The Jackson Laboratory

STOCK *Igs2* $^{tm1(ACTB-EGFP,-tdTomato)Luo}$ /J

Stock No: **013749** | MADM-11 ^{GT}

Transgenic

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

PLACE ORDER

Email Download PDF Help

markers in mice for studies to ascertain lineal relationships and pleiotropic gene function in multicellular organisms, and in studies of cell differentiation and mitosis.

Of note, an improved MADM design, called MADM-ML-11, is available: GT11ML (Stock No. 022976) and TG11ML (Stock No. 022977). Compared to the single *loxP* approach of the original MADM-11 design (Stock No. 013749 and Stock No. 013751), the multiple self-recognizing *lox* variant sites present in the MADM-ML-11 system result in significantly improved recombination efficiency (4-8 fold higher) with no negative impact on G2-X segregation percentage (G2-X segregation produces the desired fluorescent homozygous mutant daughter cells).

Donating Investigator

Liqun Luo, Stanford University

READ MORE +

GENETIC OVERVIEW

Genetic Background	Generation

Igs2$^{tm1(ACTB-EGFP,-tdTomato)Luo}$

Allele Type	Gene Symbol	Gene Name
Targeted (Reporter, Null/Knockout)	*Igs2*	intergenic site 2

VIEW GENETICS

RESEARCH APPLICATIONS

Cell Biology Research
Neurobiology Research
Research Tools

VIEW ALL RESEARCH APPLICATION

BASE PRICE

Starting at:

$2,854.50 Domestic price Cryo Recovery

VIEW PRICE LIST

Details

Detailed Description

Homozygous MADM-11^{GT} mice are viable and fertile with no gross behavioral or observable abnormalities. The MADM-11^{GT} allele has the CMV enhancer/chicken beta-actin core promoter, the N-terminal portion of a mutant enhanced green fluorescent protein (mut4-EGFP), a beta-globin intronic sequence containing an *frt* site and a *loxP*-flanked neomycin resistance gene, and the MYC-tagged C-terminal portion of a red fluorescent protein (tdTomato) all inserted into the *Hipp11* locus on chromosome 11 (cytoband A1 at ~3cM between the *Eif4enif1* and *Drg1* loci). These MADM-11^{GT} mutants are designed for MADM (mosaic analysis with double markers), and must be crossed to MADM-11^{TG} mice harboring a reciprocal mutation at the same locus (see Stock No. 013751). The resulting GT/TG offspring have one copy of each reciprocal mutation on homologous chromosomes ("trans-heterozygous"), and must also be bred to harbor a *cre*- or *FLP*-recombinase to induce fluorescent protein expression. Prior to Cre- or FLP-recombination, trans-heterozygous mutant mice do not have colored cells: the chimeric genes do not produce functional proteins because their coding sequences are interrupted by the beta-globin intron in different reading frames. After DNA replication (G2 phase) in double mutant mice, introduction of Cre- or FLP-recombinase that facilitates inter-chromosomal recombination aligns the respective N- and C-terminal coding sequences for each of the reporter genes on the same chromosome. The subsequent chromatid segregation (X or Z) determines daughter cell phenotype: recombinant sister chromatids into the same daughter cell (a G2-Z event) leads to double reporter expression or no reporter expression, while independent segregation into separate daughter cells (a G2-X event) leads to expression of either EGFP or tdTomato-MYC. If an additional targeted mutation of interest is introduced distal to the MADM-11 locus on chromosome 11, only homozygous cells will be singly labeled following G2 *cre* or *FLP* introduction. The homozygous mutant and wildtype cells can then be distinguished by which single reporter they express. Most heterozygous cells will be unlabeled, but some heterozygous cells will be yellow (both markers expressed). Reporter protein tissue specificity, expression levels, and frequency of recombination are thus determined by the promoter controlling Cre- or FLP-recombinase expression. Using this MADM system, a researcher can generate genetic mosaics in which an individual organism contains somatic cells of different genotypes. This allows the researcher to ascertain lineal relationships and pleiotropic gene function in multicellular organisms. These mice may also be useful in studies of cell differentiation and mitosis.

Other important features of the MADM-11 system are listed below. Because of its placement ~3kb from the centromere, MADM-11 allows >99% of genes on chromosome 11 to be subjected to MADM-based mosaic analyses. Cre- or FLP-recombinase introduction in cell phase G0 or G1 results in double reporter expression. The donating investigator also reports the MADM-11 design has several advantages compared to the original MADM(-6) mice. Specifically, MADM-11 allows direct fluorescent visualization of both EGFP and tdTomato in live animals/cells: permitting genotypes of distinctly labeled cells in mosaic animals to be unequivocally determined prior to fixation and/or immunostaining. Also, MADM-11 contains both *loxP* sites and a *frt* site; allowing the induction of MADM-labeling by either Cre recombinase or FLP recombinase. In addition, the interchromosomal recombination rate in MADM-11 is markedly increased compared with the original MADM(-6) system; allowing greater temporal control of clone induction if using concomitantly with an inducible Cre recombinase (or Flp recombinase).

- Development
- Expression Data
- Control Suggestions
- Selected References

Genetics

- *Igs2*$^{tm1(ACTB-EGFP,-tdTomato)Luo}$

Disease/Phenotype

- Disease Terms
- Research Areas By Phenotype
- Mammalian Phenotype Terms by Genotype
- References

Technical Support

CONTACT TECHNICAL SUPPORT

Genotyping Protocols
Standard PCR:Igs2
Standard PCR:Igs2
Genotyping resources and troubleshooting

Breeding Considerations

When maintaining a live colony, homozygous mice may be bred together.

Additional Breeding and Husbandry Support

Citation

When using the MADM-11^{GT} mouse strain in a publication, please cite the originating article(s) and include JAX stock #013749 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

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

Domestic | **Internatic**

Pricing effective for USA, Canada and Mexico shipping destinations

CRYORECOVERY - DOMESTIC NOT-FOR-PROFIT & ACADEMIC PRICING		
SERVICE/PRODUCT	DESCRIPTION	PRICE
Cryo Recovery	Hemizygous or non carrier for Tg(ACTB-EGFP,-tdTomato)11Luo	$2,854.50

RELATED PRODUCTS AND SERVICES		
Frozen Mouse Embryo	STOCK Igs2<tm1(ACTB-EGFP -tdTomato)Luo>/J Frozen Embryo	$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.

Terms Of Use

TERMS OF USE

General Terms and Conditions

QUESTIONS ABOUT TERMS OF USE

ADDITIONAL USE RESTRICTIONS APPLY

NOT AVAILABLE TO COMPANIES OR FOR COMMERCIA

Use of MICE only available to non-profit entities.

LICENSING INFORMATION

Phone: 207-288-6470
Email: TechTran@jax.org

Related Strains

All

By Allele

By Gene

By Collection

▲