Overview

Also Known As: Cul3\textsuperscript{flox}

Cul3\textsuperscript{flox} (\textit{loxP::frt-neo-frt::exons4-7::loxP}) is a cullin 3 hypomorphic allele that is converted to a null allele after Cre recombinase exposure. These mice may be useful in studying the function of cullin-RING-based BTB-CUL3-RBX1 E3 ubiquitin-protein ligase complexes in multiple areas, including autism and cancer.

Donating Investigator

Jeffrey D Singer, Portland State University
**GENETIC OVERVIEW**

**Genetic Background**

<table>
<thead>
<tr>
<th>Allele Type</th>
<th>Gene Symbol</th>
<th>Gene Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Targeted (Conditional ready (e.g. floxed), No functional change)</td>
<td>Cul3</td>
<td>cullin 3</td>
</tr>
</tbody>
</table>

**Cul3^tm1Jdsr**

**RESEARCH APPLICATIONS**

Research Tools
Neurobiology Research
Cancer Research

**BASE PRICE**

Starting at:

$2,854.50 Domestic price Cryo Recovery

**Details**

*Cul3* encodes the ubiquitin scaffold protein cullin 3; the core component of multiple cullin-RING-based BCR (BTB-CUL3-RBX1) E3 ubiquitin-protein ligase complexes that function to mediate the ubiquitination and subsequent proteasomal degradation of target proteins.

The Cul3^lox^ allele has *loxP* sites flanking exons 4-7 of the *Cul3* gene. The floxed region also contains a *frt*-flanked PGK-neo cassette upstream of exon 4. Cul3^lox^ is a hypomorphic allele that is converted to a null allele (Cul3^−/−^ or C^−^) after Cre recombinase exposure. Compared to wildtype (Cul3^+/+^) MEFs, the Cul3 expression levels are diminished to ~85% in Cul3^lox/+^ MEFs, ~70% in Cul3^lox/lox^ MEFs. Removal of the *frt*-flanked PGK-neo via Flp recombinase generates the Cul3^loxΔneo^ allele, which is also a hypomorph (Cul3 expression reduced to ~90% in Cul3^loxΔneo/loxΔneo^ MEFs).

When bred to mice that express Cre recombinase, the resulting offspring may be useful in generating tissue-specific CUL3 knockout.
For example, when Cul3\textsuperscript{flox} are bred to also harbor an Albumin-Cre transgene (see Stock No. 016832) and a p53\textsuperscript{flox} allele (see Stock No. 008462), the resulting triple mutant mice with liver-specific simultaneous ablation of CUL3 and p53 are useful to study hepatic progenitor cell transformation into malignant tumor-initiating cells and the subsequent primary hepatocellular carcinoma.

Breeding Cul3\textsuperscript{flox} mice to also have the Pax8-rtTA transgene (Stock No. 007176) and Tet-promoter-driven Cre recombinase transgene (see Stock No. 006234), the resulting triple mutant mice allow doxycycline-inducible renal tubule–specific CUL3 knockout. When temporally induced in adult animals, this triple mutant can be used to study familial hyperkalemic hypertension (FHHt) without the systemic/developmental effects of early CUL3-deficiency.

Mice homozygous for the floxed allele (Cul3\textsuperscript{flox/flox}) are viable and fertile with no reported abnormalities (born at the expected rate and appear normal at birth and throughout development).

Genotyping Protocols
Separated PCR:Cul3\textsuperscript{tm1Jdsr}
Genotyping resources and troubleshooting
Breeding Considerations
When maintaining a live colony, heterozygous mice may be bred together, to wildtype mice from the colony or to C57BL/6NJ inbred mice (Stock No. 005304). Alternatively, homozygous mice may be bred together.

Additional Breeding and Husbandry Support

Mating System
Homozygote x Homozygote

Citation
When using the Cul3<sup>tm1Jdsr</sup> mouse strain in a publication, please cite the originating article(s) and include JAX stock #028349 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

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

We will fulfill your order by providing at least two carriers for each strain ordered. The total number, sex, and genotypes provided will vary, although typically 8 or more animals are provided. Please check genotypes which will be recovered. While the genotypes of all animals produced will be communicated to you prior to scheduling shipment, the genotypes of animals provided may not reflect the mating scheme and genotypes described in the strain description. Animals are typically ready to ship in 11-14 weeks. If a second recovery is required to produce the minimum number of animals, then delivery time would increase to approximately 25 weeks. If we fail to produce animals of the correct genotype, you will not be charged. We cannot guarantee the reproductive success of mice shipped to your facility. If the mice are lost after the first three days (post-arrival) or do not produce progeny at your facility, a new order and fee will be necessary.

We will establish a Dedicated Supply for greater quantities of mice. Mice recovered can be used to establish a dedicated colony to contractually supply you mice according to your requirements. Price by quotation.

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...
Additional Use Restrictions Apply

Use of MICE by companies or for-profit entities requires a license prior to shipping.

Licensing Information
Phone: 207-288-6470
Email: 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.