

***Btg2* Cas9-KO Strategy**

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Reviewer:

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Project Overview

Project Name

Btg2

Project type

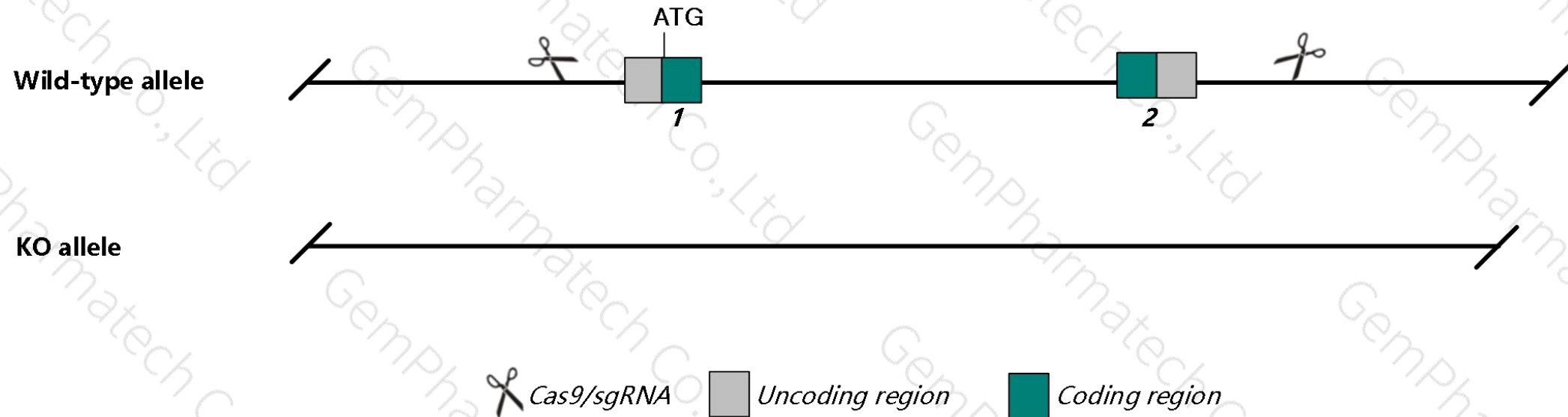
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Btg2* gene. The schematic diagram is as follows:



- The *Btg2* gene has 1 transcript. According to the structure of *Btg2* gene, exon1-exon2 of *Btg2-201* (ENSMUST00000020692.6) transcript is recommended as the knockout region. The region contains all of the codon region. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Btg2* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Homozygous null *Btg2*^{tm1} *Wbh* mice do not exhibit an overt phenotype. Homozygous null *Btg2*^{tm1} *Spo* mice exhibit posterior homeotic transformations of the axial vertebrae.
- The *Btg2* gene is located on the Chr1. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risk of the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Btg2 BTG anti-proliferation factor 2 [*Mus musculus* (house mouse)]

Gene ID: 12227, updated on 11-Sep-2019

Summary

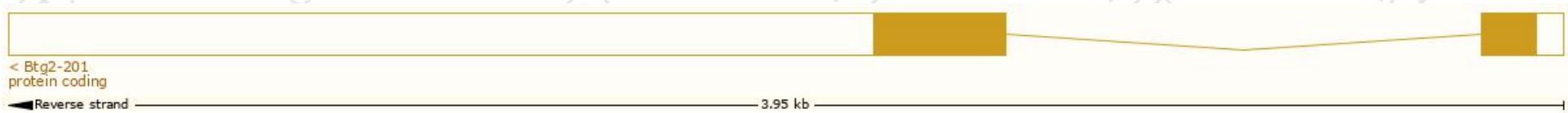
Official Symbol	Btg2 provided by MGI
Official Full Name	BTG anti-proliferation factor 2 provided by MGI
Primary source	MGI:MGI:108384
See related	Ensembl:ENSMUSG000000020423
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Pc3; APRO1; TIS21; AA959598
Expression	Broad expression in thymus adult (RPKM 131.1), spleen adult (RPKM 49.4) and 21 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

