

Bmx Cas9-KO Strategy

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Project Overview

Project Name

Bmx

Project type

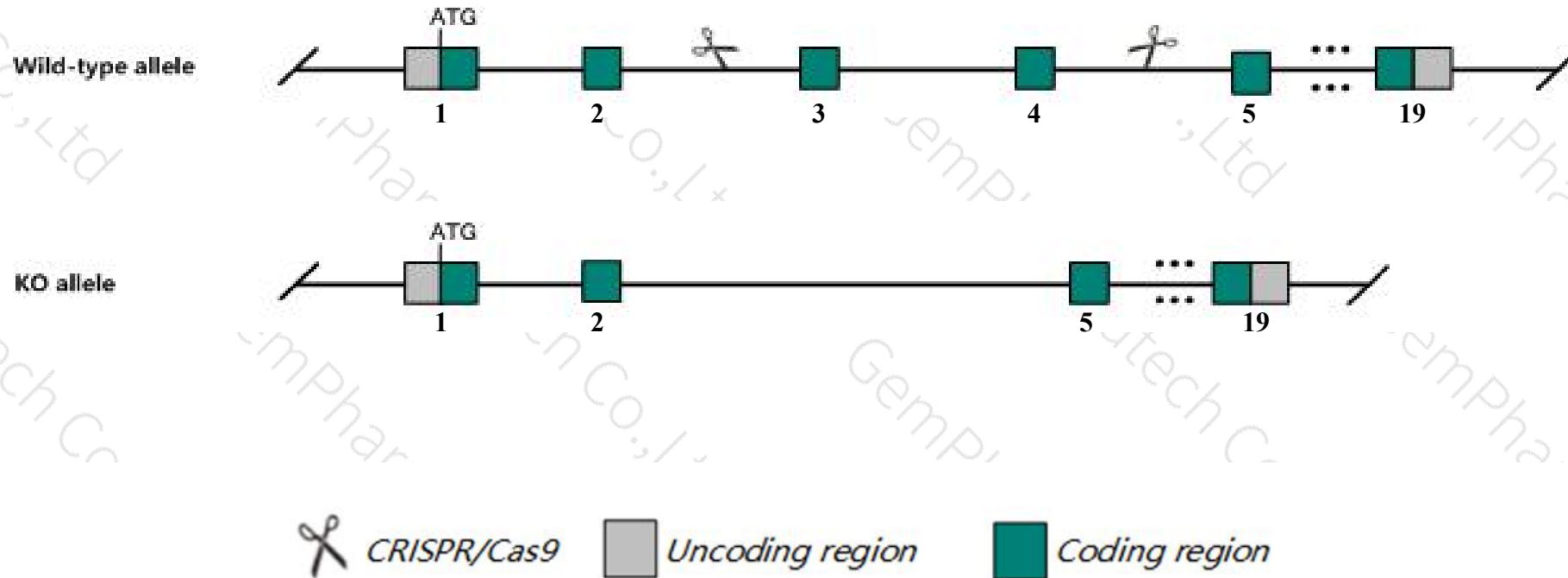
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Bmx* gene has 2 transcripts. According to the structure of *Bmx* gene, exon3-exon4 of *Bmx*-202 (ENSMUST00000112265.8) transcript is recommended as the knockout region. The region contains 187bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Bmx* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Mice homozygous for a null mutation are fertile and have a normal life span but are protected from arthritis in a passive transfer model.
- The *Bmx* gene is located on the ChrX. 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)

Bmx BMX non-receptor tyrosine kinase [Mus musculus (house mouse)]

Gene ID: 12169, updated on 31-Jan-2019

Summary



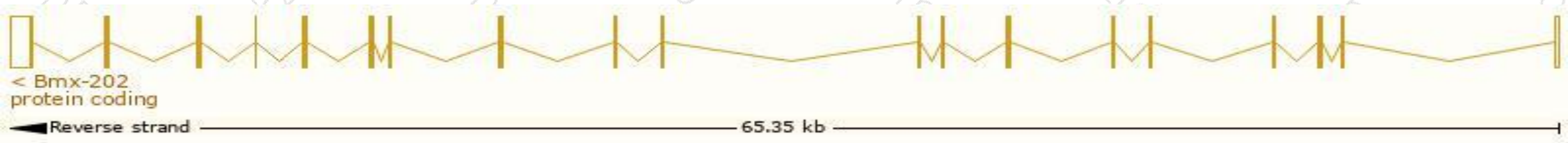
Official Symbol	Bmx provided by MGI
Official Full Name	BMX non-receptor tyrosine kinase provided by MGI
Primary source	MGI:MGI:1101778
See related	Ensembl:ENSMUSG000000031377
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Etk, Etk/Bmx, Tyro8
Expression	Broad expression in bladder adult (RPKM 1.1), lung adult (RPKM 0.9) and 22 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Bmx-202	ENSMUST00000112265.8	3005	655aa	Protein coding	CCDS30519	B1AUL6	TSL:1 GENCODE basic APPRIS P2
Bmx-201	ENSMUST00000112263.1	2433	651aa	Protein coding	-	B1AUL5 P97504	TSL:5 GENCODE basic APPRIS ALT2

