ENVIGO

Genetically engineered models (GEMS)

Neuroligin 3 (Nlgn3) knockout rat

Model	Neuroligin 3 (Nlgn3) knockout rat
Strain	HsdSage:SD- Nlgn3^{tm1sage}
Location	U.S.
Availability	Cryopreserved

Characteristics/husbandry

+ This model was created in collaboration with Autism Speaks and is currently undergoing phenotypic characterization by Dr. Richard Paylor at Baylor College of Medicine
+ Preliminary results suggest that Nlgn3 knockout rats are less anxious and exhibit decreased juvenile play, deficits in sensorimotor gating and increased perseverative behaviors
+ Homozygous knockout rats exhibit complete loss of target protein as demonstrated by Western blot
+ Mutations in Nlgn3 have been associated with autism and Asperger's syndrome
+ Nlgn3 is a member of the broader neuroligins, neuronal cell surface proteins thought to play a role in synaptic plasticity
+ Background strain: Sprague Dawley

Zygosity genotype

+ Cryopreserved as heterozygous embryos

Research use

+ Autism
+ Asperger's syndrome
+ Synaptic plasticity

Origin

The Neuroligin 3 (Nlgn3) KO 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 of the neuroligin 3 gene (Nlgn3). Mutations in Nlgn3 have been linked with autism and Asperger's syndrome. This model is useful for understanding the role of neuroligins in the development of autism spectrum disorders.

Neuroligins are neuronal cell-surface proteins that bind with beta neurexins, spanning synapses. Neuroligins may play a role in synaptic plasticity and mutations in neuroligin 3 have been associated with autism and Asperger syndrome.

Figure 1:

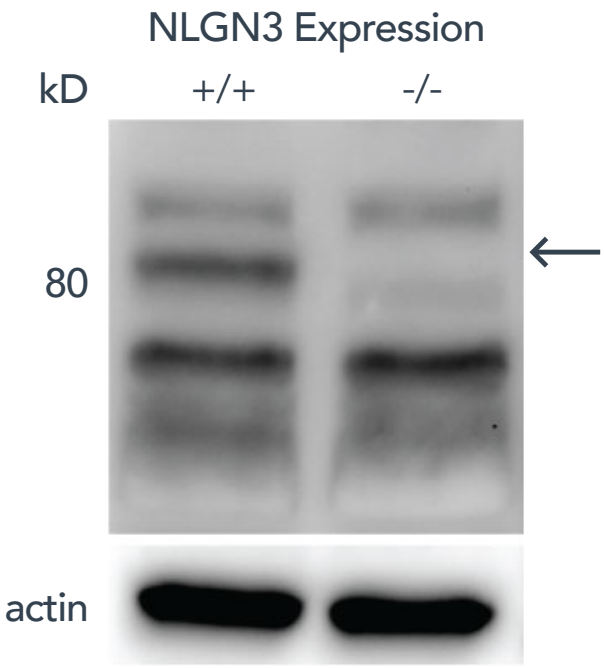
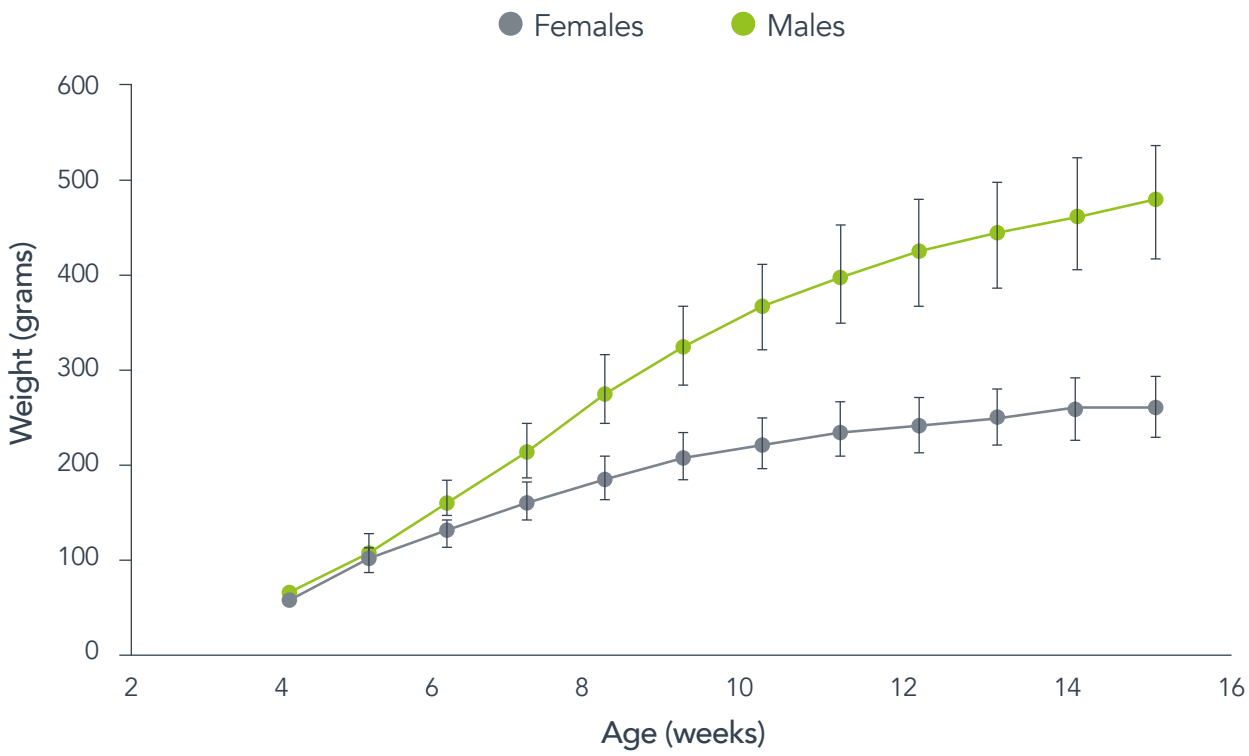


Figure 2: Age and weight comparison chart



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