

B6.129-*Ttc9*^{tm1Vcl}/Mmjax

MMRRC Stock No: 43521-JAX | *Ttc9a* KO

 Congenic, Targeted Mutation

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outgrowth upon steroid hormone administration as well as increased spleen and thymus mass and anxiety related behaviors. This strain may be useful for studying regulation of estrogen receptor alpha activity.

Donating Investigator

Valerie C Lin, Nanyang Technological University

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GENETIC OVERVIEW

Genetic Background

Generation

Ttc9^{tm1Vcl}

Alele Type

Gene Symbol

Gene Name

Targeted (Null/Knockout)

Ttc9

tetratricopeptide repeat domain 9

VIEW GENETICS

RESEARCH APPLICATIONS

Neurobiology Research

Cell Biology Research

Endocrine Deficiency Research

Cancer Research

Internal/Organ Research

VIEW ALL RESEARCH APPLICATIONS

Details

Detailed Description

Ttc9 (tetratricopeptide repeat domain 9) is a chaperone protein involved in steroid receptor signaling. It is regulated by progesterone and estrogen and over-expressed in breast cancer cells. It carries three tetratricopeptide repeats (TPRs) that mediate protein interactions with *Tpm3* (tropomyosin 3, gamma). Administration of 17- β -estradiol benzoate upregulates its expression in mammary gland and uterus. Widespread expression is seen in embryonic development as early as embryonic day E11.5, abundant expression in neural tissue is seen at E13.5. The protein is ubiquitously expressed in all tissues after birth; expression is highest in the brain and lowest in the liver.

This knockout strain carries a deletion of the first of the gene's three exons. The targeted allele expresses no protein or mRNA. Homozygotes are viable, fertile, and born at expected Mendelian ratios. Characterization of the female mice revealed that *Ttc9a* deficiency is associated with greater body weight, a bigger thymus, better mammary development and increased anxiety-like behavior. Furthermore, the *Ttc9a*-deficient mammary gland is more responsive to estrogen treatment with greater mammary ductal lengthening, ductal branching, and estrogen target gene induction. A significant increase in spleen mass is found in homozygous animals that are three weeks old. At six weeks of age, the mass of the thymus is significantly increased. The weight of the kidneys, heart, stomach, lungs, pancreas and uterus are comparable with wild type mice. This strain may be useful for studying regulation of estrogen receptor alpha activity as well as its relation to anxiety-like behavior in female mice.

Development

Control Suggestions

Selected References

Genetics

Ttc9^{tm1Vcl}

Disease/Phenotype

Disease Terms

Research Areas By Phenotype

Mammalian Phenotype Terms by Genotype

References

Technical Support

CONTACT TECHNICAL SUPPORT

Genotyping Protocols

Probe: [Generic Neo](#)

Standard PCR: [Ttc9-alternate2](#)

[Genotyping resources and troubleshooting](#)

Breeding Considerations

When maintaining a live colony, these mice are bred by homozygote sibling matings.

[Additional Breeding and Husbandry Support](#)

Mating System

Heterozygote x Heterozygote

Citation

When using the Ttc9a KO mouse strain in a publication, please [cite the originating article\(s\)](#) and include MMRRC stock #43521 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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Phone: 207-288-6470

Email: TechTran@jax.org

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