

**B6.129-*Ucp1*<sup>tm1Kz</sup> /J**

Stock No: **003124** | *Ucp1*

 Congenic, Targeted Mutation

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

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adaptive thermogenesis.

### Donating Investigator

Leslie P. Kozak, Polish Academy of Sciences

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## GENETIC OVERVIEW

### Genetic Background

000664 C57BL/6J

### Generation

?+N3F14  
(2019-06-12 00:00:00)

### *Ucp1*<sup>tm1Kz</sup>

#### Alele Type

Targeted (Null/Knockout)

#### Gene Symbol

*Ucp1*

#### Gene Name

uncoupling protein 1 (mitochondrial, proton carrier)

VIEW GENETICS

## RESEARCH APPLICATIONS

Internal/Organ Research  
Cardiovascular Research  
Diabetes and Obesity Research  
Metabolism Research  
Research Tools  
Endocrine Deficiency Research

VIEW ALL RESEARCH APPLICATIONS

## BASE PRICE

Starting at:

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\$278.00 Domestic price for female 4-week

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356.51 Domestic price for breeder pair

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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.

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#### Development

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#### Control Suggestions

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#### Selected References

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### Genetics

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#### *Ucp1<sup>tm1Kz</sup>*

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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:[Ucp1 Alternate4](#)

QPCR:[Generic Neo Quantitative PCR-QPCR- 1.2](#)

[Genotyping resources and troubleshooting](#)

### Breeding Considerations

When maintaining a live colony, heterozygous mice may be bred with wildtype mice from the colony or with C57BL/6J inbred mice. 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](#)

### Mating System

See "Breeding Considerations"

### Citation

When using the Ucp1<sup>-</sup> mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #003124 in your Materials and Methods section.

### Animal Health Reports

[Facility Barrier Level Descriptions](#)

 [AX12 \(Maximum\)](#)

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## ⊖ Pricing & Availability



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

Available

# Domestic Internatio

Pricing effective for USA, Canada and Mexico shipping destinations

Live Mouse			
AGE	SEX	GENOTYPE	PRICE
4 weeks	Female	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
	Male	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
4 weeks	Female	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
	Male	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
5 weeks	Female	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
	Male	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
5 weeks	Female	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
	Male	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
6 weeks	Female	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
	Male	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
6 weeks	Female	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
	Male	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
7 weeks	Female	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
	Male	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
7 weeks	Female	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
	Male	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
8 weeks	Female	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
	Male	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
8 weeks	Female	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
	Male	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
9 weeks	Female	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
	Male	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
9 weeks	Female	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
	Male	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
10 weeks	Female	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
	Male	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
10 weeks	Female	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
	Male	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
11 weeks	Female	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
	Male	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
11 weeks	Female	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51

	SEX	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
12 weeks	Female	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
	Male	Heterozygous for Ucp1 <sup>tm1Kz</sup>	\$278.00
12 weeks	Female	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51
	Male	Wild-type for Ucp1 <sup>tm1Kz</sup>	\$78.51

Breeder Pair			
SEX	GENOTYPE		PRICE
Female	Heterozygous for Ucp1 <sup>tm1Kz</sup>		\$356.51
Male	Wild-type for Ucp1 <sup>tm1Kz</sup>		
Female	Wild-type for Ucp1 <sup>tm1Kz</sup>		\$356.51
Male	Heterozygous for Ucp1 <sup>tm1Kz</sup>		

Related Products and Services		
<a href="#">Frozen Mouse Embryo</a>	B6.129-Ucp1<tm1Kz>/J Frozen Embryo	\$2595.00

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

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