Overview

These GAD67-GFP (line 3) mice may be useful for fluorescent labeling of neurons and studying the development, maturation, regulation, and functional integration of newborn neurons in adult hippocampus.

Donating Investigator

Guoping Feng, Massachusetts Institute of Technology
Mice hemizygous for this GAD67-GFP transgene are viable and fertile. In the hippocampus, GAD67-GFP (line 3) mice selectively express enhanced green fluorescent protein (EGFP) in newborn dentate granule cells. At two weeks of age, EGFP is expressed in large numbers of dentate granule cells, and the number of EGFP-positive cells diminishes with age in a pattern consistent with the postnatal development of dentate granule cells/age-related reduction in adult neurogenesis in the dentate gyrus. The EGFP expression in newborn dentate granule cells begins within the first week of cell division and disappears as newborn neurons mature (about 4 weeks postmitotic), and EGFP positive dentate granule cells also express the newborn neuron markers PSA-NCAM and doublecortin. The bright labeling of newborn neurons with EGFP makes it possible to visualize the details of dendrites, which reach the outer edge of the molecular layer, and their axon terminals (mossy fiber boutons) in the CA3 region. In addition, EGFP is expressed in GABAergic neurons in many regions of the brain including the Purkinje cells of the cerebellum, periglomerular neurons of the olfactory bulb, and interneurons of the superior colliculus and brainstem. In some regions of the brain (thalamus, hypothalamus, cortex and striatum) sparse EGFP labeling is seen, with all EGFP positive cells also GAD67 positive in these regions. EGFP expression is not reported in hippocampal interneurons, including those in the hilus. Because the transgene contains loxP sites surrounding the
GAD67-GFP sequences, crossing to a cre expressing strain will result in offspring bearing a deletion of the GAD67-GFP transgene. These GAD67-GFP (line 3) mice may be useful for fluorescent labeling of neurons and studying the development, maturation, regulation, and functional integration of newborn neurons in adult hippocampus. Of note, this GAD67-GFP strain is one of many fluorescent GABAergic neuron strains, each with unique labeling characteristics (see Stock No. 003718, Stock No. 006334, Stock No. 006340, and Stock No. 007677).

### Development

### Expression Data

### Control Suggestions

### Selected References

### Genetics

- **Tg(Gad1-EGFP)3Gfng**

### Disease/Phenotype

### Disease Terms

### Research Areas By Genotype

### Mammalian Phenotype Terms by Genotype

### References

### Technical Support

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**Genotyping Protocols**

- **Probe:** Generic GFP
- **Standard PCR:** Tg(Gad1-EGFP)3Gfng
- **Separated PCR:** Tg(Gad1-EGFP)3Gfng
- **Standard PCR:** Generic GFP

Genotyping resources and troubleshooting

**Breeding Considerations**

When maintaining a live colony, hemizygous mice are bred to wildtype siblings or to C57BL/6J inbred mice.

Additional Breeding and Husbandry Support
Citation
When using the B6.Cg-Tg(Gad1-EGFP)3Gfng/J mouse strain in a publication, please cite the originating article(s) and include JAX stock #007673 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.

<table>
<thead>
<tr>
<th>SERVICE</th>
<th>GENOTYPE</th>
<th>PRICE</th>
</tr>
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<tbody>
<tr>
<td>Cryo Recovery</td>
<td>Hemizygous or Non carrier for Tg(Gad1-EGFP)3Gfng</td>
<td>$2,854.50</td>
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</tbody>
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We will fulfill your order by providing at least two carriers for each strain ordered. The total number, sex, and genotypes provided will vary, although typically 8 or more animals are provided. Please check genotypes which will be recovered. While the genotypes of all animals produced will be communicated to you prior to scheduling shipment, the genotypes of animals provided may not reflect the mating scheme and genotypes described in the strain description. Animals are typically ready to ship in 11-14 weeks. If a second recovery is required to produce the minimum number of animals, then delivery time would increase to approximately 25 weeks. If we fail to produce animals of the correct genotype, you will not be charged. We cannot guarantee the reproductive success of mice shipped to your facility. If the mice are lost after the first three days (post-arrival) or do not produce progeny at your facility, a new order and fee will be necessary.

Cryo recovery to establish a Dedicated Supply for greater quantities of mice. Mice recovered can be used to establish a dedicated colony to contractually supply you mice according to your requirements. Price by quotation.

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### Related Strains

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

All Related Strains