

C57BL/6-Tg(DYRK1A)36Wjs/J

Stock No: 019460

Coisogenic, Transgenic

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

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Donating Investigator

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Woo-joo Song, Kyung Hee University School of Medicine

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GENETIC OVERVIEW

Genetic Background

Generation

Tg(DYRK1A)36Wjs

Alele Type

Transgenic (Inserted expressed sequence, Humanized sequence)

VIEW GENETICS

RESEARCH APPLICATIONS

Neurobiology Research
Internal/Organ Research
Cell Biology 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

The *DYRK1A* (dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 1a) gene is located in the "Down Syndrome critical region" of human chromosome 21. It is ubiquitously expressed in both fetal and adult tissues of humans and rodents, with strongest expression in the heart and brain. Expression of DYRK1A protein is increased in the brains of human patients with Down Syndrome and Alzheimer's Disease. Interacting with a number of biological pathways, the full function of this gene is still being elucidated.

These hemizygous mice carry a single copy of a bacterial artificial chromosome (BAC) clone that contains the complete human *DYRK1A* genomic fragment, including the endogenous promoter. No other genes are included in the BAC. Protein expression is elevated 1.5-2 fold.

Hemizygotes show a significant impairment in hippocampal-dependent memory tasks as well as alterations in two forms of synaptic plasticity. Proliferation of embryonic neuronal cells is inhibited.

Many Down Syndrome patients show an early onset of Alzheimer's Disease and these mice demonstrate that DYRK1A hyperphosphorylates Tau at residues Ser-202, Thr-212, and Ser-404. DYRK1A also phosphorylates *APP* (amyloid beta (A4) precursor protein), *RCAN1* (regulator of calcineurin 1), and *PSEN1* (presenilin 1).

Transgenic mice exhibit significantly reduced bone mass despite decreased osteoclastogenesis. This is reminiscent of the osteoporotic bone phenotype in Down Syndrome patients.

Pathways that regulate food intake are also affected by DYRK1A. These transgenic animals demonstrate increase food intake through the Sir2-FOXO-sNPF/NPY pathway.

These transgenic mice represent a clinically relevant animal model for a variety of Down Syndrome features including mental retardation, Alzheimer's Disease-like brain pathology, and increased food intake. Hemizygotes show normal viability and fertility.

Development

Expression Data

Control Suggestions

Selected References

– Genetics

+ [Tg\(DYRK1A\)36Wjs](#)

– 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: [Tg\(DYRK1A\)36Wjs](#)

[Genotyping resources and troubleshooting](#)

Breeding Considerations

Hemizygotes are viable and fertile. The single transgenic copy, in addition to the two endogenous mouse genes, creates a trisomic model of Down Syndrome.

[Additional Breeding and Husbandry Support](#)

Citation

When using the C57BL/6-Tg(DYRK1A)36Wjs/J mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #019460 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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Domestic International

Pricing effective for USA, Canada and Mexico shipping destinations

CRYORECOVERY - DOMESTIC PRICING

SERVICE/PRODUCT	DESCRIPTION	PRICE
Cryo Recovery	Hemizygous or Non carrier for Tg(DYRK1A)36Wjs	\$2,854.50

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