**B-Col10a1-iCre mice**

**Basic Information**
- **Strain Name**: C57BL/6-Col10a1\textsuperscript{tm1(iCre)/Bcgen}
- **Stock Number**: B-EM-001
- **Common Name**: Col10a1\textsuperscript{iCre}; Col10a1-F2A-iCre
- **Source / Investigator**: Bcgen (Beijing Biocytogen Co., Ltd)
- **Related Genes**: Col10a1 (collagen, type X, alpha 1); Col10; Col10a-1
- **Species**: C57BL/6
- **Controls**: Wild type from the colony
- **Appearance**: Black
- **Genotypes**: Col10a1\textsuperscript{iCre} (wt/mut)
- **Development**: A F2A-iCre sequence cassette was placed between the coding sequence of exon 3 and 3'UTR of the Col10a1 gene in C57BL/6 ES cells. This strain was maintained on a C57BL/6 genetic background.

**Breeding & Husbandry**
- **Mating System**: Hemizygote X Hemizygote
- **Diet Information**: SPF Regular Diet
- **Regular No. of Pups**: 7
- **Productive Time**: 8 months
- **Maternity**: Good
- **Growth Curve**: N/A

**Genotyping Information**

**Genotyping Protocols**

<table>
<thead>
<tr>
<th>Primer</th>
<th>Sequence (5’-3’)</th>
<th>Tm (°C)</th>
<th>Product size (bp)</th>
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</thead>
<tbody>
<tr>
<td>Col10a1-iCre-primer1</td>
<td>TCAGGATTCCTAGTGCTCC</td>
<td>57</td>
<td>WT: 173</td>
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<td>Col10a1-iCre-primer2</td>
<td>AACTTGCTAGTGCTCC</td>
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<tr>
<td>Col10a1-iCre-primer1</td>
<td>TCAGGATTCCCTAGTGCTCC</td>
<td>57</td>
<td>Mut: 143</td>
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<tr>
<td>Col10a1-iCre-primer3</td>
<td>TGGTGACAGTGAGGTGAGTG</td>
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</tbody>
</table>

Polymerase: taq

**Phenotype**
- **Phenotype**: Mice hemizygous for Col10a1\textsuperscript{iCre} gene are viable and fertile without any physical abnormalities.

**Description & Application**
- **Description**: The Col10a1 gene encodes a short-chain minor collagen of cartilage which is a direct transcriptional target of RUNX2 during chondrogenesis. In this strain, Cre recombinase expression is under the control of Col10a1 promoter. When crossed with a strain containing a loxP site-flanked sequence of interest, Cre-mediated recombination results in deletion of the flanked sequence in Col10a1 expressing cells.
- **Application**: This Col10a1\textsuperscript{iCre} model is an efficient tool to study various gene functions when crossed with mice with different loxP site-flanked genes of interest, especially in studies of mature hypertrophic chondrocytes during endochondral ossification.

**Availability**
- **Availability**: Inquiry
**Gene Targeting Strategy**

**Wild type allele**

**Targeting vector**

5' homologous arm ~4 5kb

3' homologous arm ~7.5kb

**Targeted allele**

**Frp recombinase**

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**References**

1. Maye P; Fu Y; Butler DL; Chokalingam K; Liu Y; Floret J; Stover ML; Wenstrup R; Jiang X; Gooch C; Rowe D. 2011. Generation and characterization of Col10a1-mcherry reporter mice. Genesis 49(5):410-8. [PubMed: 21328521]


