TetO-Bcl2-IRES-tdTomato transgenic mice have Tet-inducible/controllable expression of the long isoform of mouse Bcl2 and the tdTomato fluorescent protein. These mice may be useful for studying the anti-apoptotic effects of BCL2 (i.e., extended cell survival), accompanied by tdTomato fluorescence.

Donating Investigator
C. Ron Yu, Stowers Institute for Medical Research

Typically mice are recovered in 10-14 weeks. Contact Customer Service to place an order or for more information.
Navigator neurons are a group of perinatally born olfactory sensory neurons that are proposed to play an essential role in establishing the olfactory map during the critical period of nervous system / neural circuit development (Wu et al. 2018 Neuron 100:1066). The anti-apoptotic B-cell lymphoma-2 family protein BCL-2 is a key regulator of programmed cell death, and therefore has important function in development, homeostasis and disease (malignancies, neurodegeneration, etc.).

tetO-Bcl2-IRES-tdTomato transgenic mice have Tet-inducible/controllable expression of the long isoform of mouse BCL2 and the tdTomato fluorescent protein. When tetO-Bcl2-IRES-tdTomato transgenic mice are bred with another mouse expressing tetracycline-controlled transactivator protein (tTA) or reverse tetracycline-controlled transactivator protein (rtTA), the resulting BCL2 and tdTomato expression can be regulated with tetracycline or its analog doxycycline (dox). This is designed such that cells expressing both BCL2 and tTA[-dox] (or rtTA[+dox]) should exhibit the anti-apoptotic effects of BCL2 (i.e., extended cell survival), accompanied by tdTomato fluorescence.

Prior to exposure to tTA (or rtTA[+dox]), mice hemizygous for the tetO-Bcl2-IRES-tdTomato transgene are viable and fertile with normal breeding, and no spontaneous phenotypic abnormalities. The donating investigator reports this transgene is not leaky (i.e., no tdTomato expression is observed before tTA introduction). It has not been attempted to make this strain homozygous to date (March 2019).

Breeding tetO-Bcl2-IRES-tdTomato mice to have the Omp-IRES-tTA allele (Stock No. 017754) and the tetO-ITAn*taulacZ transgene (from Stock No. 008344) creates the triple mutant Omp-TetTag:tetO-Bcl2-IRES-tdTomato mice. Prior to dox administration, the olfactory marker protein-driven tTA results in expression of BCL2, tdTomato, lacZ and tTA*H100Y in mature olfactory sensory neurons (mOSNs). Because the tetO-ITAn*taulacZ transgene encodes the tetracycline-insensitive tTA*H100Y, once it is initially induced by another source of tTA (e.g., Omp-IRES-tTA), expression of tTA*H100Y is sustained by a self-perpetuating loop - even in the presence of dox. Omp-TetTag:tetO-Bcl2-IRES-tdTomato mice exhibit sustained expression of BCL2 - resulting in extended survival of OSNs in the neuroepithelium and more exuberant axons in the EPL. Additionally, tdTomato fluorescence was robust/bright, and there were more lacZ+ neurons in the neuroepithelium compared to controls. [Wu et al. 2018 Neuron 100:1066]
When maintaining our live colony, transgenic carrier mice may be bred together, to wildtype (noncarrier) mice from the colony or to C57BL/6J inbred mice (Stock No. 000664).

Prior to exposure to tTA (or rtTA[+dox]), mice hemizygous for the tetO-Bcl2-IRES-tdTomato transgene are viable and fertile with normal breeding, and no spontaneous phenotypic abnormalities. It has not been attempted to make this strain homozygous to date (March 2019).

Additional Breeding and Husbandry Support

When using the tetO-Bcl2-IRES-tdTomato mouse strain in a publication, please cite the originating article(s) and include JAX stock #033125 in your Materials and Methods section.

Production of mice from cryopreserved embryos or sperm occurs in a maximum barrier room, G200
RELATED PRODUCTS AND SERVICES

Frozen Mouse Embryo
B6.FVB-Tg(tetO-Bcl2-tdTomato)LM1Ryu/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.

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