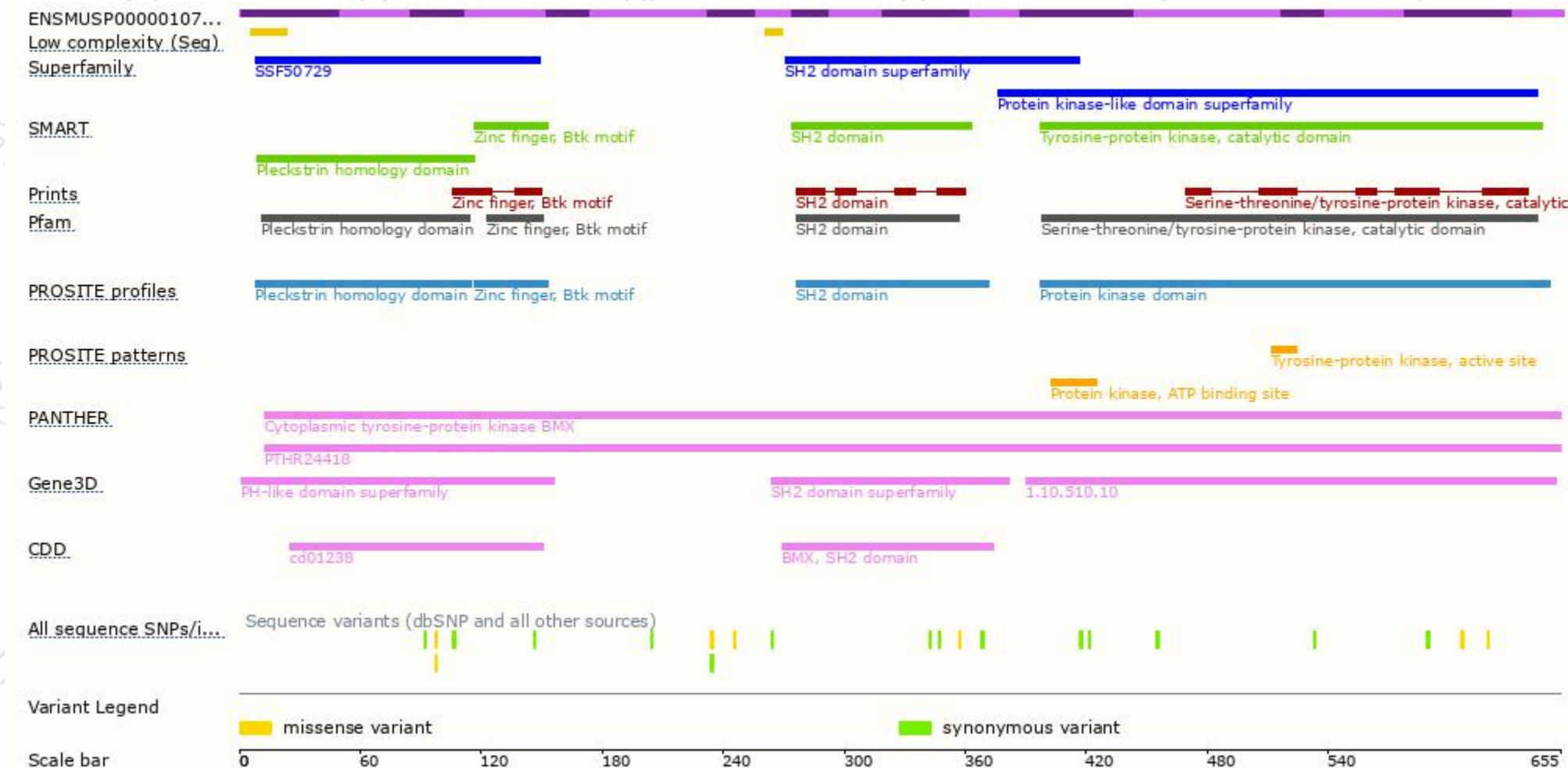
The strategy is based on the design of *Bmx-202* transcript,The transcription is shown below



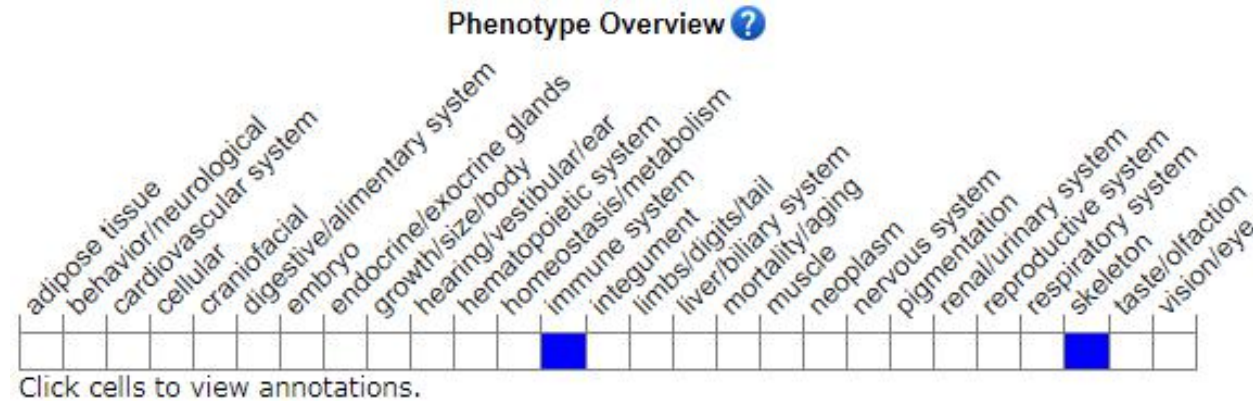
Genomic location distribution



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/>).

According to the existing MGI data, Mice homozygous for a null mutation are fertile and have a normal life span but are protected from arthritis in a passive transfer model.

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

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