APP knockout rat

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

Characteristics/husbandry

+ Background strain: Sprague Dawley
+ Homozygous knockout rats exhibit complete loss of protein
+ This model was created in collaboration with Autism Speaks
+ 176kb deletion in Rbfox1

Zygosity genotype

+ Cryopreserved as heterozygous embryos

Research use

+ Alzheimer's disease
+ Neurodegeneration
+ Memory loss
+ Dementia
+ Synaptic formation and repair

Origin

The APP 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 carries a bi-allelic deletion of the amyloid precursor protein (APP) gene. APP can be cleaved by the beta and gamma secretases, forming beta amyloid. Beta amyloid can self-aggregate to form amyloid plaques, one of the hallmarks of Alzheimer's disease.

Mutations in APP have been associated with familial Alzheimer's disease. APP is concentrated at neuronal synapses; however, its precise function has yet to be elucidated.

Figure 1: Homozygous APP knockout rats exhibit complete loss of APP | Western blot analysis of brain tissue shows a complete absence of APP in homozygous knockout rats (-/- = homozygous knockout,+/+ = wild type).
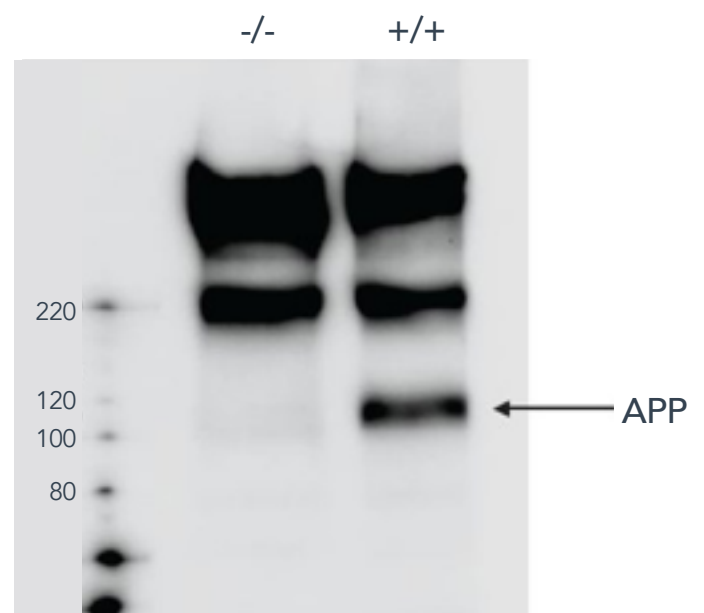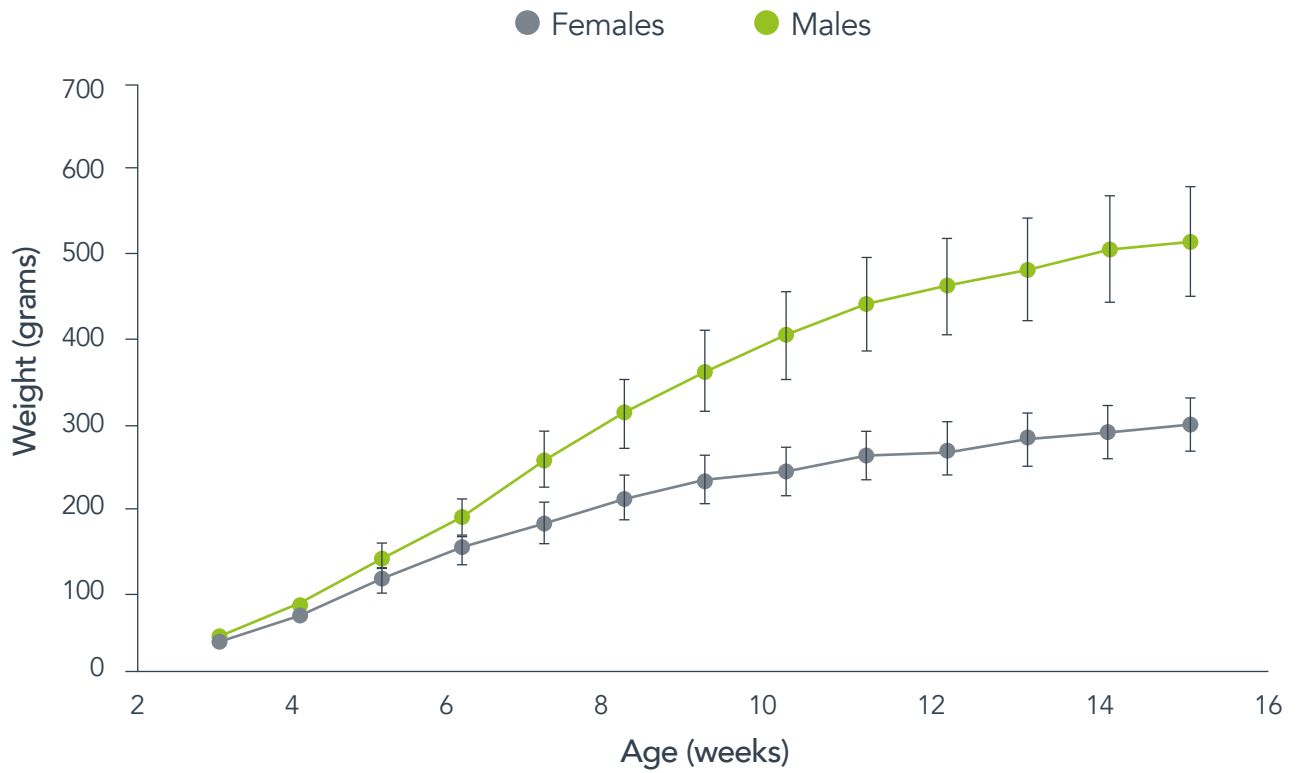
Figure 2. Weight and age comparison chart