Overview

This Col1a1-CreERT2 mutant mouse strain carries a transgene with tamoxifen inducible Cre recombinase and may be useful for generating osteoblast and odontoblast specific targeted mutants for studies of bone physiology and homeostasis.

Donating Investigator

Benoit de Crombrugghe, UT MD Anderson Cancer Center
**GENETIC OVERVIEW**

Genetic Background: NspN1F11

Generation: NspN1F11

(2018-05-02 00:00:00)

**Tg(Col1a1-cre/ERT2)1Crm**

**Allele Type**

Transgenic (Recombinase-expressing, Inducible)

**RESEARCH APPLICATIONS**

Research Tools

Internal/Organ Research

**BASE PRICE**

Starting at:

- $278.00 Domestic price for female
- $356.51 Domestic price for breeder pair

**Details**

**Detailed Description**

These transgenic mice express a tamoxifen inducible Cre recombinase driven by the 2.3-kb mouse Col1a1, collagen, type I, alpha 1, promoter. The transgene insert contains a fusion product involving Cre recombinase and a mutant form of the mouse estrogen receptor ligand binding domain. The mutant mouse estrogen receptor does not bind natural ligand at physiological concentrations but will bind the synthetic ligand, 4-hydroxytamoxifen. Restricted to the cytoplasm, the Cre/Esr1 protein can only gain access to the nuclear compartment after exposure to tamoxifen. When crossed with a strain containing a loxP site flanked sequence of interest, the offspring are useful for generating tamoxifen-induced, Cre-mediated targeted deletions. Tamoxifen administration induces Cre recombination in the osteoblasts of most bones and in odontoblasts of teeth in embryonic and postnatal mice. Inducible Cre recombinase activity is detected in the osteoblasts of the long bones of the limbs and in the ribs, vertebrae and calvaria in 18.5 embryonic day aged and 18 day old mice. Inducible Cre recombinase activity was not detected in chondrocytes. The Donating Investigator has not attempted to make this strain homozygous. Hemizygous mutant mice are viable, fertile, normal in size and do not display any gross physical or behavioral abnormalities.

Of note, The Jackson Laboratory offers three mouse lines expressing tamoxifen-inducible Cre recombinase under control of the
mouse Col1a1 promoter; each with unique features.

i. This Col1a1-CreERT2 transgenic mice (Stock No. 016241) has the 2.3-kb mouse Col1a1 promoter directing expression of the cre/Esr1 coding sequence; requiring only tamoxifen to induce Cre recombinase activity.

ii. Similarly, the Col1a1^{FRT-Cre-ER-T2-FRT} mice (Stock No. 027751) have a frt-flanked CreERT2 coding sequence inserted downstream of the endogenous Col1a1 promoter; requiring only tamoxifen to induce Cre recombinase activity. The additional feature is that the CreERT2 coding sequence may be removed by FLP recombinase.

iii. In contrast, the Col1a1^{FRT-STOP-FRT-Cre-ER-T2} mice (Stock No. 027750) have a frt-STOP-frt cassette and CreERT2 coding sequence, all inserted downstream of the endogenous Col1a1 promoter. As such, they require FLP recombinase-mediated removal of the frt-flanked STOP cassette prior to tamoxifen-inducible CreERT2 expression.

Genotyping Protocols
MELT: Tg(Col1a1-cre/ERT2)1Crm-Alternate 2
Probe: Generic Cre Probe
Genotyping resources and troubleshooting
Breeding Considerations
When maintaining a live colony, these mice can be bred as hemizygotes. The Donating Investigator has not attempted to make this strain homozygous.

Additional Breeding and Husbandry Support

Mating System
Noncarrier x Hemizygote
Hemizygote x Noncarrier

Citation
When using the BD Ca Tg(Col1a1-cre/ERT2)1Crm/J mouse strain in a publication, please cite the originating article(s) and include JAX stock BD16261 in your Materials and Methods section.

Pricing & Availability
Live mice available in varying quantities. Ask Customer Service for details.

Domestic | International
Pricing effective for USA, Canada and Mexico shipping destinations

Live Mouse

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Breeder Pair

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Frozen Mouse Embryo  
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