The TetTag mouse is a bi-transgenic mutant that has tetracycline (or tetracycline analog) inducible expression of beta-galactosidase in activated neurons. This strain provides a tool that allows the inducible stable labeling of activated neurons.

**Donating Investigator**

Dr. Mark Mayford, The Scripps Research Institute

**GENETIC OVERVIEW**

**Genetic Background**

<table>
<thead>
<tr>
<th>Allele Type</th>
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<tbody>
<tr>
<td>Tg(Fos-tTA,Fos-EGFP*)1Mmay</td>
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<tr>
<td>Transgenic (Reporter, Transactivator)</td>
</tr>
<tr>
<td>Tg(tetO-lacZ,tTA*)1Mmay</td>
</tr>
<tr>
<td>Transgenic (Reporter, Inducible, Transactivator)</td>
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</tbody>
</table>

**Research Applications**

Research Tools
Neurobiology Research
The TetTag mouse is a bi-transgenic mutant that has tetracycline (or a tetracycline analog such as doxycycline) inducible expression of beta-galactosidase in activated neurons. Two independently generated transgenic strains were crossed to produce this bi-transgenic TetTag strain. In the first transgenic construct, the tetracycline-controlled transactivator (tTA) protein and a two hour half-life Green Fluorescent Protein (shEGFP) are expressed under the direction of the fos, FBJ osteosarcoma oncogene, minimal promoter. The second transgenic construct expresses a nuclear-localizing beta-galactosidase gene and the doxycycline insensitive tetracycline regulated transactivator (containing point mutation, H100Y), under the control of the tetO, tetracycline-responsive regulatory element.

Doxycycline administration prevents expression of beta-galactosidase in neurons. In the absence of doxycycline, tau-LacZ is induced in neurons of the dentate gyrus (DG) and CA1 neuron, with most of the LacZ-positive neurons displaying typical morphologies of granule cells and pyramidal neurons in the DG and CA1, respectively. Neurons that were induced to express beta-galactosidase during the absence of doxycycline administration will continue to express beta-galactosidase via the doxycycline insensitive mutant tTA_H100Y. Mice hemizygous for each transgene are viable and fertile. The strain is maintained with doxycycline administration to prevent neuronal beta-galactosidase expression. The donating investigator has not attempted to make these mice homozygous for the transgenes. This strain provides a tool that allows the inducible stable labeling of activated neurons.

Of note, cfos-hTAlTA mice (cfos-tTA/cfos-shEGFP) harboring only the co-injected cfos-tTA/cfos-shEGFP transgenes are available at The Jackson Laboratory as Stock No. 018306.
Genetics

+ **Tg(Fos-tTA,Fos-EGFP*)1Mmay**
+ **Tg(tetO-lacZ,tTA*)1Mmay**

Disease/Phenotype

Disease Terms

Research Areas By Phenotype

Mammalian Phenotype Terms by Genotype

References

Technical Support

Genotyping Protocols

**QPCR:** Fluorescent Proteins -- Generic GFP
**Probe:** Fluorescent Proteins (Generic GFP)
**QPCR:** Generic GFP/EGFP qPCR
**Standard PCR:** Fluorescent Proteins (Generic GFP)
**Standard PCR:** Generic LacZ Melt Curve Analysis
**Probe:** Generic LacZ Probe
**QPCR:** Generic LacZ QPCR Alternate 1
**Standard PCR:** Tg(tetO-lacZ,tTA*)1Mmay Alternate 1

Genotyping resources and troubleshooting

Breeding Considerations

When maintaining a live colony, these mice are bred hemizygous for each transgene. The strain is maintained with doxycycline administration to prevent neuronal beta-galactosidase expression. The donating investigator notes that his lab has not been successful in their attempts to generate homozygotes from this line.

Additional Breeding and Husbandry Support

Mating System

See "Breeding Considerations"
Citation
When using the TetTag mouse strain in a publication, please cite the originating article(s) and include JAX stock #008344 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

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

Domestic

<table>
<thead>
<tr>
<th>CRYORECOVERY - DOMESTIC PRICING</th>
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<tr>
<td>SERVICE/PRODUCT</td>
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<tr>
<td>Cryo Recovery &gt;</td>
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Frozen Mouse Embryo | B6;DBA-Tg(Fos-tTA Fos-EGFP*)1Mmay Tg(tetO-lacZ,tTA*)1Mmay/J | $2595.00 |

PAYMENT TERMS AND CONDITIONS

Terms are granted by individual review and stated on the customer invoice(s) and account statement. These transactions are payable in U.S. currency within the granted terms. Payment for services, products, shipping containers, and shipping costs that are rendered are expected within the payment terms indicated on the invoice or stated by contract. Invoices and account balances in arrears of stated terms may result in The Jackson Laboratory pursuing collection activities including but not limited to outside agencies and court filings.

THE JACKSON LABORATORY’S GENOTYPE PROMISE

The Jackson Laboratory has rigorous genetic quality control and mutant gene genotyping programs to ensure the genetic background of JAX® Mice strains as well as the genotypes of strains with identified molecular mutations. JAX® Mice strains are only made available to researchers after meeting our standards. However, the phenotype of each strain may not be fully characterized and/or captured in the strain data sheets. Therefore, we cannot guarantee a strain's phenotype will meet all expectations. To ensure that JAX® Mice will meet the needs of individual research projects or when requesting a strain that is new to your research, we suggest ordering and performing tests on a small number of mice to determine suitability for your particular project. We do not guarantee breeding performance and therefore suggest that investigators order more than one breeding pair to avoid delays in their research.
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**TERMS OF USE**

*General Terms and Conditions*

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**LICENSING INFORMATION**

Phone: 207-288-6470

Email: TechTran@jax.org

**Related Strains**

- **All**
- By Allele
- By Gene
- By Collection