

Itga2b Cas9-KO Strategy

Designer:

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Design Date:

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Project Overview

Project Name

Itga2b

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Itga2b* gene. The schematic diagram is as follows:



- The *Itga2b* gene has 10 transcripts. According to the structure of *Itga2b* gene, exon2-exon12 of *Itga2b-201* (ENSMUST00000103086.3) transcript is recommended as the knockout region. The region contains 1019bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Itga2b* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygotes for targeted null mutations exhibit a bleeding disorder, lack platelet binding to fibrinogen, absence of fibrinogen in platelet alpha granules, and increased numbers of hematopoietic progenitors in yolk sac, fetal liver, and bone marrow.
- The *Itga2b* gene is located on the Chr11. 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)

Itga2b integrin alpha 2b [Mus musculus (house mouse)]

Gene ID: 16399, updated on 9-Apr-2019

Summary



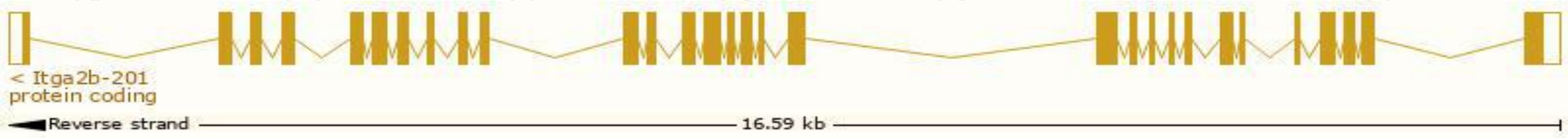
Official Symbol	Itga2b provided by MGI
Official Full Name	integrin alpha 2b provided by MGI
Primary source	MGI:MGI:96601
See related	Ensembl:ENSMUSG00000034664
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI172977, CD41, CD41B, GpIIb, alphaIIb
Expression	Broad expression in spleen adult (RPKM 19.1), liver E14.5 (RPKM 14.7) and 16 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

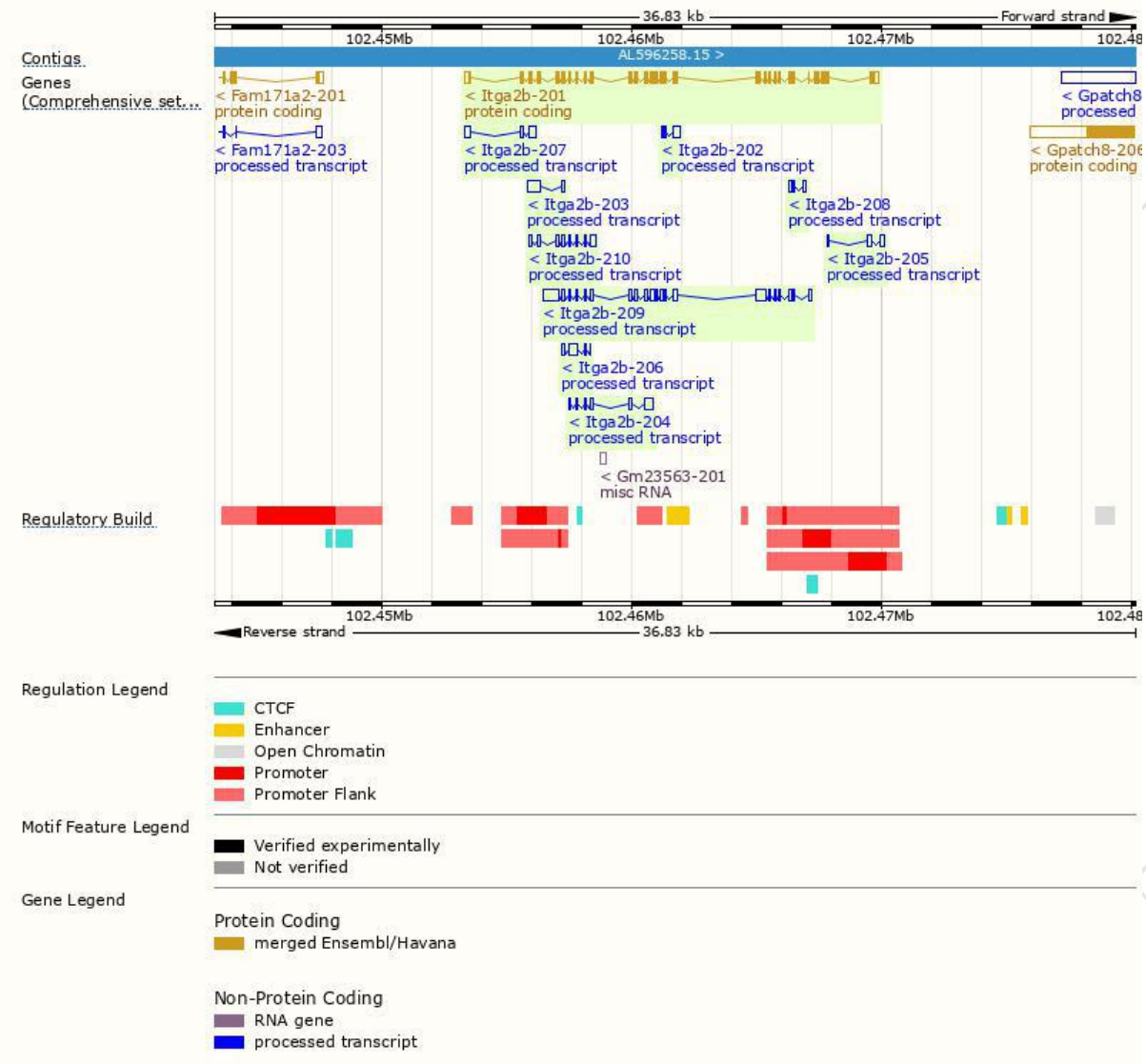
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Itga2b-201	ENSMUST00000103086.3	3437	1033aa	Protein coding	CCDS25500	Q9QUM0	TSL:1 GENCODE basic APPRIS P1
Itga2b-209	ENSMUST00000149519.7	2880	No protein	Processed transcript	-	-	TSL:2
Itga2b-210	ENSMUST00000151625.7	968	No protein	Processed transcript	-	-	TSL:5
Itga2b-204	ENSMUST00000130433.1	772	No protein	Processed transcript	-	-	TSL:5
Itga2b-203	ENSMUST00000128752.1	672	No protein	Processed transcript	-	-	TSL:5
Itga2b-207	ENSMUST00000134735.1	623	No protein	Processed transcript	-	-	TSL:2
Itga2b-206	ENSMUST00000131247.7	620	No protein	Processed transcript	-	-	TSL:3
Itga2b-205	ENSMUST00000130757.1	427	No protein	Processed transcript	-	-	TSL:3
Itga2b-202	ENSMUST00000124767.1	369	No protein	Processed transcript	-	-	TSL:3
Itga2b-208	ENSMUST00000145925.1	268	No protein	Processed transcript	-	-	TSL:5

