

Itgbl1 Cas9-KO Strategy

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Project Overview

Project Name

Itgbl1

Project type

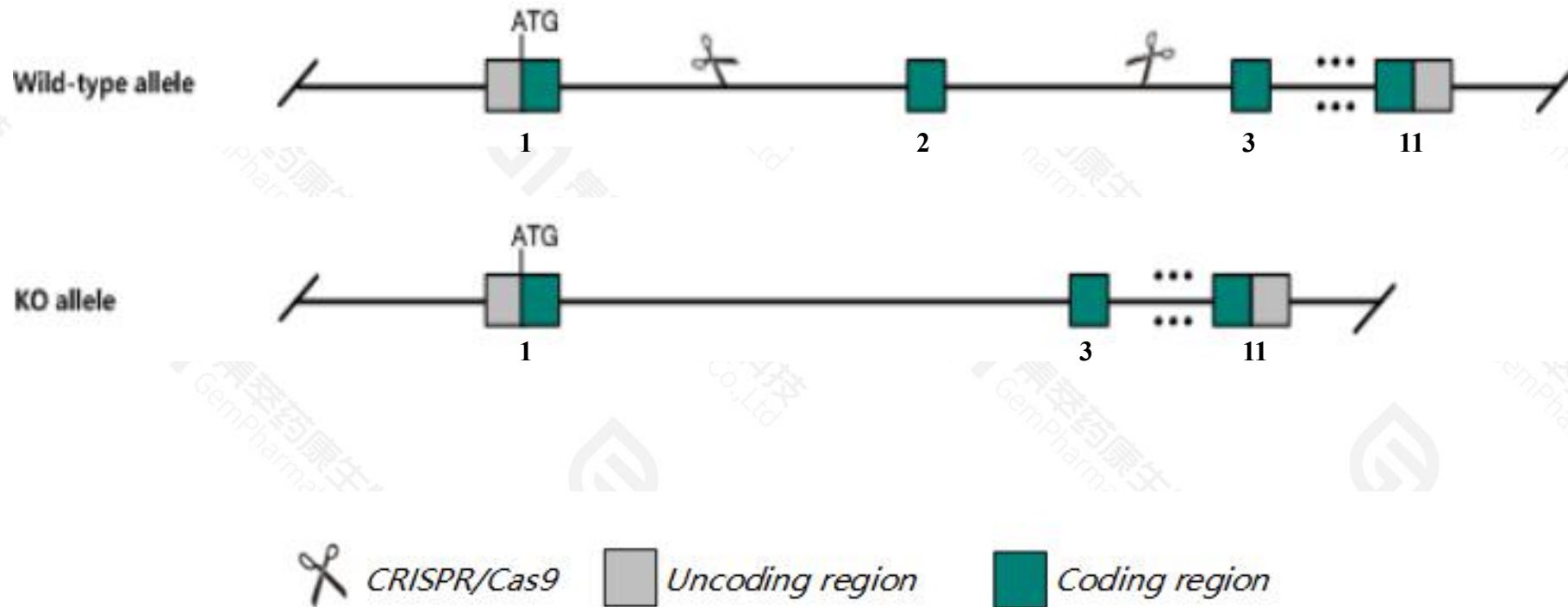
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Itgbl1* gene. The schematic diagram is as follows:



Technical routes

- The *Itgb11* gene has 3 transcripts. According to the structure of *Itgb11* gene, exon2 of *Itgb11*-201(ENSMUST00000049681.14) transcript is recommended as the knockout region. The region contains 218bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Itgb11* gene. The brief process is as follows: CRISPR/Cas9 system were microinjected into the fertilized eggs of C57BL/6JGpt mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

- The *Itgb11* gene is located on the Chr14. 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)

Itgbl1 integrin, beta-like 1 [Mus musculus (house mouse)]

