The Jackson Laboratory

B6.Cg-*Gt(ROSA)26Sor*$^{tm1(CAG-HIST1H2BJ/mCherry,-EGFP/Rpl10a)Evdr}$/J

Stock No: **029789** | H2B-TRAP, TRAP , EGFP-L10a

Congenic, Targeted Mutation

Typically mice are recovered in 10-14 weeks. Contact Customer Service to place an order or for more information.

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with mCherry (which enables nuclear isolation by fluorescence-based purification). Furthermore, EGFP/L10a fluorescently tags the translating mRNA polysome complex (which enables isolation of RNAs that are actively engaged by ribosomes). Overall, H2B-TRAP 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 NuTRAP (Stock No. 029899).

Donating Investigator

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

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GENETIC OVERVIEW

Genetic Background	Generation

Gt(ROSA)26Sor$^{tm1(CAG-HIST1H2BJ/mCherry,-EGFP/Rpl10a)Evdr}$

Allele Type	Gene Symbol	Gene Name
Targeted (Conditional ready (e.g. floxed), Reporter)	*Gt(ROSA)26Sor*	gene trap ROSA 26, Philippe Soriano

VIEW GENETICS

RESEARCH APPLICATIONS

Research Tools
Neurobiology Research
Cell Biology Research
Immunology, Inflammation and Autoimmunity Research

Cancer Research

VIEW ALL RESEARCH APPLICATIO

BASE PRICE

Starting at:

$2,854.50 Domestic price Cryo Recovery

VIEW PRICE LIST

Details

Detailed Description

The H2B-TRAP allele (Translating Ribosome Affinity Purification) has a *loxP*-flanked STOP preventing transcription of two individual components that are separated by a self-cleaving viral 2A peptide:
[i] H2B/mCherry (the human histone 1 H2bj fused to mCherry) and [ii] 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 two components should be prevented by the floxed-STOP cassette. The donating investigator reports they observe no mCherry or EGFP expression prior to the introduction of Cre recombinase.
Mice heterozygous for the H2B-TRAP allele are viable and fertile with no reported gross physical or behavioral abnormalities. To date (January 2017), it has not been attempted to make this strain homozygous.

Upon exposure to Cre recombinase, the H2B-TRAP allele co-expresses H2B/mCherry and EGFP/L10a.
The H2B/mCherry protein allows nuclei-labeling with mCherry (direct fluorescence) - this enables nuclear isolation by fluorescence-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, H2B-TRAP mice may be bred to have Cre recombinase expression in hepatocytes (via Albumin-Cre ; Stock No. 003574), agouti-related protein-secreting neurons (via Agrp-Ires-cre; see Stock No. 012899) or active populations of neurons in the brain (via Arc^{CreERT2} ; Stock No. 021881). The resulting Alb-H2B-TRAP, AgRP-H2B-TRAP or ArcTRAP mice (respectively) showed mCherry and EGFP-labeling in the expected cell types, with no abnormal phenotypes reported.

In addition, when bred to have adipocyte-specific Cre recombinase expression (via Adiponectin-Cre ; Stock No. 010803), the resulting Ad-H2B-TRAP mice show brown adipose tissue (BAT) adipocytes have H2B/mCherry-labeled nuclei and EGFP/L10a-labeled ribosomes in cytoplasm. However, Ad-H2B-TRAP mice were profoundly lipodystrophic in all white adipose tissue (WAT) depots and failed to gain weight on high-fat diet, as compared to similarly treated control animals. As such, the donating investigator does not recommend using H2B-TRAP mice for work in adipocytes - suggesting instead that adipocyte studies may better utilize their NuTRAP mouse line (Stock No. 029899).

Of note, the *frt* sites flanking the H2B-TRAP 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.

Development

Expression Data

Control Suggestions

Genetics

Gt(ROSA)26Sor$^{tm1(CAG-HIST1H2BJ/mCherry,-EGFP/Rpl10a)Evdr}$

Disease/Phenotype

Disease Terms

Research Areas By Phenotype

Mammalian Phenotype Terms by Genotype

References

Technical Support

CONTACT TECHNICAL SUPPORT

Genotyping Protocols

Standard PCR:Gt(ROSA)26Sor
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). To date (January 2017), it has not been attempted to make this strain homozygous.

Additional Breeding and Husbandry Support

Citation

When using the H2B-TRAP, TRAP , EGFP-L10a mouse strain in a publication, please cite the originating article(s) and include JAX stock #029789 in your Materials and Methods section.

Animal Health Reports

Facility Barrier Level Descriptions

Production of mice from cryopreserved embryos or sperm occurs in a maximum barrier room, G200

Pricing & Availability

Cryo Recovery

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Domestic **International**

Pricing effective for USA, Canada and Mexico shipping destinations

CRYORECOVERY - DOMESTIC PRICING

SERVICE/PRODUCT	DESCRIPTION	PRICE
Cryo Recovery	Heterozygous or wildtype for Gt(ROSA)26Sor<tm1(CAG-HIST1H2BJ/mCherry,-EGFP/Rpl10a)Evdr>	$2,854.50

RELATED PRODUCTS AND SERVICES

Frozen Mouse Embryo	B6.Cg-Gt(ROSA)26Sor<tm1(CAG-HIST1H2BJ/mCherry-EGFP/Rpl10a)Ev	$2595.00

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