

**B6;129S6-Gt(ROSA)26Sor<sup>tm2(CAG-NuTRAP)Evdr</sup>/J**

Stock No: **029899** | NuTRAP, RANGAP-TRAP

 Targeted Mutation

Live mice available in varying quantities. Ask Customer Service for details.

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the BLRP-tagged mCherry/mRANGAP1 protein is biotinylated by BirA, allowing nuclear membrane-labeling with mCherry and biotin (which enables nuclear isolation by fluorescence- and affinity-based purification). Furthermore, EGFP/L10a fluorescently tags the translating mRNA polysome complex (which enables isolation of RNAs that are actively engaged by ribosomes). Overall, NuTRAP mice are a Cre-inducible tool strain that allows labeling and simultaneous isolation of cell type-specific nuclei and mRNA, and are well-suited for studying epigenomics and transcriptomics from specific cell types within a heterogeneous tissue. Of note, the donating investigator also has available their similar mouse line H2B-TRAP (Stock No. [029789](#)).

### Donating Investigator

Evan D Rosen, Beth Israel Deaconess Medical Center and Harvard Medical School

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## GENETIC OVERVIEW

### Genetic Background

### Generation

[N10+pN1F4](#)  
(2019-06-13 00:00:00)

*Gt(ROSA)26Sor<sup>tm2(CAG-NuTRAP)Evdr</sup>*

### Allele Type

Targeted (Conditional ready  
(e.g. floxed), Reporter)

### Gene Symbol

*Gt(ROSA)26Sor*

### Gene Name

gene trap ROSA 26, Philippe Soriano

VIEW GENETICS

## RESEARCH APPLICATIONS

Research Tools

Neurobiology Research

VIEW ALL RESEARCH APPLICATIONS

## BASE PRICE

Starting at:

\$255.00 Domestic price for female 4-week

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### Details

#### Detailed Description

The NuTRAP allele (Nuclear tagging and Translating Ribosome Affinity Purification) has a *loxP*-flanked STOP preventing transcription of three individual components each separated by a self-cleaving viral 2A peptide:

[i] BirA (the *E. Coli* biotin ligase),

[ii] BLRP-tagged mCherry/mRANGAP1 (the mouse nuclear membrane RAN GTPase activating protein 1 fused to mCherry and tagged with a biotin ligase recognition peptide)

and [iii] EGFP/L10a (the 60S ribosomal subunit L10a fused to EGFP).

Although under control of the endogenous *Gt(ROSA)26Sor* promoter/enhancer regions and the CAG hybrid promoter, widespread expression of the three components should be prevented by the floxed-STOP cassette. The donating investigator reports they observe no BirA, mCherry or EGFP expression prior to the introduction of Cre recombinase. Mice homozygous for the NuTRAP allele are viable and fertile with no reported gross physical or behavioral abnormalities.

Upon exposure to Cre recombinase, the NuTRAP allele co-expresses BirA, BLRP-tagged mCherry/mRANGAP1 and EGFP/L10a.

The BLRP-tagged mCherry/mRANGAP1 protein is biotinylated by BirA, allowing nuclear membrane-labeling with mCherry (direct fluorescence) and biotin - this enables nuclear isolation by two independent methods: fluorescence- and affinity-based purification.

Furthermore, EGFP/L10a fluorescently tags the translating mRNA polysome complex (direct fluorescence in the cytoplasm and nucleolus) - this enables isolation of RNAs that are actively engaged by ribosomes.

Specifically, when bred to have adipocyte-specific Cre recombinase expression (via Adiponectin-Cre ; Stock No. [010803](#)), the resulting Ad-NuTRAP mice showed EGFP/L10a in brown adipose tissue (BAT) and white adipose tissue (WAT), but not in kidney or liver. Fluorescence microscopy revealed mCherry/mRANGAP1 on the nuclear surface of lipid-filled adipocytes and EGFP/L10a in the cytoplasm and nucleolus. Immunohistological analysis using anti-GFP staining showed that adipocytes were specifically labeled.

When bred to have hepatocyte-specific Cre recombinase expression (via Albumin-Cre ; Stock No. [003574](#)), the resulting Alb-NuTRAP mice showed EGFP-labeled hepatocytes, and mCherry-positive hepatocyte nuclei were able to be isolated by flow cytometry.

