

129S.Cg-Macroh2a2^{tm1.1Peh} Macroh2a1^{tm1Peh} /Mmjax

MMRRC Stock No: **37356-JAX** | macroH2A2 KO; macroH2A1 KO

 Congenic, Targeted Mutation

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These *H2afy* and *H2afy2* or macroH2A1/2 knockout mice exhibit reduced lean body mass, shortened body length, an abnormally large eyelid opening (macroblepharon), and darkened back fur. They may be useful for studying the involvement of H2A histones in the regulation of gene expression.

Donating Investigator

John Pehrson, University of Pennsylvania

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GENETIC OVERVIEW

Genetic Background

Generation

Macroh2a1^{tm1Peh}

Alele Type

Targeted (Null/Knockout)

Gene Symbol

Macroh2a1

Gene Name

macroH2A.1 histone

Macroh2a2^{tm1.1Peh}

Alele Type

Targeted (Null/Knockout)

Gene Symbol

Macroh2a2

Gene Name

macroH2A.2 histone

VIEW GENETICS

RESEARCH APPLICATIONS

Cell Biology Research

Developmental Biology Research

Details

Detailed Description

H2afy and *H2afy2* or macroH2A1/2 (H2A histone family, member Y and Y2, respectively) encode an alternative H2A histone that includes a unique C-terminal non-histone domain. The macroH2A histones function in a subset of nucleosomes where they are involved in the regulation of gene expression. Mice homozygous for both alleles are viable and fertile, but exhibit reduced lean body mass and are shorter in length than wild type controls. Mice remain small throughout adulthood. On the 129S6 background, double KO mice exhibit an abnormally large eyelid opening (macroblepharon), some eyelid inflammation, and darkened fur on the back (by 6 weeks of age).

Double mutant mice on the C57BL/6 background breed poorly by either failing to reproduce or exhibiting high rates (29%) of perinatal lethality.

This strain may be useful for studying the involvement of H2A histones in the regulation of gene expression.

Development

Selected References

Genetics

Macroh2a1^{tm1Peh}

Macroh2a2^{tm1.1Peh}

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

Standard PCR:[H2afy](#)

Standard PCR:[H2afy2KO-Alternate 1](#)

[Genotyping resources and troubleshooting](#)

Breeding Considerations

While maintaining a live colony, these mice are bred as double homozygotes.

[Additional Breeding and Husbandry Support](#)

Citation

When using the macroH2A2 KO; macroH2A1 KO mouse strain in a publication, please [cite the originating article\(s\)](#) and include MMRRC stock #37356 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](#)

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