inotiv
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Genetically engineered models **(GEMS)**

# Trpv1 knockout rat

| | |
|---|---|
| MODEL | Trpv1 knockout rat |
| STRAIN | HsdSage: SD-*Trpv1*$^{em1Sage}$ |
| LOCATION | U.S. |
| AVAILABILITY | Cryopreserved |

## CHARACTERISTICS/HUSBANDRY

- Homozygous knockout rats exhibit complete loss of Trpv1 protein
- Trpv1 knockout rats show hyposensitivity to thermal pain via hot plate assay
- *In vivo* model for pain research
- Background strain: Sprague Dawley

## ZYGOSITY GENOTYPE

- Heterozygous

## RESEARCH USE

- Pain
- Nociception
- Analgesia
- Thermoregulation
- Cannabinoids

## ORIGIN

The Trpv1 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

This model contains a biallelic deletion of the Trpv1 gene, encoding for the transient receptor potential cation channel subfamily V member 1. Capsaicin, the component in chili peppers that makes them hot, is an exogenous ligand for Trpv1. Trpv1 is also activated by heat.

Trpv1 is a non-selective cation channel, activated by a range of stimuli including capsaicin, cannabinoids, and heat. Trpv1 activation results in the sensation of pain as well as the lowering of body temperature. Trpv1 antagonists are being pursued as potential novel analgesics.

***Figure 1:*** *Western blot demonstrating lack of TRPV1 in TRPV1 knockout (KO) and wild type rats. Brain homogenates were probed with anti-rat TRPV1 ACC-029 (Alamone Labs) at 1:200.*

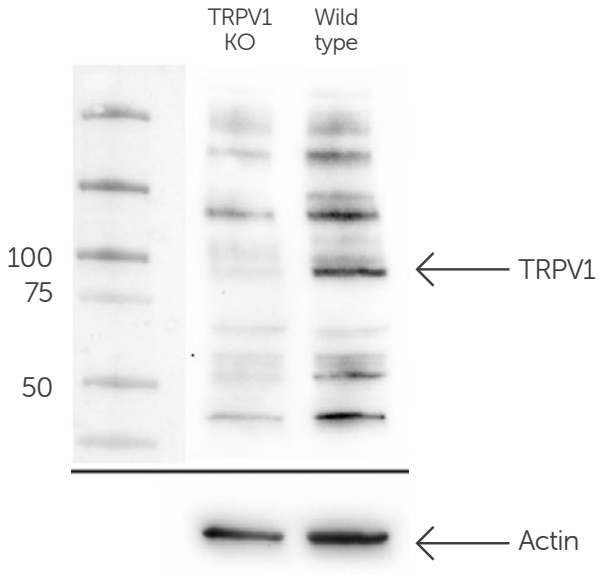


***Figure 2:*** *Thermal insensitivity in TRPV1 KO rats. TRPV1 KO rats show increased foot licking latency compared to wild type animals in the hot plate test. *** = p < 0.001.*

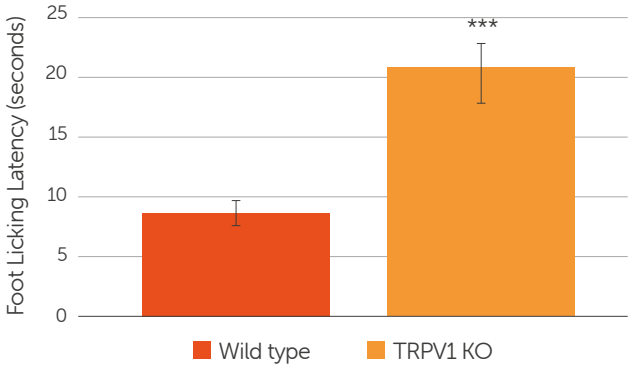


***Figure 3:*** *Weight and age comparison chart*