

# Lrrk2 knockout rat



<b>MODEL</b>	Lrrk2 knockout rat
<b>STRAIN</b>	HsdSage: LE-Lrrk <sup>em1Sage</sup>
<b>LOCATION</b>	U.S.
<b>AVAILABILITY</b>	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 apoptosis

## ORIGIN

The Lrrk2 knockout rat model was originally created at SAGE Labs, Inc. in St. Louis, MO. The animal inventory was acquired by Envigo in 2019 and then by Inotiv in 2021. The line continues to be maintained through the original SAGE Labs animal inventory and is distributed out of the Boyertown, PA facility.

## DESCRIPTION

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 (PD). Lrrk2 mutations account for 5-6% of familial PD 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 PD.

## CITATIONS

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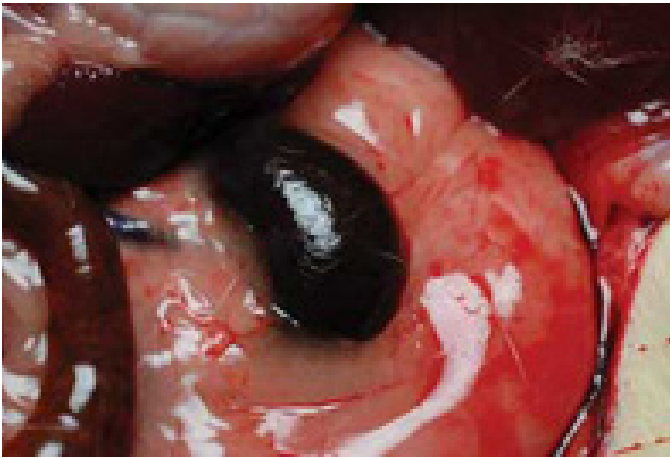
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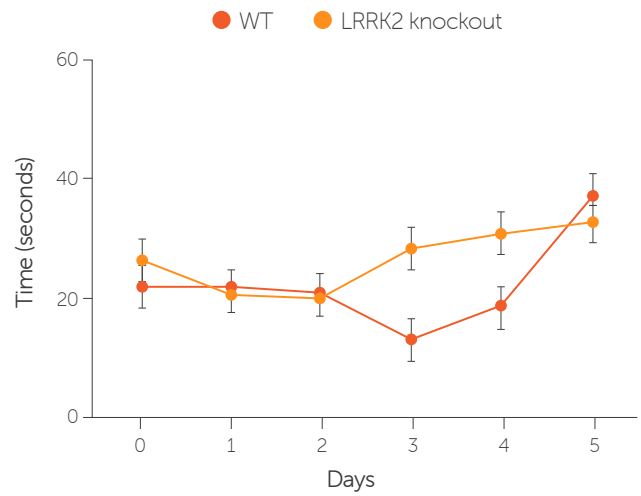
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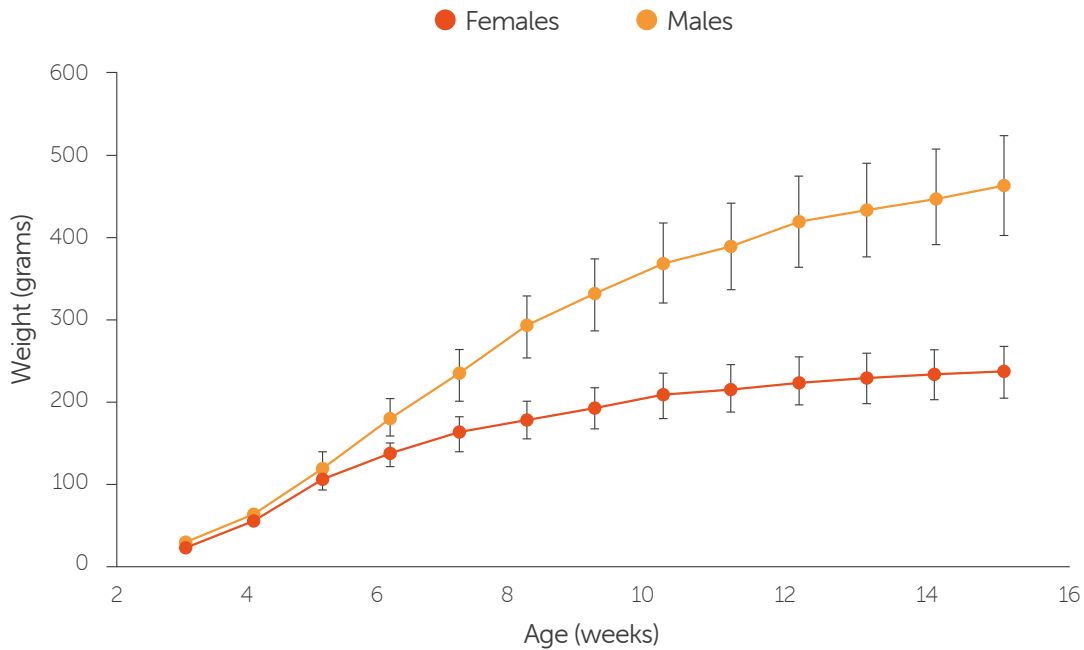
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**Figure 1: Kidney pathology in *Lrrk2* knockout rats.** Kidney from a *Lrrk2* knockout rat at 37 weeks of age. The kidney is dark in color, a phenotype similar to observations in *Lrrk2* knockout mice (Herzig MC, et al. *Hum Mol Genet* (2011) 20 (21):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



**Figure 2: Rotarod performance of *Lrrk2* knockout rats.** *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.**