Of note, the *frt* sites flanking the NuTRAP allele allow for additional targeted replacement of the reporter sequences through FLP-mediated recombination, if so desired. Also, the *AttB/AttP*-flanked selection cassette may be removed by introduction of the site-specific bacteriophage PhiC31 integrase, if so desired.

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[+ Development](#)

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[+ Expression Data](#)

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[+ Control Suggestions](#)

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## [- Genetics](#)

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[+ \*Gt\(ROSA\)26Sor<sup>tm2\(CAG-NuTRAP\)Evd</sup>\*](#)

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## [- Disease/Phenotype](#)

[+ Disease Terms](#)

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[+ Research Areas By Phenotype](#)

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[+ Mammalian Phenotype Terms by Genotype](#)

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[+ References](#)

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## [- Technical Support](#)

C O N T A C T   T E C H N I C A L   S U P P O R T

### Genotyping Protocols

Standard PCR:[Gt\(ROSA\)26Sor-Alternate 2](#)

Standard PCR:[Generic mCherry](#)

[Genotyping resources and troubleshooting](#)

### Breeding Considerations

When maintaining a live colony, heterozygous mice may be bred together, to wildtype mice from the colony or to C57BL/6J inbred mice (Stock No. [000664](#)). Alternatively, homozygous mice may be bred together.

[Additional Breeding and Husbandry Support](#)

### Mating System

Homozygote x Homozygote

## Citation

When using the NuTRAP , RANGAP-TRAP mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #029899 in your Materials and Methods section.

## Animal Health Reports

[Facility Barrier Level Descriptions](#)

 [AX11 \(Maximum\)](#)

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Available

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Pricing effective for USA, Canada and Mexico shipping destinations

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|------------|--------|--|----------|
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|            | Male   | Homozygous for Gt(ROSA)26Sor <sup>tm2(CAG-NuTRAP)Evd</sup> | \$255.00 |
| 5 weeks    | Female | Homozygous for Gt(ROSA)26Sor <sup>tm2(CAG-NuTRAP)Evd</sup> | \$255.00 |
|            | Male   | Homozygous for Gt(ROSA)26Sor <sup>tm2(CAG-NuTRAP)Evd</sup> | \$255.00 |
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|            | Male   | Homozygous for Gt(ROSA)26Sor <sup>tm2(CAG-NuTRAP)Evd</sup> | \$255.00 |
| 7 weeks    | Female | Homozygous for Gt(ROSA)26Sor <sup>tm2(CAG-NuTRAP)Evd</sup> | \$255.00 |
|            | Male   | Homozygous for Gt(ROSA)26Sor <sup>tm2(CAG-NuTRAP)Evd</sup> | \$255.00 |
| 8 weeks    | Female | Homozygous for Gt(ROSA)26Sor <sup>tm2(CAG-NuTRAP)Evd</sup> | \$255.00 |
|            | Male   | Homozygous for Gt(ROSA)26Sor <sup>tm2(CAG-NuTRAP)Evd</sup> | \$255.00 |
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|            | Male   | Homozygous for Gt(ROSA)26Sor <sup>tm2(CAG-NuTRAP)Evd</sup> | \$255.00 |
| 10 weeks   | Female | Homozygous for Gt(ROSA)26Sor <sup>tm2(CAG-NuTRAP)Evd</sup> | \$255.00 |
|            | Male   | Homozygous for Gt(ROSA)26Sor <sup>tm2(CAG-NuTRAP)Evd</sup> | \$255.00 |
| 11 weeks   | Female | Homozygous for Gt(ROSA)26Sor <sup>tm2(CAG-NuTRAP)Evd</sup> | \$255.00 |
|            | Male   | Homozygous for Gt(ROSA)26Sor <sup>tm2(CAG-NuTRAP)Evd</sup> | \$255.00 |
| 12 weeks   | Female | Homozygous for Gt(ROSA)26Sor <sup>tm2(CAG-NuTRAP)Evd</sup> | \$255.00 |
|            | Male   | Homozygous for Gt(ROSA)26Sor <sup>tm2(CAG-NuTRAP)Evd</sup> | \$255.00 |

## RELATED PRODUCTS AND SERVICES

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