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Genetically engineered models (GEMS)

# Humanized ApoE4 (hApoE4) knockin rat

| | |
|---|---|
| MODEL | Humanized ApoE4 knockin rat |
| STRAIN | HsdSage: SD-*ApoE4*$^{em1(hApoE4)Sage}$ |
| LOCATION | U.S. |
| AVAILABILITY | Live colony |

## CHARACTERISTICS/HUSBANDRY

- Background strain: Sprague Dawley
- Homozygous replacement of the Rat ApoE gene with the Human ApoE4 gene

## ZYGOSITY GENOTYPE

- Homozygous

## RESEARCH USE

- Parkinson's disease
- Neurodegenerative diseases

## ORIGIN

The humanized ApoE4 (hApoE4) knockin 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

Apolipoprotein E (ApoE) is a critical apoprotein of the chylomicron that binds to a specific receptor on liver cells and peripheral cells. Additionally, the 4 allele of ApoE (ApoE4) is a major risk factor for Alzheimer's disease (AD), with possession of at least one ApoE4 allele in 40-65% of patients with AD. A patient with two ApoE4 alleles has up to 20 times the risk of developing AD.

ApoE4 has been implicated in AD and cognition, making this a useful model for the study of atherosclerosis, AD and nerve injury.

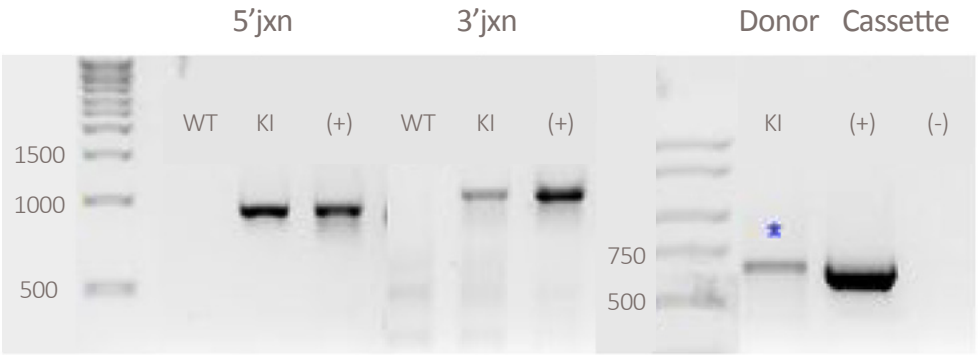


*Figure 1: Humanized Knockin Validation of the ApoE4 5' junction, 3' junction, and Donor Cassette via PCR. PCR analysis to show targeted integration of the humanized donor cassette.*