Stock No: 004585 | Cav-1 KO

Targeted Mutation

Available

Overview

Also Known As: Cav-1 KO

These Caveolin 1 knock-out mice show hyperproliferative and vascular abnormalities. Homozygotes display lipid metabolism and uptake disruption with elevated serum triglycerides and free fatty acid levels, and reduced leptin levels. Young mutant mice exhibit characteristics of Alzheimer’s disease. This mutant mouse strain may be useful in studies of vesicular and cholesterol trafficking, signal transduction, neurodegeneration and tumorigenesis.

Note that this allele is also available on a C57BL/6J congenic background (Stock No. 007083).

Donating Investigator

Michael P. Lisanti, The Albert Einstein College of Medicine

READ MORE +
**Cav1tm1Mls**

<table>
<thead>
<tr>
<th>Allele Type</th>
<th>Gene Symbol</th>
<th>Gene Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Targeted (Null/Knockout)</td>
<td>Cav1</td>
<td>caveolin 1, caveola protein</td>
</tr>
</tbody>
</table>

**RESEARCH APPLICATIONS**
- Developmental Biology Research
- Internal/Organ Research
- Metabolism Research
- Diabetes and Obesity Research
- Mouse/Human Gene Homologs
- Neurobiology Research
- Cardiovascular Research

**BASE PRICE**
Starting at:
$279.00 Domestic price for female

**Details**

**Detailed Description**
Mice that are homozygous for the targeted mutation are viable, fertile and do not display any gross physical abnormalities. Mutant mice exhibit exercise intolerance when challenged and are slightly hyperphagic. No gene product (protein) is detected by Western blot analysis in adipose, lung and heart tissues or in cultured mouse embryonic fibroblasts (MEFs). A decrease in the level of co-expressed caveolin-2 protein is immunodetected. At age 4-5 months, mutant mice are often smaller than their wildtype littermates. By one year of age, mutant mice weigh 5 to 7 grams less than wildtype, and are resistant to diet-induced obesity. Progressive adipose pathology results in reduced white adipose tissue with abnormally small adipocytes and enlarged, hyperplastic brown adipose tissue. Homozygotes display lipid metabolism and uptake disruption with elevated serum triglycerides and free fatty acid levels, and reduced leptin levels. Isolated aortic tissue segments have a diminished vasoconstriction response to the alpha-1-adrenergic receptor agonist, phenylephrine, and an enhanced vasorelaxation response to acetylcholine. Histological examination of lung tissue from mutant mice shows thickened alveolar septa, hypercellularity, reduced alveolar spaces and increased density of basement membranes and reticulin fibers. Further immunohistochemical examination of lung tissue shows an increased number of endothelial cells. Mutant derived MEF cells proliferate two times faster and are denser at confluence as indicated by growth curves and cell cycle analysis. Electron microscopy analysis reveals a complete absence of caveolae (plasmalemmal vesicles) in endothelial cells. In vitro studies measuring uptake of fluorescently-labeled albumin and in vivo studies following uptake of gold-conjugated albumin demonstrate caveolar endocytosis impairment.
Young (3-6 month old) mutant mice exhibit multiple characteristics of Alzheimer’s disease pathologies including increased amyloid beta and tau deposits, neurodegeneration, astrogliosis and decreased cerebrovascular volume. The neuronal aging found in the hippocampi of young mutant mice resembles that found in aged (> 18 months of age) wild-type mice. The donating investigator noted diminished reproductive performance as the backcross to C57BL/6J background progressed.

Genotyping Protocols
Separated MCA: Nnt<sup>C57BL/6J</sup>
High Resolution Melting: Cav1<sup>tm1Mls</sup>alternate1
Genotyping resources and troubleshooting

Dietary Information
LabDiet<sup>®</sup> 5K52 formulation (6% fat)

Breeding Considerations
When maintaining a live colony, these mice can be bred as homozygotes. The donating investigator noted diminished reproductive performance as the backcross to C57BL/6J background progressed and backcrossed to a 129S6/SvEv background for 1 generation. The mice are now maintained as homozygotes and are primarily a mix of 129 and C57BL/6, but a minor contribution from the SJJL background (contributed from the originating ES cell line) should not be discounted. Coat color expected from breeding: Black and Agouti.

Additional Breeding and Husbandry Support

Mating System
Homozygote x Homozygote
Pricing & Availability

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

<table>
<thead>
<tr>
<th>AGE</th>
<th>SEX</th>
<th>GENOTYPE</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx 4-8 weeks</td>
<td>Female</td>
<td>Homozygous for Cav1&lt;sup&gt;tm1Mis&lt;/sup&gt;</td>
<td>$278.00</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Homozygous for Cav1&lt;sup&gt;tm1Mis&lt;/sup&gt;</td>
<td>$278.00</td>
</tr>
</tbody>
</table>

Related Products and Services

Frozen Mouse Embryo $2,595.00 per straw or vial

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.

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<sup>®</sup> Mice strains as well as the genotypes of strains with identified molecular mutations. JAX<sup>®</sup> 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<sup>®</sup> 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.

Terms Of Use

Terms of Use
General Terms and Conditions

Additional Use Restrictions Apply
Use of MICE by companies or for-profit entities requires a license prior to shipping.
Licensing Information
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.

Related Strains

- All
- By Allele
- By Gene