

**B6.129X1-Id4<sup>tm1Mais</sup>/Mmjax**  
MMRRC Stock No: **41569-JAX** | Id4

 Congenic, Targeted Mutation

ORDER AT MMRRC JAX

[Email](#) [Download PDF](#) [Help](#)

reduced body fat, resistance to high fat diet and impaired adipocyte differentiation. This strain may be useful for studying ID4 as a regulator of neurogenesis and adipogenesis.

### Donating Investigator

Giles Duffield, University of Notre Dame

READ MORE +

## GENETIC OVERVIEW

Genetic Background

Generation

*Id4<sup>tm1Mais</sup>*

**Alele Type**

Targeted (Reporter, Null/Knockout)

**Gene Symbol**

*Id4*

**Gene Name**

inhibitor of DNA binding 4

VIEW GENETICS

## RESEARCH APPLICATIONS

Developmental Biology Research  
Neurobiology Research  
Research Tools  
Endocrine Deficiency Research  
Internal/Organ Research

VIEW ALL RESEARCH APPLICATIONS

---

## Details

### Detailed Description

ID4 (inhibitor of DNA binding 4) is a transcriptional regulator containing a helix-loop-helix domain and lacking a DNA binding domain. Unique among the ID proteins, ID4 is involved in the regulation of neural stem cell differentiation and proliferation. The *Id4* knockout/knockin allele has a GFP reporter and a PGK-neo cassette replacing exons 1-2 of the gene. Uniform GFP expression is observed in all cortical areas by E12.5. Mice homozygous for this null allele exhibit reduced brain size from E11.5, specifically a 30% reduction occurs in the ventricular surface of the telencephalon affecting dorsomedial progenitor zones. Impairment of G1-S cell cycle transition and premature differentiation in early neural stem cells results in reduced brain size in these mice. Like ID2, loss of ID4 affects adipogenesis. Homozygous mice have 50% less body fat weight and adipocyte size is reduced by half. Following 6 weeks on high fat diet, mice gain significantly less weight than wild-type littermates. This strain may be useful for studying ID4 as a regulator of neurogenesis and adipogenesis.

---

### Development

---

### Expression Data

---

### Control Suggestions

---

### Selected References

---

## Genetics

---

### *Id4<sup>tm1Mais</sup>*

---

## 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

Separated PCR:[Id4](#)

Standard PCR:[Generic Neo](#)

Probe:[Generic Neo](#)

[Genotyping resources and troubleshooting](#)

### Breeding Considerations

While maintaining a live colony, these mice are bred as heterozygotes. The Donating Investigator has not attempted to breed homozygotes. Heterozygote x heterozygote crosses produce fewer homozygotes than expected (14% vs. 25%).

#### [Additional Breeding and Husbandry Support](#)

##### Mating System

Wild-type x Heterozygote

Heterozygote x Wild-type

##### Citation

When using the Id4<sup>-</sup> mouse strain in a publication, please [cite the originating article\(s\)](#) and include MMRRC stock #41569 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](#)*

## THE JACKSON LABORATORY'S GENOTYPE PROMISE

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

### TERMS OF USE

[General Terms and Conditions](#)

[See MMRRC for Additional Conditions of Distribution](#)

Q U E S T I O N S   A B O U T   T E R M S   O F   U S E

## LICENSING INFORMATION

Phone: 207-288-6470

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

### JAX® Mice, Products & Services Conditions of Use

"MICE" means mouse strains, their progeny derived by inbreeding or crossbreeding, unmodified derivatives from mouse strains or their progeny supplied by The Jackson Laboratory ("JACKSON"). "PRODUCT(S)" means biological materials supplied by JACKSON, and their derivatives. "SERVICES" means projects conducted by JACKSON for other parties that may include but are not limited to the use of MICE or PRODUCTS. "RECIPIENT" means each recipient of MICE, PRODUCTS, or SERVICES provided by JACKSON including each institution, its employees and other researchers under its control. MICE or PRODUCTS shall not be: (i) used for any purpose other than internal research, (ii) sold or otherwise provided to any third party for any use, or (iii) provided to any agent or other third party to provide breeding or other services. Acceptance of MICE, PRODUCTS or SERVICES from JACKSON shall be deemed as agreement by RECIPIENT to these conditions, and departure from these conditions requires JACKSON's prior written authorization.

