

R26-CAG-LSL-mCherry-EGFP-LC3

Nomenclature	C57BL/6Smoc- <i>Gt(ROSA)26Sor</i> ^{em1(CAG-LSL-mCherry-EGFP-Map1lc3a-pA)Smoc}
Cat. NO.	NM-KI-00124
Strain State	Repository Live

Gene Summary

Gene Symbol Gt(ROSA)26Sor	Synonyms	R26, ROSA26, AV258896, Gtrg eo26, Gtrosa26, Thumpd3as1
	NCBI ID	14910
	MGI ID	104735
	Ensembl ID	ENSMUSG000000086429

Model Description

The CAG promoter-loxp-stop-loxp-mCherry-EGFP-Map1lc3a-WPRE-polyA expression cassette was inserted into the Rosa26 gene locus by homologous recombination. Map1lc3a, also known as LC3, is a widely expressed autophagic vesicle-specific marker. There was no abnormality in heterozygous mice. The presence of the loxp-stop-loxp expression cassette prevented the transcription of the downstream target gene LC3. After mating with Cre mice, LC3 gene is driven by the CAG promoter to express mCherry and EGFP in a pH-dependent manner in phagocytic cells after ischemic injury in the progeny double positive mice. The two co-expressed fluorescent signals vary depending on the acidic environment of the autophagic vesicles within the cell. mCherry is stable in an acidic environment (pKa 4.5), and quenching occurs in the acidic environment (pKa 5.9) of EGFP in lysosomes. In the autophagy vesicles with higher pH, the fluorescence of GFP and mCherry superimposed on yellow fluorescence; while in the lower pH lysosome, EGFP was quenched and only red fluorescence signal was detected. It can be used to label and track LC3 and study the origin, progression and disappearance of autophagy in various tissues after ischemic injury.

*Literature published using this strain should indicate: R26-CAG-LSL-mCherry-EGFP-LC3 mice (Cat. NO. NM-KI-00124) were purchased from Shanghai Model Organisms Center, Inc..

