**Overview**

Cul3^tm1Jdsr/J is a Cul3 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**

**Generation**

**Cul3**^tm1Jdsr^ flox

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

**RESEARCH APPLICATIONS**

**Research Tools**

**Neurobiology Research**

**Cancer Research**

Typically mice are recovered in 10-14 weeks. Contact Customer Service to place an order or for more information.
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\(^{\text{loxP}}\) 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\(^{\text{loxP}}\) is a hypomorphic allele that is converted to a null allele (Cul3\(^{-}\) or C\(_{R}\)) after Cre recombinase exposure. Compared to wildtype (Cul3\(^{+/-}\)) MEFs, the Cul3 expression levels are diminished to ~85% in Cul3\(^{\text{loxP/loxP}}\) MEFs, ~70% in Cul3\(^{\text{loxP/lox}}\) MEFs. Removal of the frt-flanked PGK-neo via Flp recombinase generates the Cul3\(^{\text{loxP/lox}}\) allele, which is also a hypomorph (Cul3 expression reduced to ~90% in Cul3\(^{\text{loxP/lox}}\) 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\(^{\text{loxP}}\) are bred to also harbor an Albumin-Cre transgene (see Stock No. 016832) and a p53\(^{\text{loxP}}\) 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\(^{\text{loxP}}\) 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\(^{\text{loxP/loxP}}\) 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-Alternate 1
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\textsuperscript{\textit{flox}} 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

Cryo Recovery

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

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<tr>
<th>Domestic</th>
<th>Internationl</th>
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<tr>
<td>Pricing effective for USA, Canada and Mexico shipping destinations</td>
<td></td>
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**CRYORECOVERY - DOMESTIC PRICING**

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<tr>
<th>SERVICE/PRODUCT</th>
<th>DESCRIPTION</th>
<th>PRICE</th>
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<td>Cryo Recovery &gt;</td>
<td>Heterozygous for Cul3&lt;tm1Jdsr&gt;</td>
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</tbody>
</table>

**RELATED PRODUCTS AND SERVICES**

| Frozen Mouse Embryo | STOCK Cul3<tm1Jdsr>/J | $2595.00 |

**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.

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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
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Email: TechTran@jax.org

Related Strains

All
By Allele
By Gene
By Collection
Leading the search for
TOMORROW'S CURES

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