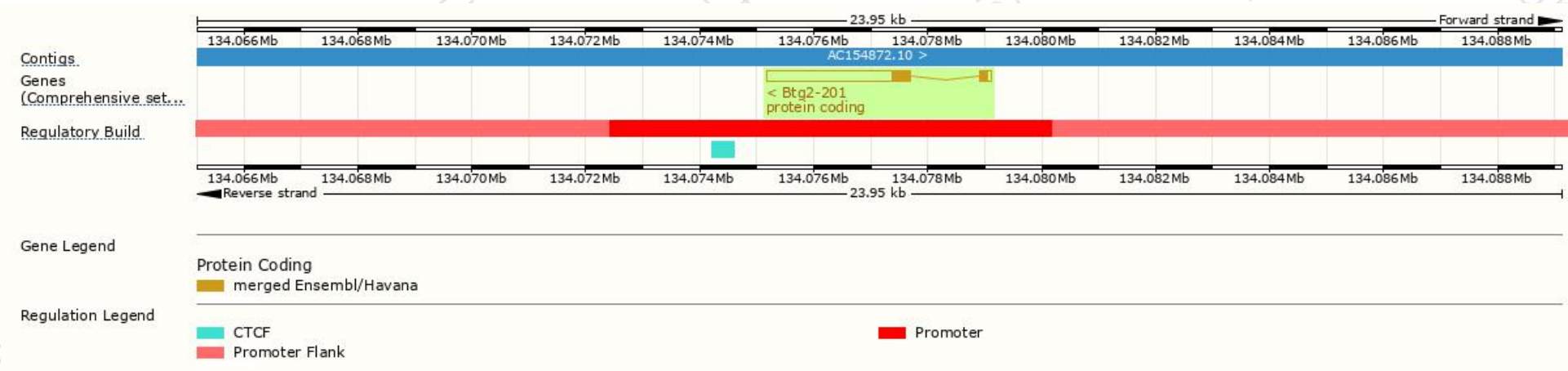
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Btg2-201	ENSMUST00000020692.6	2743	158aa	Protein coding	CCDS15302	Q04211 Q3TF68	TSL:1 Gencode basic APPRIS P1

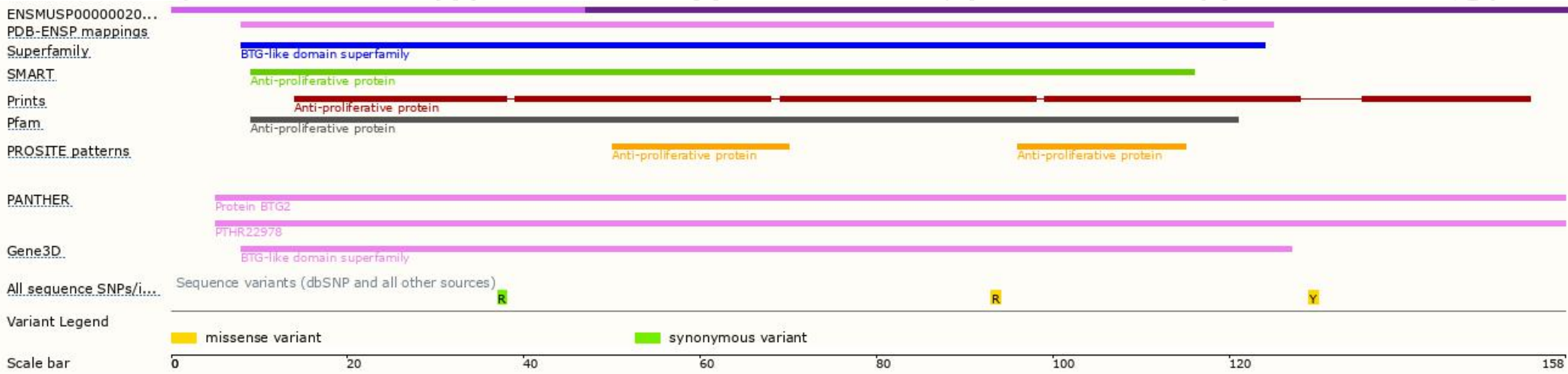
The strategy is based on the design of *Btg2-201* transcript, The transcription is shown below



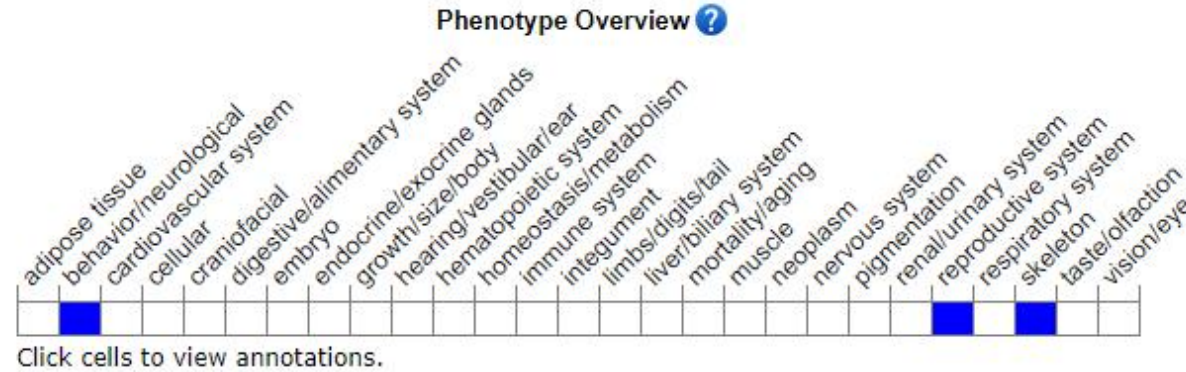
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

Homozygous null Btg2tm1Wbh mice do not exhibit an overt phenotype. Homozygous null Btg2tm1Spo mice exhibit posterior homeotic transformations of the axial vertebrae.

If you have any questions, you are welcome to inquire.

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