Validation Data

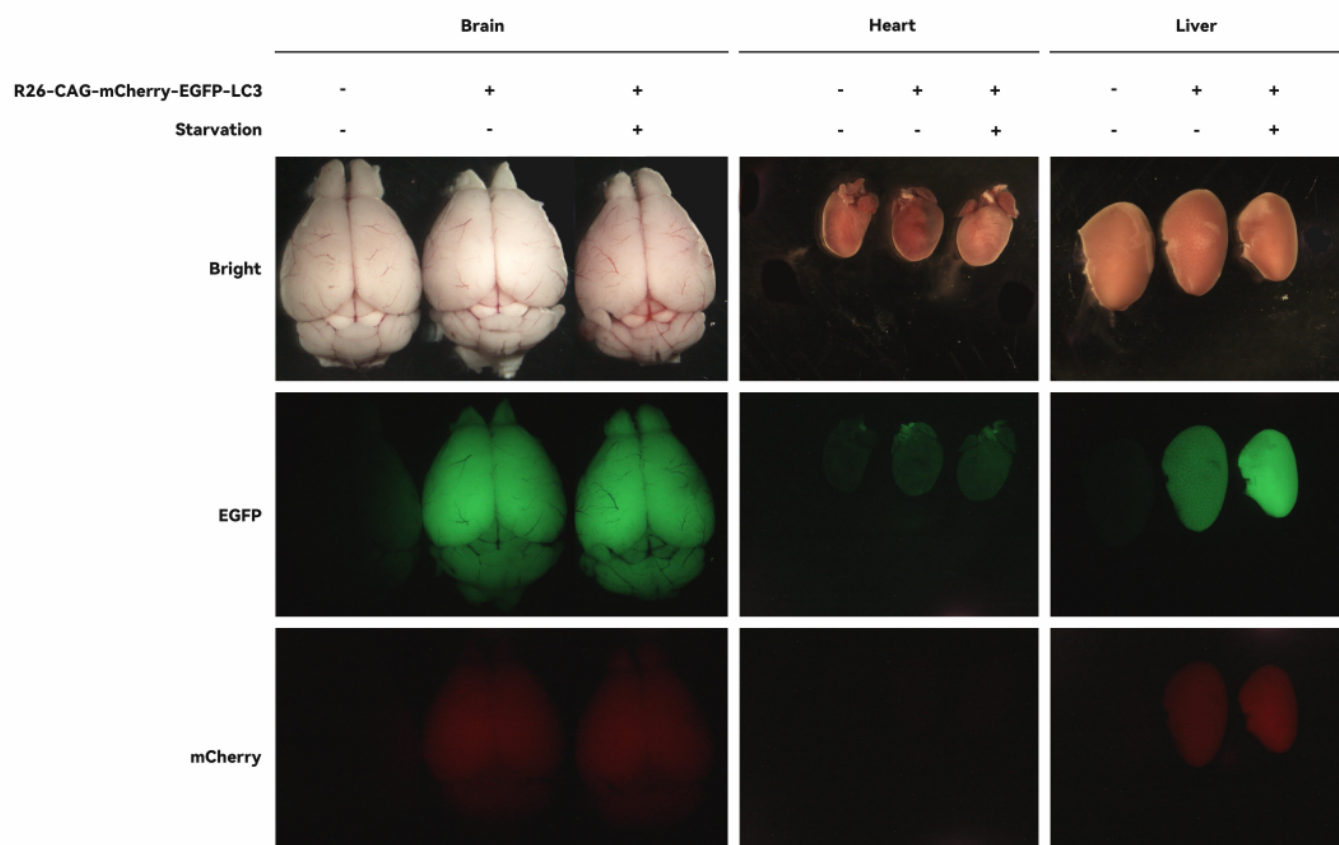


Fig1. Detection of EGFP and RFP fluorescence intensity in brain, heart and liver tissues of R26-CAG-mCherry-EGFP-LC3 mice. Starvation(+): The mice were fasted for 48 hours; Starvation(-): The mice were fed normally.

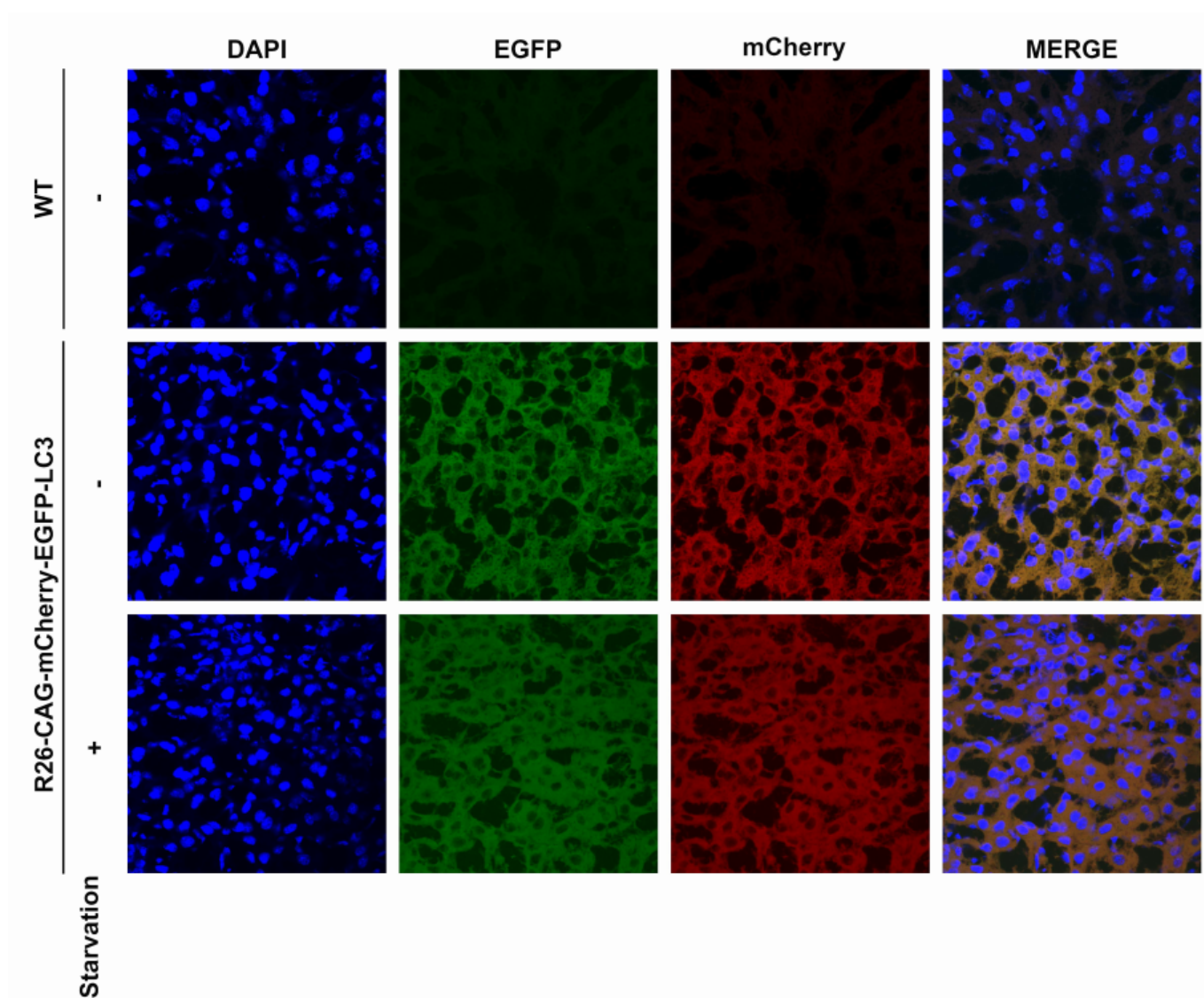


Fig2. Detection of EGFP and RFP puncta in liver tissue sections of R26-CAG-mCherry-EGFP-LC3 mice. Starvation for 48 h increased the ratio of RFP/EGFP fluorescence expression in liver tissue of R26-CAG-mCherry-EGFP-LC3 mice. These results suggested there was increased fusion of autophagosomes with lysosomes after 48h starvation. Starvation(+): The mice were fasted for 48 hours; Starvation(-): The mice were fed normally.