Also Known As: FLAG-Ube3a BAC transgenic on FVB/NJ

FLAG-Ube3a BAC transgenic mice express functional, FLAG-tagged Ube3a protein in addition to endogenous Ube3a. This increased Ube3a expression models maternal 15q11-13 duplication (dup15) and triplication (isodicentric extranumerary chromosome, idic15) that is associated with 1-3% of cases of human autism spectrum disorder. On the FVB/NJ genetic background, transgenic mice exhibit three core autism-related behavior traits (defective social interaction, impaired communication and increased repetitive stereotypies). FLAG-Ube3a BAC transgenic mice are available on a FVB/NJ genetic background (Stock No. 019730) and a C57BL/6N genetic background (Stock No. 025611).

Donating Investigator
Matthew P Anderson, Beth Israel Deaconess Medical Center / Harvard Medical School

FVB/NJ-Tg(Ube3a)1Mpan/J
Stock No: 019730 | FLAG-Ube3a BAC transgenic on FVB/NJ

Typically mice are recovered in 10-14 weeks. Contact Customer Service to place an order or for more information.
The FLAG-Ube3a BAC transgene (also called "Ube3a-isoform2,3-3XFlag: Strain L" transgene) has a 3xFLAG tag inserted in-frame into exon 12 of Ube3a on the BAC; this generates full-length, C-terminal FLAG-tagged Ube3a mRNA long isoforms (isoforms 2 and 3, L) that are subsequently translated into functional, FLAG-tagged Ube3a protein. Transgenic mice from founder line Fd1 (FLAG-Ube3a BAC Fd1 or FLAG-Ube3a BAC X0) are described here. The FLAG-Ube3a expression pattern matched that of endogenous Ube3a across multiple brain areas (including cortex, hippocampus and thalamus). Importantly, the endogenous Ube3a gene is expressed only from the maternal chromosome in neurons; a result of paternal imprinting (the antisense transcript functions to silence paternal expression in brain). Because the FLAG-Ube3a BAC transgene lacks the transcription initiation site of the antisense transcript, expression of FLAG-Ube3a is independent of parent-of-origin or sex of the animal. Compared to wildtype animals, expression levels of Ube3a protein in whole-brain lysates are two-fold greater in Ube3a 1xTg (i.e., hemizygous) mice and three-fold greater in Ube3a 2xTg (i.e., homozygous) mice.

This increased Ube3a gene dosage models maternal 15q11-13 duplication (dup15) and triplication (isodicentric extranumerary chromosome, idic15) that is associated with 1-3% of human autism spectrum disorder. By 16 weeks of age, homozygous mice display strong penetrance of three core autism-related behavior traits; defective social interaction, impaired communication and increased repetitive stereotypes (defective three chamber social interaction task, impaired social paired vocalizations in adults and increased repetitive self-grooming, respectively). Homozygous animals exhibit reduced glutamatergic (excitatory) synaptic transmission, but no defects in GABAergic (inhibitory) synaptic transmission. To date, homozygous mice have not displayed other major confounding traits or co-morbidities (no evidence of anxiety, motor behavior deficits, memory deficits or sensory behavior deficits). Hemizygous animals are viable and fertile, with a milder phenotype compared to homozygotes. The donating investigator does not recommend breeding homozygous animals as it could result in some heretofore unknown changes in phenotype.
When maintaining our live colony, hemizygous mice may be bred to wildtype (noncarrier) mice from the colony or to FVB/NJ inbred mice (Stock No. 001800). The donating investigator reports that hemizygous (Ube3a 1xTg) mice of both sexes are viable and breed perfectly well. The donating investigator does not recommend breeding homozygous (Ube3a 2xTg) animals as it could result in some heretofore unknown changes in phenotype.

Additional Breeding and Husbandry Support

Citation
When using the FLAG-Ube3a BAC transgenic on FVB/NJ mouse strain in a publication, please cite the originating article(s) and include JAX stock #019730 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>CRYORECOVERY - DOMESTIC PRICING</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVICE/PRODUCT</td>
</tr>
<tr>
<td>Cryo Recovery</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RELATED PRODUCTS AND SERVICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frozen Mouse Embryo</td>
</tr>
</tbody>
</table>

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
ADDITIONAL USE RESTRICTIONS APPLY

Use of MICE by non-profits requires a Material Transfer Agreement (MTA) and for-profit entities require a license.

LICENSING INFORMATION

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

Related Strains

- All
- By Allele
- By Gene
- By Collection