

129S-Ucp1^{tm1Kz} /J

Stock No: **017476** | Ucp1

◆ Coisogenic, Targeted Mutation

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

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adaptive thermogenesis.

Donating Investigator

Leslie P. Kozak, Polish Academy of Sciences

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GENETIC OVERVIEW

Genetic Background

002448 129S1/SvImJ

Generation

Ucp1^{tm1Kz}

Alele Type

Targeted (Null/Knockout)

Gene Symbol

Ucp1

Gene Name

uncoupling protein 1 (mitochondrial, proton carrier)

VIEW GENETICS

RESEARCH APPLICATIONS

Research Tools

Endocrine Deficiency Research

Internal/Organ Research

Cardiovascular Research

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

Mice that are homozygous for this knockout allele are viable and fertile, but exhibit sensitivity to cold temperatures. The Donating Investigator notes that homozygous offspring have increased survival rates to weaning age when maintained at 25°C to 28°C. No gene product (mRNA or protein) is detected by Northern or Western blot analysis of brown adipose tissue from homozygotes. When maintained at 20°C, homozygotes are resistant to diet induced obesity with reduced white fat depot weights, exhibit a 0.1-0.3°C higher body temperature, and a slightly lowered respiratory quotient compared to controls. Notably, when maintained at 27°C, homozygous mutant mice are no longer resistant to diet induced obesity and gain weight at a rate similar to wildtype controls. An increase in the number of brown adipocytes in the inguinal fat depots is observed in mutant mice maintained at 20°C, on either diet. Homozygotes have reduced levels of plasma fatty acids, circulating triglyceride levels, and T4 levels. Spleen cell numbers are reduced by approximately 3-fold, CD8 single positive cells are reduced to approximately half and CD4/CD8 double positive cells in both the spleen and thymus are increased in homozygous animals. Homozygotes have no heat production from brown adipose tissue. Mitochondria isolated from the muscles of cold-acclimated homozygotes display an increased total ATP production capacity, a metabolic shift for increased lipid oxidation and reduced carbohydrate catabolism capacity with a corresponding increased serum level of beta-hydroxybutyrate, and decreased sensitivity to fatty acids as uncoupling agents. Mitochondria isolated from brown adipose tissue from homozygotes exhibit increased rate of reactive oxygen species (ROS) production when compared to wildtype controls. The Donating Investigator reports that mice carrying this allele are less cold sensitive on the C57BL/6 genetic background compared to the 129 genetic background.

Development

Control Suggestions

Selected References

Genetics

Ucp1^{tm1Kz}

– 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:[Ucp1 Alternate4](#)

Separated PCR:[Ucp1alternate2](#)

Separated PCR:[Ucp1alternate2 MCA](#)

[Genotyping resources and troubleshooting](#)

Breeding Considerations

When maintaining a live colony, these mice can be bred as heterozygotes. Although homozygotes are viable and fertile, they exhibit increased sensitivity to cold temperatures. The Donating Investigator notes that there is better survival of homozygous to weaning age when mice are maintained at 25°C to 28°C.

[Additional Breeding and Husbandry Support](#)

Citation

When using the Ucp1⁻ mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #017476 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



Cryo

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	Please inquire	\$2,854.50

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