Resource Summary Report

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Brainbow mouse resource at Jackson Labs

RRID:SCR_004894
Type: Tool

Proper Citation

Brainbow mouse resource at Jackson Labs (RRID:SCR_004894)

Resource Information

URL: http://jaxmice.jax.org/strain/007910.html

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Description: These Brainbow 1.0 (founder line L) mice allow labeling of individual neuronal types (specifically hippocampal neuron cell bodies, and including motor neurons, dentate gyrus granule cells, pyramidal neurons of the cortex and CA1 area) with approximately 166 distinguishable color variations in cre recombined cells, and may also be useful in conjunction with other Brainbow strains (Stock No. 007901, Stock No. 007911, Stock No. 007921) for neurobiological studies. These Thy1-Brainbow 1.0 (line L) transgenic mice are viable and fertile. The mice possess multiple fluorescent protein sequences uniquely flanked with pairs of incompatible Lox sites alternated to create mutually exclusive recombination events; allowing stochastic expression of multiple fluorescent proteins from a single transgene. Prior to Cre-mediated recombination, the fluorescent protein immediately adjacent to the promoter, dTomato (RFP), is expressed in peripheral and central neurons. When bred to Cre recombinase expressing mice, the resulting offspring can have one of three expression outcomes for each transgene in each cell of the cre expressing tissue(s): dTomato (RFP) (no recombination), mCerulean (CFP), or mYFP. Integration of tandem transgene copies yields combinatorial fluorescent protein expression in each cell, and thus many possible cell colors, providing a way to distinguish adjacent neurons and visualize other cellular interactions. Of note, the single FRT site inserted in the transgene allows tandem transgene copy number reduction through Flp-mediated recombination if desired. These Brainbow 1.0 (founder line L) mice were found to have multiple transgene copies that allow labeling of individual neuronal types (specifically hippocampal neuron cell bodies, and including motor neurons, dentate gyrus granule cells, pyramidal neurons of the cortex and CA1 area) with approximately 166 distinguishable color variations in cre recombined cells, and may also be useful in conjunction with other Brainbow strains (Stock No. 007901, Stock No. 007911, Stock No. 007921) for neurobiological studies. This mouse can be used to support research in many areas including:

Neurobiology Research
* Cre-lox System (loxP-flanked Sequences)
* Fluorescent protein expression in neural tissue
Research Tools
* Cre-lox-System (loxP-flanked Sequences: Test/Reporter)
* Developmental Biology Research (Cre-lox system)
* Developmental Biology Research (transplantation marker for embryonic and adult tissue)
* FLP-FRT System (FRT-flanked Sequences)
* Fluorescent Proteins * Genetics Research (Mutagenesis and Transgenesis: Cre-lox system) * Genetics Research (Tissue/Cell Markers: Cre-lox system) * Genetics Research (Tissue/Cell Markers: astrocyte-specific marker) * Genetics Research (Tissue/Cell Markers: astrocytes) * Genetics Research (Tissue/Cell Markers: astrocytes, neurons) * Genetics Research (Tissue/Cell Markers: glial cells) * Genetics Research (Tissue/Cell Markers: multiple) * Genetics Research (Tissue/Cell Markers: neurons) * Genetics Research (Tissue/Cell Markers: transplantation marker for embryonic and adult tissue) * Neurobiology Research (astrocyte-specific marker) * Neurobiology Research (cell marker) * YFP related Research Tools * Fluorescent Proteins Control: 000664 C57BL/6J (approximate)

Abbreviations: Brainbow mice

Resource Type: biomaterial supply resource, organism supplier, material resource

Keywords: b6;cba-tg(thy1-brainbow1.0)llich/j, live

Funding:

Availability: Use Restrictions Apply, See Terms of Use

Resource Name: Brainbow mouse resource at Jackson Labs

Resource ID: SCR_004894

Alternate IDs: nif-0000-00249

Record Creation Time: 20220129T080227+0000

Record Last Update: 20250422T055211+0000

Ratings and Alerts

No rating or validation information has been found for Brainbow mouse resource at Jackson Labs.