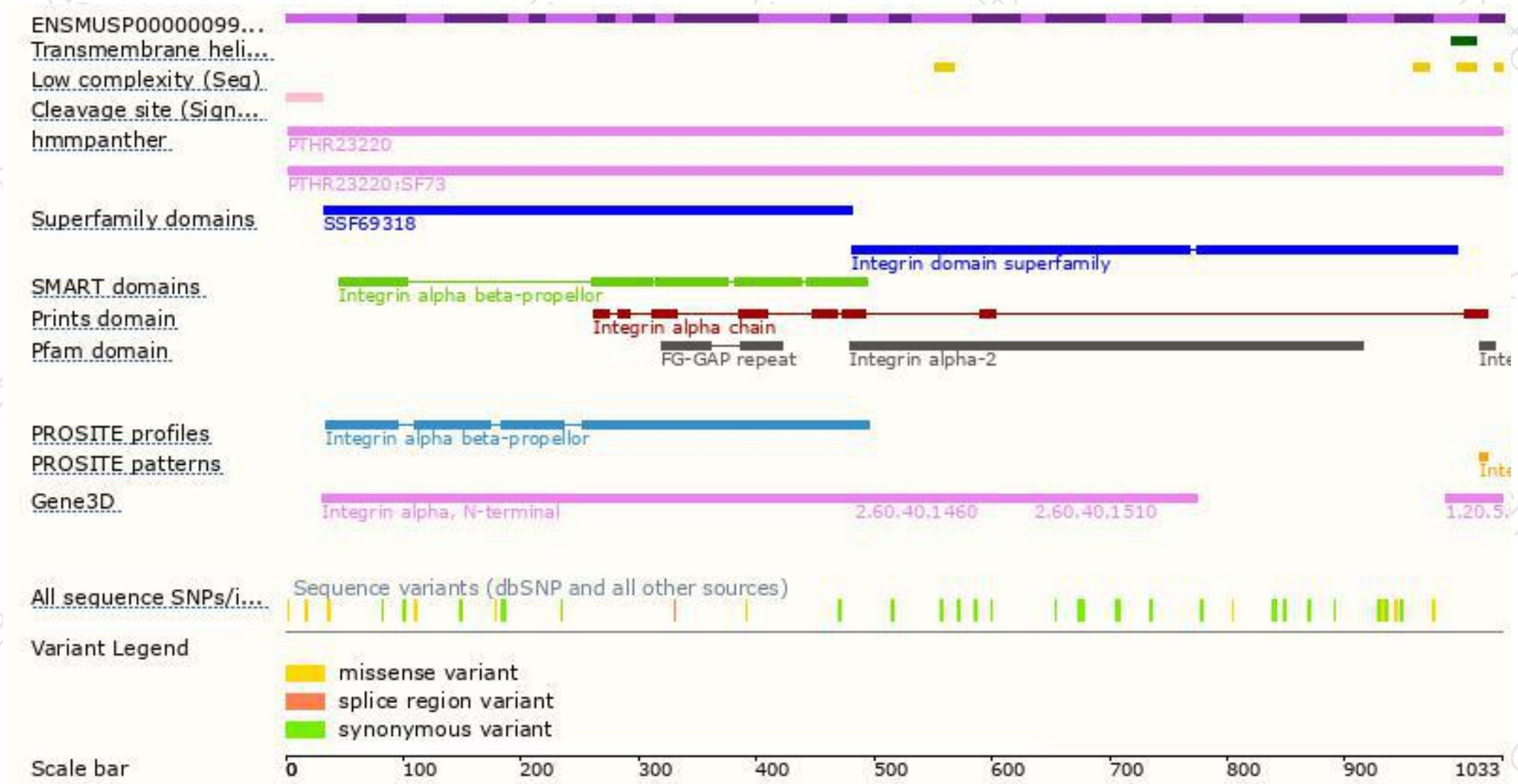
The strategy is based on the design of *Itga2b-201* transcript,The transcription is shown below



