#)

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+ [Mammalian Phenotype Terms by Genotype](#)

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+ [References](#)

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## – 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: [Tg\(ACTA1-Scd1\)282Ptn](#)

[Genotyping resources and troubleshooting](#)

### Breeding Considerations

Hemizygotes are viable and fertile.

[Additional Breeding and Husbandry Support](#)

### Mating System

Noncarrier x Hemizygote

### Citation

When using the B6.Cg-Tg(ACTA1-Scd1)282Ptn/J mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #022794 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](#)*

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## – Pricing & Availability



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/PRODUCT	DESCRIPTION	PRICE
Cryo Recovery	Hemizygous or Non carrier for Tg(ACTA1-Scd1)282Ptn	\$2,854.50

### RELATED PRODUCTS AND SERVICES

Frozen Mouse Embryo	B6.Cg-Tg(ACTA1-Scd1)282Ptn/J Frozen Embryo	\$2595.00
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## 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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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.

## Terms Of Use

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## LICENSING INFORMATION

Phone: 207-288-6470  
Email: [TechTran@jax.org](mailto:TechTran@jax.org)

Related Strains

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- By Allele
- By Gene
- By Collection



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