inotiv
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Genetically engineered models (GEMS)

Tph2-Cre knockin rat

MODEL	Tph2-Cre knockin rat
STRAIN	HsdSage: LE-*Tph2*$^{em1(T2A\text{-}Cre)Sage}$
LOCATION	U.S.
AVAILABILITY	Live colony

CHARACTERISTICS/HUSBANDRY

- Specific expression of floxed constructs in Tph2 positive serotonergic interneurons
- Cre recombinase driven by endogenous Tph2 promoter
- Targeted insertion eliminates possible gene disruption that may occur in random insertion technologies such as BAC
- Background strain: Long Evans Hooded

ZYGOSITY GENOTYPE

- Homozygous

RESEARCH USE

- Optogenetics
- Expression/knockout of floxed genes

ORIGIN

The Tph2-Cre 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

This model expresses cre-recombinase under the control of the endogenous Tryptophan Hydroxylase 2 (Tph2) promoter enabling specific expression in Tph2 positive serotonergic neurons. This model possesses a targeted insertion of (T2A)-cre immediately before the translational stop in the open reading frame of the Tph2 gene. The Tph2-Cre rat is useful for applications requiring tissue specific expression, including optogenetics and breeding with transgenic floxed lines.

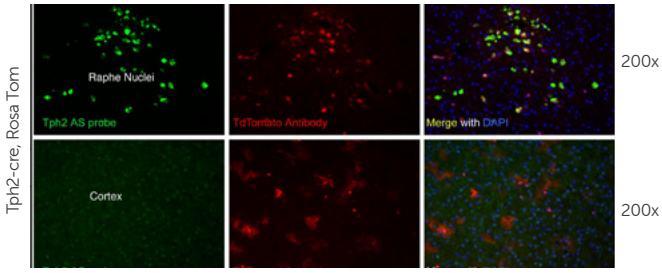

Figure 1. *Tph2 anti-sense probe mRNA in situ hybridization and anti-tdTomato antibody staining confirms the expected labeling pattern of Cre recombinase in Tph2 positive serotonergic neurons in Raphe nuclei in the brain of VIP-cre, Rosa Tom rats (A-A''). In addition, some Tph2 negative neurons in the cerebral cortex are also labeled with tdTomato, which may reflect the expression of Tph2 during the developmental stage (B-B'').*