B6.129S4-Ccr2<sup>tm1Ifc</sup>/J

Stock No: 004999 | CCR2-

Congenic, Targeted Mutation

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

Also Known As: CCR2-

Ccr2 deficient mice exhibit defective monocyte recruitment during immune responses.

Note, a similar KO/KI strain is also available that expresses EGFP from the Ccr locus (Stock No. 027619).

Donating Investigator

Israel F. Charo, Gladstone Inst of Cardiovascular Disease, UCSF

### GENETIC OVERVIEW

<table>
<thead>
<tr>
<th>Genetic Background</th>
<th>Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N9+N3F12</td>
</tr>
<tr>
<td></td>
<td>(2020-01-20 00:00:00)</td>
</tr>
</tbody>
</table>

**Ccr2<sup>tm1Ifc</sup>**

<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>Ccr2</td>
<td>chemokine (C-C motif) receptor 2</td>
</tr>
</tbody>
</table>
Mice that are homozygous for the targeted mutation are viable, fertile, normal in size and do not display any gross physical or behavioral abnormalities. No CCR2 mRNA is detected by RT-PCR analysis of spleen or thioglycollate elicited peritoneal exudate cells.

The absence of the CCR2 chemokine receptor in these mice affects monocyte/macrophage infiltration leading to inflammatory responses, which, in turn, impact various systematic processes including immune response to various pathogens, reduced retinal vascularation, aggravation of mnesic deficits, pathogenesis of angiotensin II-induced cardiac fibrosis, exacerbation of collagen-induced arthritis, and reduced hepatic steatosis in obese mice.

Specific effects include defective delayed-type hypersensitivity and production of Th1-type cytokine immune responses. *Mycobacteria bovis* purified protein derivative induced lung granulomas are initially smaller in size and contain fewer macrophages than wild-type controls. Ccr2-KO mice are extremely susceptible to pulmonary infection with *Burkholderia mallei* compared with wild-type mice. Increased mortality due to West Nile virus infection is seen. Mutant mice also exhibit decreased interferon-alpha production after lung granuloma induction. When challenged with thioglycollate treatment homozygotes respond with reduced peritoneal macrophage recruitment. Macrophages derived from these animals fail to migrate in response monocyte chemoattractant protein-1. Homozygotes are resistant to experimental autoimmune encephalomyelitis, a macrophage-mediated inflammatory disease.
Genotyping Protocols
Standard PCR: Ccr2-Alternate 4
Genotyping resources and troubleshooting
Dietary Information
LabDiet® 5K52 formulation (6% fat)
Breeding Considerations

When maintaining a live colony, homozygous mice may be bred together.

Additional Breeding and Husbandry Support
Mating System
Homozygote x Homozygote

Citation
When using the CCR2- mouse strain in a publication, please cite the originating article(s) and include JAX stock #004999 in your Materials and Methods section.
Pricing & Availability

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

Available Now

Domestic

Pricing effective for USA, Canada and Mexico shipping destinations

<table>
<thead>
<tr>
<th>AGE</th>
<th>SEX</th>
<th>GENOTYPE</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 weeks</td>
<td>Female</td>
<td>Homozygous for Ccr2&lt;sup&gt;tmIfc&lt;/sup&gt;</td>
<td>$236.78</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Homozygous for Ccr2&lt;sup&gt;tmIfc&lt;/sup&gt;</td>
<td>$236.78</td>
</tr>
<tr>
<td>5 weeks</td>
<td>Female</td>
<td>Homozygous for Ccr2&lt;sup&gt;tmIfc&lt;/sup&gt;</td>
<td>$236.78</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Homozygous for Ccr2&lt;sup&gt;tmIfc&lt;/sup&gt;</td>
<td>$236.78</td>
</tr>
<tr>
<td>6 weeks</td>
<td>Female</td>
<td>Homozygous for Ccr2&lt;sup&gt;tmIfc&lt;/sup&gt;</td>
<td>$236.78</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Homozygous for Ccr2&lt;sup&gt;tmIfc&lt;/sup&gt;</td>
<td>$236.78</td>
</tr>
<tr>
<td>7 weeks</td>
<td>Female</td>
<td>Homozygous for Ccr2&lt;sup&gt;tmIfc&lt;/sup&gt;</td>
<td>$236.78</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Homozygous for Ccr2&lt;sup&gt;tmIfc&lt;/sup&gt;</td>
<td>$236.78</td>
</tr>
<tr>
<td>8 weeks</td>
<td>Female</td>
<td>Homozygous for Ccr2&lt;sup&gt;tmIfc&lt;/sup&gt;</td>
<td>$236.78</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Homozygous for Ccr2&lt;sup&gt;tmIfc&lt;/sup&gt;</td>
<td>$236.78</td>
</tr>
</tbody>
</table>

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® 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.
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
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.