ENVIGO

Genetically engineered models (GEMS)

Disc1 knockout rat

Model	Disc1 knockout rat
Strain	HsdSage:SD- Disc1^{tm1Sage}
Location	U.S.
Availability	Cryopreserved

Characteristics/husbandry

+ Disc1 is involved in neuronal growth and cortical development
+ The protein also regulates the proliferation of embryonic and adult neuronal progenitor cells through the GSK3/ß-catenin pathway
+ Preliminary reports suggest impaired prepulse inhibition in Disc1 knockout rats
+ Background Strain: Sprague Dawley

Zygosity genotype

+ Cryopreserved as heterozygous embryos

Research use

+ Schizophrenia
+ Bipolar disorder
+ Neuronal growth and transport studies

Origin

The Disc1 knockout rat model was originally created at SAGE Labs, Inc. in St. Louis, MO and distributed out of the Boyertown, PA facility. The line continues to be maintained through the original SAGE Labs animal inventory acquired by Envigo.

Description

This model contains a biallelic deletion within the Disc1 (disrupted in schizophrenia 1) gene, encoding the DISC1 protein. A translocation disrupting Disc1 was discovered to co-segregate with major psychiatric illness in a Scottish family. This model is useful in the study of schizophrenia.

Disc1 is involved in neuronal growth and cortical development. The protein also regulates the proliferation of embryonic and adult neural progenitor cells through the GSK3/ß-catenin pathway. Disc1 was first identified through a translocation that segregates with schizophrenia and related psychiatric disorders in a large Scottish family, making this model useful for the study of schizophrenia, bipolar disorder, and neuronal development. Disc1 was cryopreserved at the 12th generation.

Citation

Wei, Jing; Graziane, Nicholas M; Wang, Haitao; Zhong, Ping; Wang, Qi; Liu, Wenhua; Hayashi-Takagi, Akiko; Korth, Carsten; Sawa, Akira; Brandon, Nicholas J; Yan, Zhen; Regulation of N-methyl-D-aspartate receptors by disrupted-in-schizophrenia-1. Biological psychiatry Vol.75, 2014

Figure 1: Age and weight chart

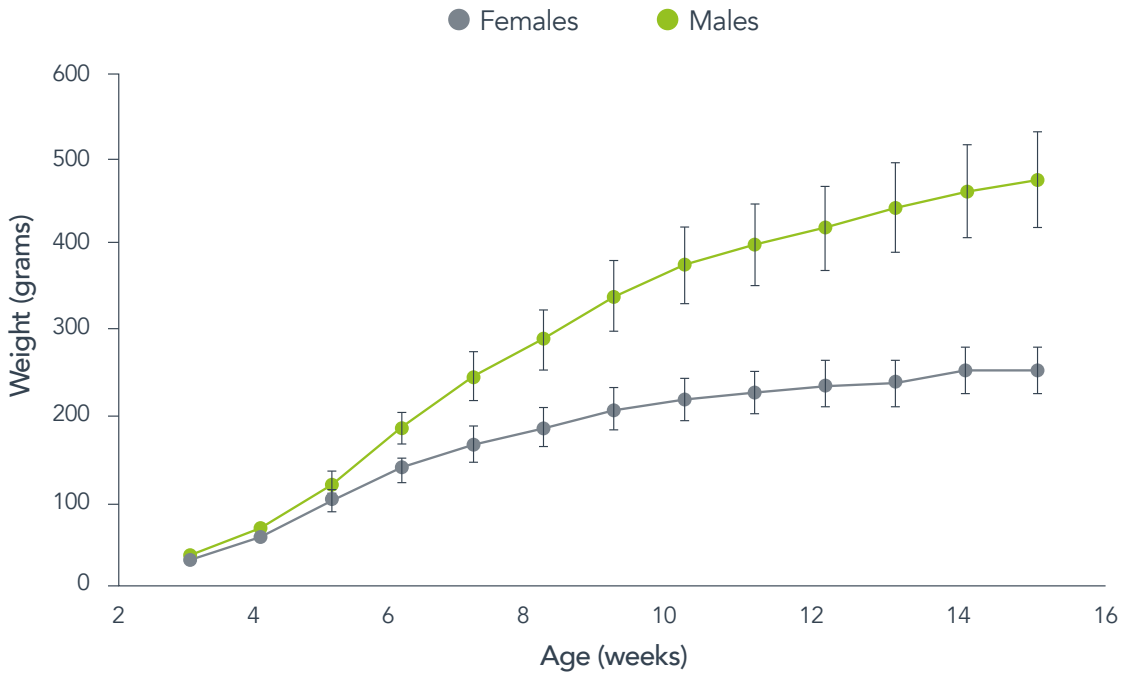
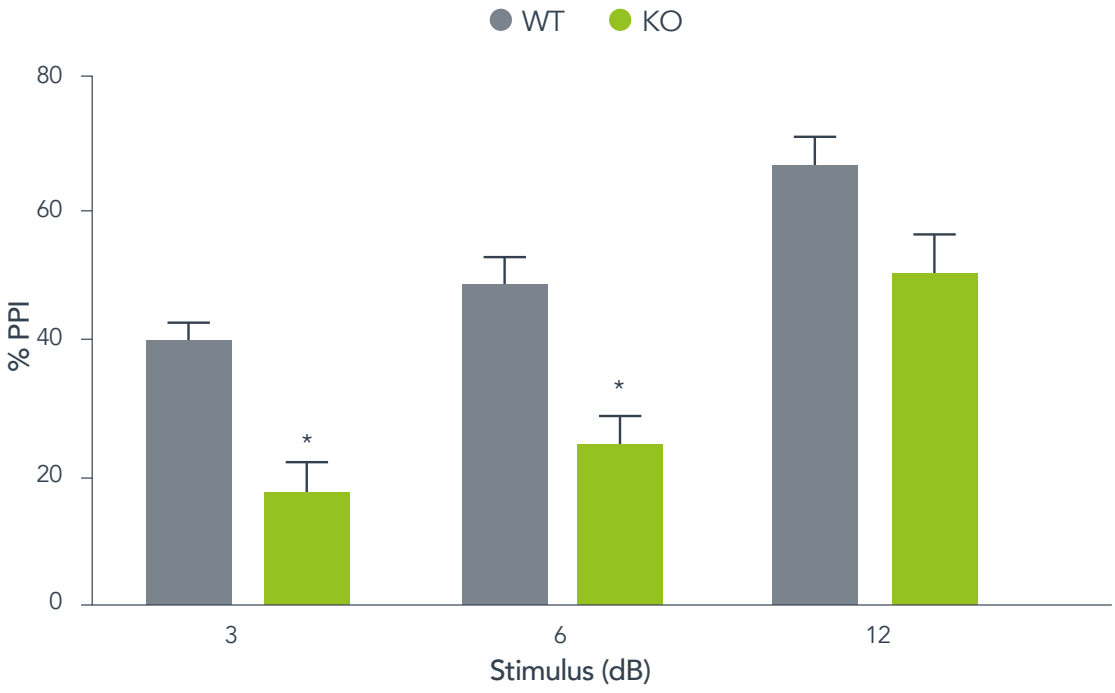


Figure 2: Disc1 knockout rats display impaired pre-pulse inhibition. Disc1 knockout rats showed significantly reduced pre-pulse inhibition at 3 and 6 db compared to wild type control rats. Data courtesy of Pfizer NeuroBehavioral Core, Cambridge, MA



Contact us

North America 800.793.7287 gemsorders@envigo.com
Envigo, 8520 Allison Pointe Blvd., Suite 400, Indianapolis, IN 46250, United States