

STOCK *Omp*^{tm1.1(COP4*/EYFP)Tboz} /J

Stock No: **014173**

 Targeted Mutation

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

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targeted mutation strain may be useful for studying olfactory transduction, olfactory circuitry, and olfactory perception by light stimulation.

Donating Investigator

Thomas Bozza, Northwestern University

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GENETIC OVERVIEW

Genetic Background

Generation

Omp^{tm1.1(COP4*/EYFP)Tboz}

Alele Type

Targeted (Reporter,
Null/Knockout)

Gene Symbol

Omp

Gene Name

olfactory marker protein

VIEW GENETICS

RESEARCH APPLICATIONS

Research Tools

Sensorineural Research

Neurobiology Research

VIEW ALL RESEARCH APPLICATIONS

BASE PRICE

Starting at:

\$2,854.50 Domestic price Cryo Recovery

V I E W P R I C E L I S T

Details

Detailed Description

These OMP-ChR2-YFP (OCY-58) mice express a ChR2(H134R)-EYFP fusion gene from the olfactory marker protein locus (*Omp*). Mice that are homozygous for the targeted mutation are viable, fertile, normal in size and do not display any gross physical or behavioral abnormalities. ChR2(H134R)-EYFP is expressed in all mature olfactory sensory neurons, rendering them light sensitive. Light directed at the olfactory epithelium or the glomeruli can elicit activity in mitral/tufted (M/T) cells of the olfactory bulb and can drive odor guided behavior. These mutant mice thus allow precise, timed delivery of stimuli input to the olfactory system. The Donating Investigator reports that this this targeted mutation creates a null allele. Due to possible olfactory deficits, analysis should be performed in heterozygous mice. The Donating Investigator recommends keeping the strain on the albino B6 background to avoid possible interference by pigmented melanocytes.

The ChR2(H134R)-EYFP fusion protein is composed of a *Chlamydomonas reinhardtii*-derived channelrhodopsin-2 that harbors a gain-of-function H134R substitution fused in-frame with an enhanced yellow fluorescent protein. The ChR2(H134R) is designed to cause larger stationary photocurrents compared to ChR2.

The bacterial opsins are retinal-binding proteins that combine a light-sensitive domain with an ion channel or pump; providing light-dependent ion transport, membrane potential alteration, and sensory functions to bacteria. This ChR2(H134R) functions as a blue light-driven cation channel that depolarizes the cell and causes action potentials. As such, illuminating ChR2(H134R)-expressing cells with blue light (450-490 nm) leads to rapid and reversible photostimulation of action potential firing activity in these cells.

Development

Expression Data

Control Suggestions

Selected References

Genetics

$Omp^{tm1.1(COP4^*/EYFP)Tboz}$

– Disease/Phenotype

[+ Disease Terms](#)

[+ Research Areas By Phenotype](#)

[+ Mammalian Phenotype Terms by Genotype](#)

[+ References](#)

– Technical Support

C O N T A C T T E C H N I C A L S U P P O R T

Genotyping Protocols

End Point Analysis: [Tyr^c-EP](#)

Separated PCR: [Omp](#)

[Genotyping resources and troubleshooting](#)

Breeding Considerations

When maintaining a live colony, heterozygous mice may be bred to wildtype mice from the colony or to albino C57BL/6J mice (B6(Cg)-[Tyr^{c-2J}/J](#); Stock No. [000058](#)). The Donating Investigator recommends using the albino C57BL/6 background to avoid possible interference by pigmented melanocytes.

[Additional Breeding and Husbandry Support](#)

Citation

When using the STOCK [Omp^{tm1.1\(COP4*/EYFP\)Tboz}/J](#) mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #014173 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

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Pricing effective for USA, Canada and Mexico shipping destinations

CRYORECOVERY - DOMESTIC PRICING

SERVICE/PRODUCT	DESCRIPTION	PRICE
Cryo Recovery	Heterozygous for Omp<tm1(COP4/EYFP)Tboz>	\$2,854.50

RELATED PRODUCTS AND SERVICES

Frozen Mouse Embryo	STOCK Omp<tm1.1(COP4*/EYFP)Tboz>/J	\$2595.00
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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.

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