No alerts have been found for Brainbow mouse resource at Jackson Labs.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 89 mentions in open access literature.

Listed below are recent publications. The full list is available at dkNET.

Philip DT, et al. (2024) Interferon lambda restricts herpes simplex virus skin disease by suppressing neutrophil-mediated pathology. mBio, 15(4), e0262323.

Pei F, et al. (2024) FGF signaling modulates mechanotransduction/WNT signaling in progenitors during tooth root development. Bone research, 12(1), 37.

Petersen M, et al. (2024) Classical cadherins evolutionary constraints in primates is associated with their expression in the central nervous system. PloS one, 19(11), e0313428.

Philip DT, et al. (2023) Interferon lambda restricts herpes simplex virus skin disease by suppressing neutrophil-mediated pathology. bioRxiv : the preprint server for biology.

Mandell MA, et al. (2022) Quantitative single-cell analysis of Leishmania major amastigote differentiation demonstrates variably extended expression of the lipophosphoglycan (LPG) virulence factor in different host cell types. PLoS neglected tropical diseases, 16(10), e0010893.

Chaudhari SN, et al. (2021) A microbial metabolite remodels the gut-liver axis following bariatric surgery. Cell host & microbe, 29(3), 408.

Qin Z, et al. (2020) Activation of tyrosine phosphatase PTP1B in pyramidal neurons impairs endocannabinoid signaling by tyrosine receptor kinase trkB and causes schizophrenia-like behaviors in mice. Neuropsychopharmacology : official publication of the American College of Neuropsychopharmacology, 45(11), 1884.

Peters ST, et al. (2020) Ablating Tau Reduces Hyperexcitability and Moderates Electroencephalographic Slowing in Transgenic Mice Expressing A53T Human ?-Synuclein. Frontiers in neurology, 11, 563.

Motanis H, et al. (2020) Decreased reproducibility and abnormal experience-dependent plasticity of network dynamics in Fragile X circuits. Scientific reports, 10(1), 14535.

Di Magno L, et al. (2020) Phenformin Inhibits Hedgehog-Dependent Tumor Growth through a Complex I-Independent Redox/Corepressor Module. Cell reports, 30(6), 1735.

Ma H, et al. (2020) c-Src Promotes Tumorigenesis and Tumor Progression by Activating PFKFB3. Cell reports, 30(12), 4235.

Li J, et al. (2019) HNRNPK maintains epidermal progenitor function through transcription of

proliferation genes and degrading differentiation promoting mRNAs. Nature communications, 10(1), 4198.

Prabhakar A, et al. (2019) Leaky expression of channelrhodopsin-2 (ChR2) in Ai32 mouse lines. PloS one, 14(3), e0213326.

Goswami S, et al. (2019) Local cortical circuit correlates of altered EEG in the mouse model of Fragile X syndrome. Neurobiology of disease, 124, 563.

Giguère N, et al. (2019) Increased vulnerability of nigral dopamine neurons after expansion of their axonal arborization size through D2 dopamine receptor conditional knockout. PLoS genetics, 15(8), e1008352.

Clancy-Thompson E, et al. (2019) Transnuclear mice reveal Peyer's patch iNKT cells that regulate B-cell class switching to IgG1. The EMBO journal, 38(14), e101260.

Porrello A, et al. (2018) Factor XIIIA-expressing inflammatory monocytes promote lung squamous cancer through fibrin cross-linking. Nature communications, 9(1), 1988.

Rosin LF, et al. (2018) Condensin II drives large-scale folding and spatial partitioning of interphase chromosomes in Drosophila nuclei. PLoS genetics, 14(7), e1007393.

Martini-Stoica H, et al. (2018) TFEB enhances astroglial uptake of extracellular tau species and reduces tau spreading. The Journal of experimental medicine, 215(9), 2355.

Chen T, et al. (2018) A WNT protein therapeutic improves the bone-forming capacity of autografts from aged animals. Scientific reports, 8(1), 119.