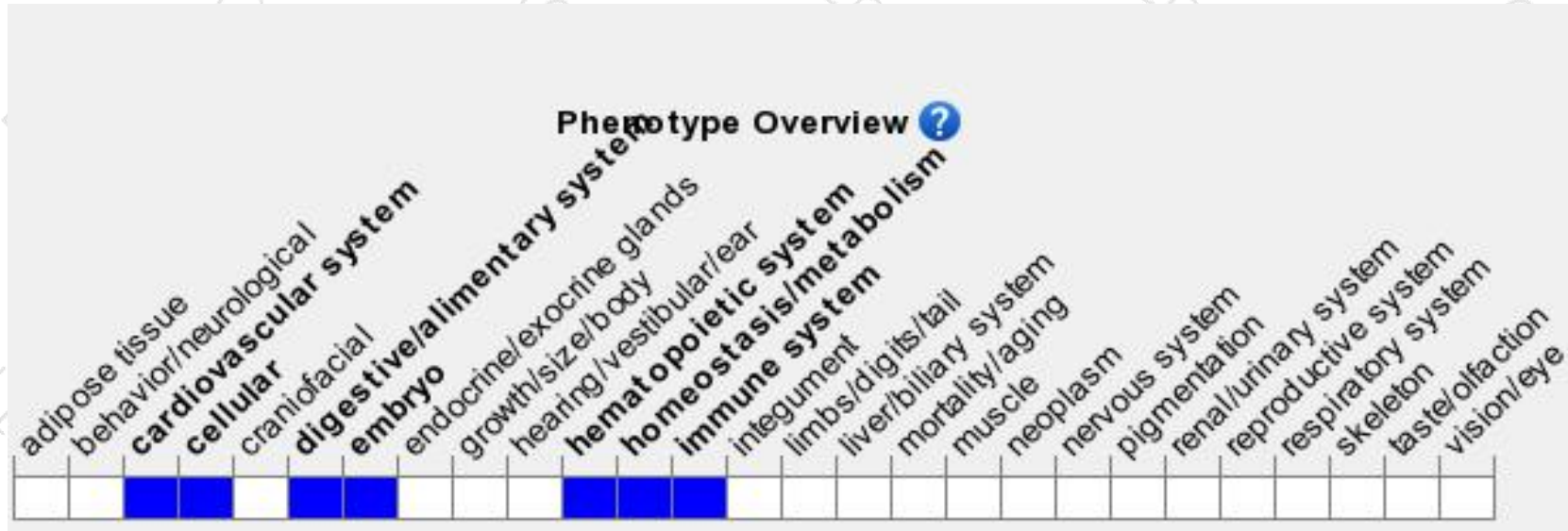
Genomic location distribution



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/>).

According to the existing MGI data, Homozygotes for targeted null mutations exhibit a bleeding disorder, lack platelet binding to fibrinogen, absence of fibrinogen in platelet alpha granules, and increased numbers of hematopoietic progenitors in yolk sac, fetal liver, and bone marrow.

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

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