Gene ID: 223272, updated on 25-Sep-2020

Summary



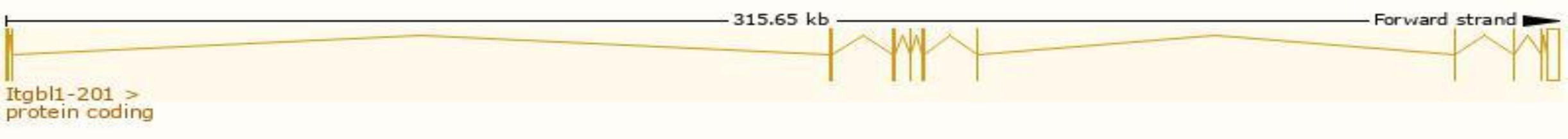
Official Symbol	Itgbl1 provided by MGI
Official Full Name	integrin, beta-like 1 provided by MGI
Primary source	MGI:MGI:2443439
See related	Ensembl:ENSMUSG00000032925
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	B930011D01Rik
Expression	Broad expression in genital fat pad adult (RPKM 5.6), bladder adult (RPKM 5.3) and 17 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

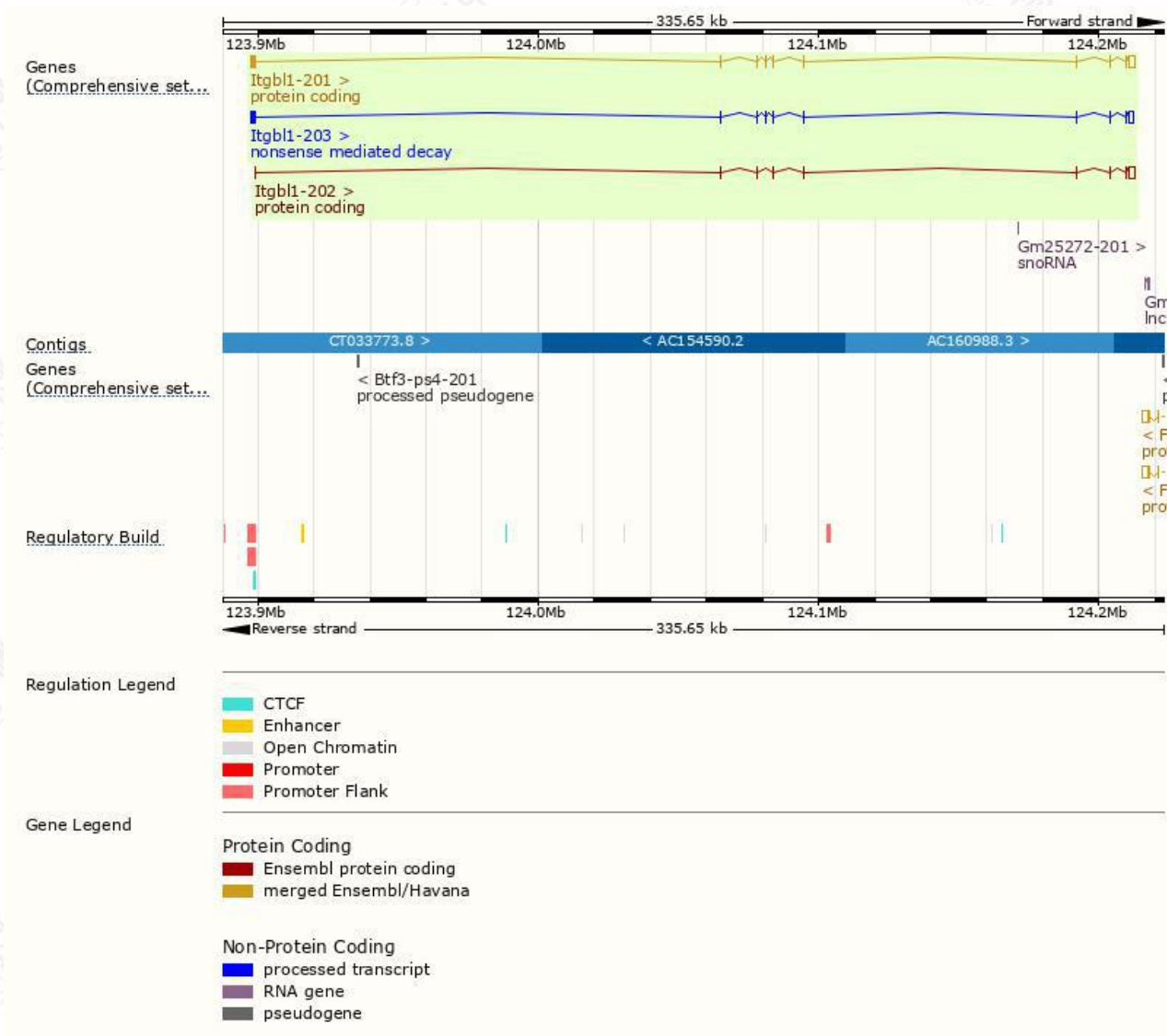
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Itgbl1-201	ENSMUST00000049681.14	4065	494aa	Protein coding	CCDS27354		TSL:1 , GENCODE basic , APPRIS P1 ,
Itgbl1-202	ENSMUST00000132026.2	3355	370aa	Protein coding	-		CDS 5' incomplete , TSL:1 ,
Itgbl1-203	ENSMUST00000142161.8	3372	210aa	Nonsense mediated decay	-		TSL:1 ,

