B6(Cg)-Ptgs1 tm2.1(Ptgs2)Fun/J

Stock No: 032327 | COX-2>COX-1, Ptgs2>Ptgs1

Targeted Mutation

AVAILABLE FOR PRE-ORDER

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Estimated to begin distribution on: Mar 25, 2019

Also Known As: COX-2>COX-1, Ptgs2>Ptgs1
COX-2>COX-1 knock-in/knock-out mice express Ptgs2 from the endogenous Ptgs1 locus, resulting in widespread expression of cyclooxygenase 2. They are suitable for use in applications related to the study of cyclooxygenase 2 and prostaglandin synthesis pathway.

Donating Investigator
Colin D. Funk, Queen’s University

READ MORE +

Genetic Background
Generation

Ptgs1 tm2.1(Ptgs2)Fun

<table>
<thead>
<tr>
<th>Allele Type</th>
<th>Gene Symbol</th>
<th>Gene Name</th>
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<tbody>
<tr>
<td>Targeted (Inserted expressed sequence)</td>
<td>Ptgs1</td>
<td>prostaglandin-endoperoxide synthase 1</td>
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VIEW GENETICS

Reproductive Biology Research
Research Tools
Immunology, Inflammation and Autoimmunity Research
Endocrine Deficiency Research

VIEW ALL RESEARCH APPLICATIONS
Starting at:

$76.22 Domestic price for female

$10.00 Domestic price for breeder pair

Details

Detailed Description

There are two major cyclooxygenase isoforms in mammals that catalyze prostaglandin biosynthesis and are the targets of nonsteroidal anti-inflammatory drugs. The Ptgs2 gene encodes prostaglandin-endoperoxide synthase 2, also called cyclooxygenase 2 (COX2), which can be induced by inflammation and mitogens. The Ptgs1 gene encodes prostaglandin-endoperoxide synthase 1, also called cyclooxygenase 1 (COX1), has more widespread expression than Ptgs2, is involved in basal prostaglandin synthesis. These COX-2>COX-1 knock-in/knock-out mice express Ptgs2 from the endogenous Ptgs1 locus, resulting in expression of cyclooxygenase 2 in liver, spleen, lung, kidney, brain, stomach, and testis. No Ptgs1 gene product (protein) is detected by western blot analysis of kidney, brain, stomach, and testis tissue from homozygous mice. The level of mutant COX2 protein appears to correlate approximately with the level of endogenous COX-1 protein levels in wildtype mice in the respective tissues. Hybrid transcripts are detected by qPCR in brain, liver, kidney, stomach, testis, uterus, and lung; with weaker expression detected in spleen and resident macrophages. Western blot analysis does not detect COX1 protein expression, while hybrid COX2 protein is detected, in non-LPS-stimulated macrophages. In the presence of LPS stimulation, prostanoid production from COX-2>COX-1 macrophages was comparable with that from wildtype mice. Prostaglandin and thromboxane synthesis by the knock-in hybrid COX2 in kidney is reduced in neonate (P8) and adult mutant mice. Homozygotes are viable and fertile.

When crossed to the COX-1>COX-2 knock-in strain (Stock No. 008104) the resulting double mutant mice are the Reversa mouse in which expression of both prostaglandin-endoperoxide synthase (COX) isoforms are interchanged. The Reversa model has applications in studies related to the unique and compensatory functions of the two cyclooxygenase isoforms.

Development

Control Suggestions

Selected References

Genetics

Ptgs1<sup>tm2.1(Ptgs2/fun</sup>

Disease/Phenotype

Disease Terms

Research Areas By Genotype

Mammalian Phenotype Terms by Genotype
Genotyping Protocols
Genotyping resources and troubleshooting

Breeding Considerations
When maintaining a live colony, these mice can be bred as homozygotes.

Additional Breeding and Husbandry Support

Mating System
Heterozygote x Heterozygote

Citation
When using the COX-2>COX-1, Ptgs2>Ptgs1 mouse strain in a publication, please cite the originating article(s) and include JAX stock #032327 in your Materials and Methods section.

Pricing & Availability

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<th>Live Mouse</th>
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<th>GENOTYPE</th>
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<td>Heterozygous for Ptgs1^{tm2.1(Ptgs2)Fum}</td>
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<tr>
<td>Approx 4-8 weeks</td>
<td>Male</td>
<td>Heterozygous for Ptgs1^{tm2.1(Ptgs2)Fum}</td>
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