B6;129P2-Olfr78<sup>Im1Mom/Mom</sup>J

Stock No: 006722 | GFP MOR18-2-IRES-taulacZ

Targeted Mutation

CRYO RECOVERY

REQUEST CRYORECOVERY

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

Also Known As: GFP/MOR18-2-IRES-taulacZ, clone D18-268,, GFP MOR18-2-IRES-taulacZ

This null allele with a taulacZ reporter is valuable for research into not only olfaction, but regulation of breathing by the carotid body, regulation of blood pressure through the renal system, and host interaction with the gut microbiota through responses to short chain fatty acids.

Donating Investigator

Peter Mombaerts, Max Planck Research Unit for Neurogenetics

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GENETIC OVERVIEW

<table>
<thead>
<tr>
<th>Genetic Background</th>
<th>Generation</th>
</tr>
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</table>

Olfr78<sup>Im1Mom</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>Olfr78</td>
<td>olfactory receptor 78</td>
</tr>
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</table>

VIEW GENETICS

RESEARCH APPLICATIONS

Cardiovascular Research
Internal/Organ Research
Research Tools
Metabolism Research
Neurobiology Research
Sensoroneural Research

VIEW ALL RESEARCH APPLICATIONS
Details

Detailed Description

With the coding sequence of class I olfactory receptor Olf78 excised and replaced with GFP and tauLucZ, this strain allows assessment of the role of a specific olfactory receptor in olfactory sensory neuron development. Mice carrying this allele display a normal pattern of labeled axons projecting diffusely to a large subset of glomeruli in the dorsal-medial and anterior-medial olfactory bulb, but also an abnormal finding of labeled axons innervating glomeruli at the caudal margins of the olfactory bulb. Co-staining for five dorsal class II olfactory receptors shows 2.9% co-expressing class II olfactory receptor genes and the disrupted Olf78<sup>tm1Mom</sup> allele, while co-staining for five dorsal class I olfactory receptors shows no co-expression with the disrupted Olf78<sup>tm1Mom</sup> allele (Bozza et al., 2009). In addition to expression in olfactory sensory neurons, OLFR78 is also expressed in the juxtaglomerular afferent arteriole and the major branches of the renal artery and has been found to be a receptor for the short chain fatty acids acetate and propionate. Relative to wild-type littermates, homozygotes have a lower basal mean arterial blood pressure, 81.4 instead of 94.5 mmHg, and fail to increase renin levels in response to dietary plant polysaccharides. The normal hypotensive response to propionate is more severe in homozygotes than wild-type littermates. Gut microbiota contribute to blood pressure regulation, in part through metabolic byproducts, and although homozygotes have a comparable gut microbiota to wild-type siblings, treatment of homozygotes with antibiotics resulted in a significant increase in mean arterial blood pressure, but no change in heart rate, compared with antibiotic-treated wild-type siblings (Pluznick et al., 2013). Olf78 was found to be expressed in the smooth muscle cells of small blood vessels in the heart, diaphragm, skeletal muscle and skin, and in axons of autonomic neurons in the heart and enteric plexus of the esophagus and stomach (Pluznick et al., 2013). Olf78 is also expressed in the glomus cells of the carotid body and has been reported to be essential for hypoxia detection and response (Chang et al., 2015). Homozygotes lacking OLFR78 fail to increase respiration in response to hypoxia, and carotid sinus nerves from homozygotes respond to changes in pH but fail to respond to acetate, propionate, or increased lactate.

Development

Selected References

Genetics

Olf78<sup>tm1Mom</sup>

Disease/Phenotype

Disease Terms

Research Areas By Genotype

Mammalian Phenotype Terms by Genotype
Genotyping Protocols
High Resolution Melting: Olf78\textsuperscript{tm1Mom}\textsuperscript{alternate2}
Genotyping resources and troubleshooting

Citation
When using the C57/B6J NCR18-2\textsuperscript{RES-taulacZ} mouse strain in a publication, please cite the originating article(s) and include JAX stock #006722 in your Materials and Methods section.

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.

<table>
<thead>
<tr>
<th>SERVICE</th>
<th>GENOTYPE</th>
<th>PRICE</th>
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</thead>
<tbody>
<tr>
<td>Cryo Recovery</td>
<td>Heterozygous or wildtype for Olf78\textsuperscript{tm1Mom}</td>
<td>$2,595.00</td>
</tr>
</tbody>
</table>

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.

Cryorecovery to 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.

Related Products and Services

<table>
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<tr>
<th>SERVICE</th>
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<tbody>
<tr>
<td>Frozen Mouse Embryo</td>
<td>$2,595.00 per straw or vial</td>
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</table>
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