This Dp(16Lipi-Zfp295)1Yey (or Dp(16)1Yey/+) mutant strain contains one copy of mouse Chromosome 16 with the targeted sequence between, and including, the lipase, member I (\textit{Lipi}) gene and the zinc finger protein 295 (\textit{Zfp295}) gene. These mice may be useful for understanding developmental and cognitive disabilities associated with Down's Syndrome.

Donating Investigator

Y. Eugene Yu, Roswell Park Cancer Institute

Genetic Overview

- **Genetic Background:** N3+pN9
- **Dp(16Lipi-Zbtb21)1Yey**
  - **Allele Type:** Targeted (Inserted expressed sequence)
  - **Gene Symbol:** Dp(16Lipi-Zbtb21)1Yey
  - **Gene Name:** duplication, Chr 16, Y Eugene Yu 1

Research Applications

- Developmental Biology Research
- Neurobiology Research
- Mouse/Human Gene Homologs
It should be noted that the phenotype of these C57BL/6J-congenic Dp(16)1Yey/+ mice could vary from that originally described on a C57BL/6J;129S7/SvEvBrd genetic background. We may modify the strain description if necessary as published results become available. The phenotype of Dp(16)1Yey/+ mice on a C57BL/6J;129S7/SvEvBrd genetic background is described below:

This Dp(16)1Yey/+ mutant strain contains one copy of mouse Chromosome 16 with the targeted sequence between, and including, the lipase, member I (Lipi) gene and the zinc finger protein 295 (Zfp295) gene. Hemizygous mice are fertile. The donating investigator recently observed that 30% of offspring die shortly after birth due to heart defects. This duplicated region on the mouse chromosome is one of three regions orthologous to an extra copy of human Chromosome 21 (Hsa21) which has been implicated in developmental cognitive disabilities associated with Down Syndrome (DS). Dp(16)1Yey/+ contains a duplication orthologous to human 21q11-q22.3 and carries 113 genes orthologous to genes on Hsa21. These mice exhibit heart defects including cleft of the mitral valve, atrial and ventricular defects, and coarctation of the aorta. Some mice also display annular pancreas and malrotation of the intestines. When mice carrying this duplication are bred to B6;129-Dp(10Pmt2-Pdkx)2Yey/J mice (Stock No. 013529) and B6;129-Dp(17Abcg1-Rrp1b)3Yey/J mice (Stock No. 013531) to create a triple duplication model containing all Hsa21 orthologous regions, the resulting mice exhibit DS related phenotypic defects. These mice display reduction in body length and weight, hydrocephaly caused by aqueductal stenosis, impaired grip strength, impaired learning, and a deficit in long-term potentiation. These mice may be useful for understanding developmental and cognitive disabilities associated with DS.

Development

Control Suggestions

Selected References

Genetics

Dp(16Lipi-Zbtb21)1Yey
Genotyping Protocols
Separated PCR: Dp(16Lipi-Zfp295)1Yey
Standard PCR: Dp(16Lipi-Zfp295)1Yey
Genotyping resources and troubleshooting

Breeding Considerations

*Dp(16)1Yey/+* mice were bred to C57BL/6J inbred mice (Stock No. 000664) for a total of at least five generations to establish this C57BL/6J-congenic *Dp(16)1Yey/+* strain. When maintaining the live congenic colony, hemizygous mice may be bred with noncarrier (wildtype) mice from the colony or with C57BL/6J inbred mice. Of note, on a C57BL/6J;129S7/SvEvBrd genetic background, the donating investigator reports that 30% of triple transgenic offspring die shortly after birth due to heart defects.

Additional Breeding and Husbandry Support

Mating System
Noncarrier x Hemizygote
Hemizygote x Noncarrier

Citation
When using the Dp(16)1Yey/+ mouse strain in a publication, please cite the originating article(s) and include JAX stock #013530 in your Materials and Methods section.
Live mice available in varying quantities. Ask Customer Service for details.

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### RELATED PRODUCTS AND SERVICES

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### BREEDER PAIR

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Email: TechTran@jax.org

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