ENVIGO

Genetically engineered models (GEMS)

Lrrk2 knockout rat

Model	Lrrk2 knockout rat
Strain	HsdSage: LE-*Lrrk*^{tm1sage}
Location	U.S.
Availability	Live colony

Characteristics/husbandry

+ Homozygous knockout rats exhibit complete loss of target protein as demonstrated by Western blot
+ Lrrk2 knockout rats display dark kidneys, similar to observations made in Lrrk2 knockout mice
+ Lrrk2 knockout rats are significantly larger than wild type controls
+ Background strain: Long Evans Hooded

Zygosity genotype

+ Homozygous

Research use

+ Parkinson's disease
+ Neuronal apoptsis

Origin

Developed in collaboration with The Michael J. Fox Foundation, this model contains a deletion of the Lrrk2 gene, encoding for the leucine-rich repeat kinase 2. Mutations in Lrrk2 are the most common monogenic cause of Parkinson's disease. This model is useful in understanding Lrrk2 biology.

Description

Lrrk2 mutations account for 5-6% of familial Parkinson's dieases and 1-3% in sporadic PD. Collectively, these mutations result in the most common cause of PD, making this an important model for the study of Parkinson's disease.

Citations

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Figure 1: Kidney pathology in Lrrk2 knockout rats. Kidney from a Lrrk2 knockout rat at 37 weeks of age. The kidney is dark in color, a phenotype similar to observations in Lrrk2 knockout mice (Herzig MC, et al. Hum Mol Genet (2011) 20 (21): 4209-4223). Image courtesy of PsychoGenics.

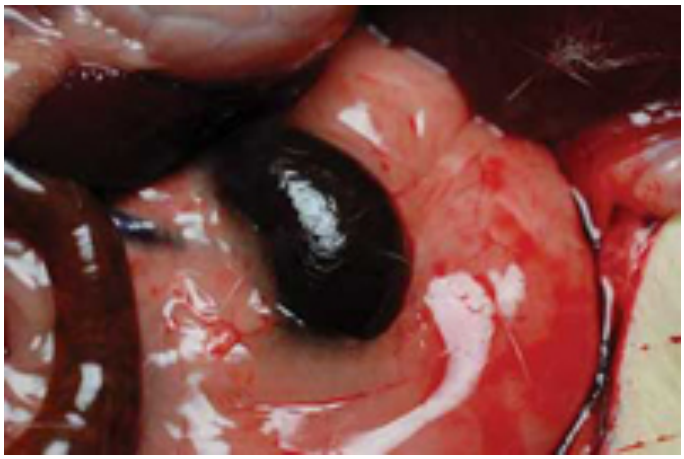


Figure 2: Rotarod performance of Lrrk2 knockout rats at 12 months of age. Lrrk2 knockout animals show no deficits in motor activity as assessed by rotarod at 12 months of age.

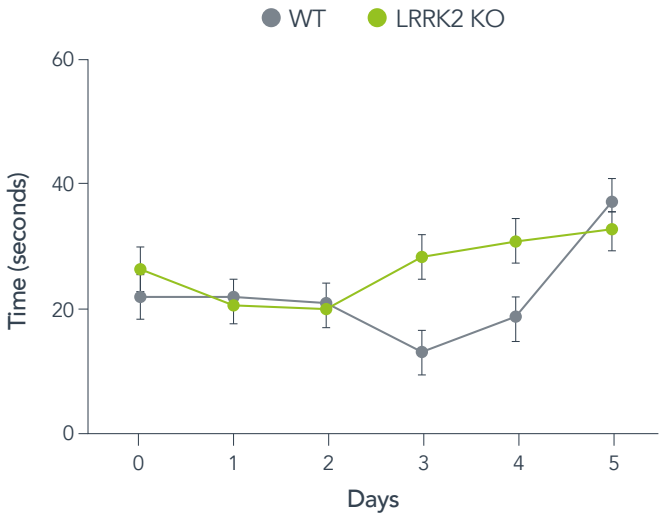
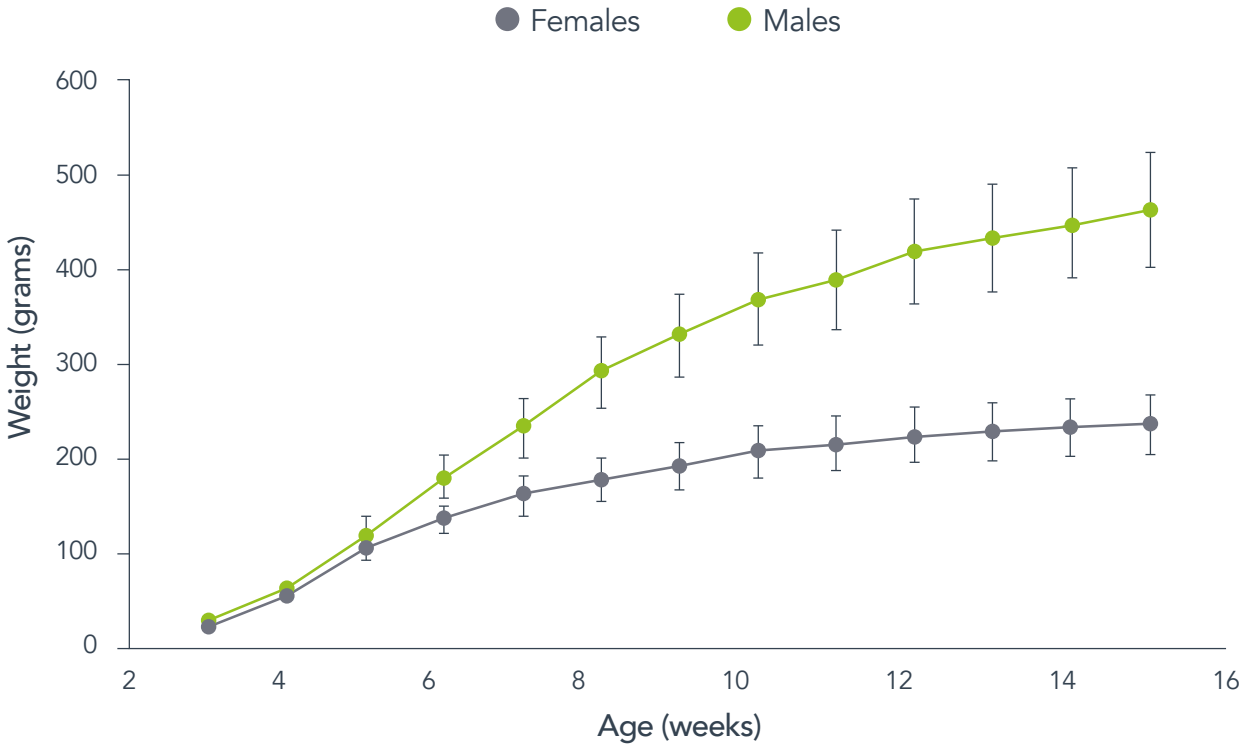


Figure 3: A graph showing the correlation between the age and weight of Lrrk2 knockout rats.



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