ENVIGO

Genetically engineered models (GEMS)

Prkdc knockout rat

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

Characteristics/husbandry

+ DNA-PK knockout rats have severe combined immunodeficiency (SCID) and lack of both B and T cells
+ Background strain: Sprague Dawley

Zygosity genotype

+ Cryopreserved as heterozygous embryos

Research use

+ Xenograft
+ Cancer metastasis
+ Tumor growth

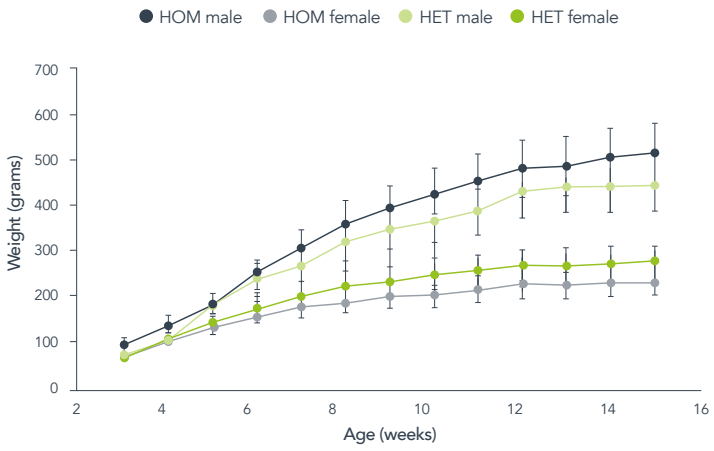
Origin

The Prkdc 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

The Prkdc gene encodes the catalytic subunit of a nuclear DNA-dependent serine/threonine protein kinase (DNA-PK). DNA-PK is required for the non-homologous end joining (NHEJ) pathway of DNA repair, which rejoins double-strand breaks. It is also required for V(D)J recombination, a process that utilizes NHEJ to promote immune system diversity. Mature B and T cells are critical components for an adaptive immune system. DNA-PK knockout rats have severe combined immunodeficiency (SCID) and lack of both B and T cells, due to their V(D)J recombination defect. Rats deficient in the Prkdc gene produce no mature B, T or NK cells. This SCID rat is a useful model for cancer, xenografts, vaccine development, and autoimmune and infectious disease study.

Figure 1: Age and weight chart



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