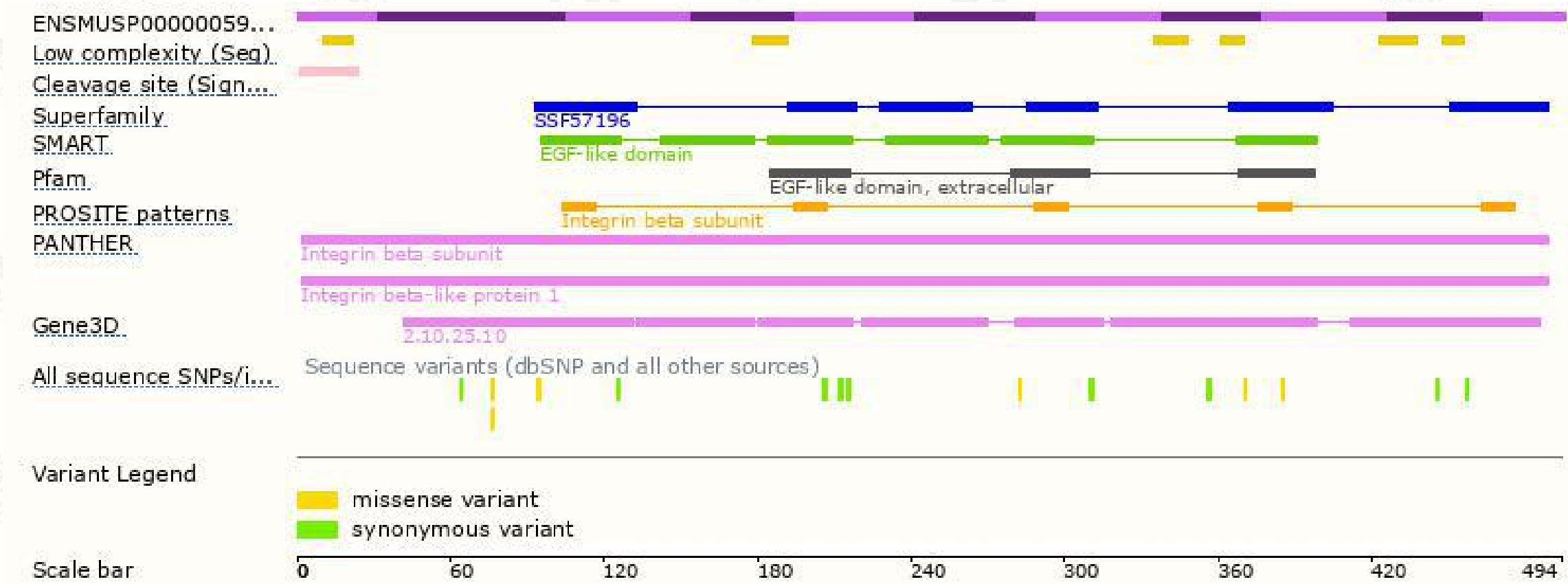
The strategy is based on the design of *Itgbl1-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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