#### No Warranty

MICE, PRODUCTS AND SERVICES ARE PROVIDED "AS IS". JACKSON EXTENDS NO WARRANTIES OF ANY KIND, EITHER EXPRESS, IMPLIED, OR STATUTORY, WITH RESPECT TO MICE, PRODUCTS OR SERVICES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY WARRANTY OF NON-INFRINGEMENT OF ANY PATENT, TRADEMARK, OR OTHER INTELLECTUAL PROPERTY RIGHTS.

#### Credit for PRODUCTS or SERVICES

In case of dissatisfaction for a valid reason and claimed in writing by a purchaser within ninety (90) days of receipt of, PRODUCTS or SERVICES, JACKSON will, at its option, provide credit or replacement for the PRODUCT received or the SERVICES provided; JACKSON makes no other representations and this shall be the exclusive remedy of the purchaser. [Please note specific policy for live mice.](#)

#### Animal Care and Use for SERVICES

Consistent with the requirement for a written understanding regarding animal care and use, the JACKSON Animal Care and Use Committee will review the animal care and use protocol(s) associated with any SERVICES to be performed at JACKSON, and JACKSON shall have ultimate responsibility and authority for the care of animals while on site or in JACKSON custody.

#### No Liability

In no event shall JACKSON, its trustees, directors, officers, employees, and affiliates be liable for any causes of action or damages, including any direct, indirect, special, or consequential damages, arising out of the provision of MICE, PRODUCTS, or SERVICES, including economic damage or injury to property and lost profits, and including any damage arising from acts or negligence on the part of JACKSON, its agents or employees. Unless prohibited by law, in purchasing or receiving MICE, PRODUCTS, or SERVICES from JACKSON, purchaser or recipient, or any party claiming by or through them, expressly releases and discharges JACKSON from all such causes of action or damages, and further agrees to defend and indemnify JACKSON from any costs or damages arising out of any third party claims.

MICE, PRODUCTS or SERVICES are to be used in a safe manner and in accordance with all applicable governmental rules and regulations.

The foregoing represents the General Terms and Conditions applicable to JACKSON's MICE, PRODUCTS or SERVICES. In addition, special terms and conditions of sale of certain MICE, PRODUCTS, or SERVICES may be set forth separately in JACKSON web pages, catalogs, price lists, contracts, and/or other documents, and these special terms and conditions shall also govern the sale of these MICE, PRODUCTS and SERVICES by JACKSON, and by its licensees and distributors.

Acceptance of delivery of MICE, PRODUCTS or SERVICES shall be deemed agreement to these terms and conditions. No purchase order or other document transmitted by purchaser or recipient that may modify the terms and conditions hereof, shall be in any way binding on JACKSON, and instead the terms and conditions set forth herein, including any special terms and conditions set forth separately, shall govern the sale of MICE, PRODUCTS or SERVICES by JACKSON.

All

By Allele

By Gene

By Collection

All Related Strains



## DO YOU NEED BALB/c MICE?

Rely on JAX to provide the models you need, when you need them.

LEARN MORE



CONTACT



DONATE



SUBSCRIBE

JAX HOME CAREERS PRIVACY POLICY TERMS OF USE

RESEARCH CENTERS MOUSE GENOME INFORMATICS


MOUSE PHENOME DATABASE

*Leading the search for*

# TOMORROW'S CURES



©2020 THE JACKSON LABORATORY

Choose other country or region 

^ E E E D B

Did you find what you were looking for?

Yes  No