

Itga2 Cas9-KO Strategy

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Project Overview

Project Name

Itga2

Project type

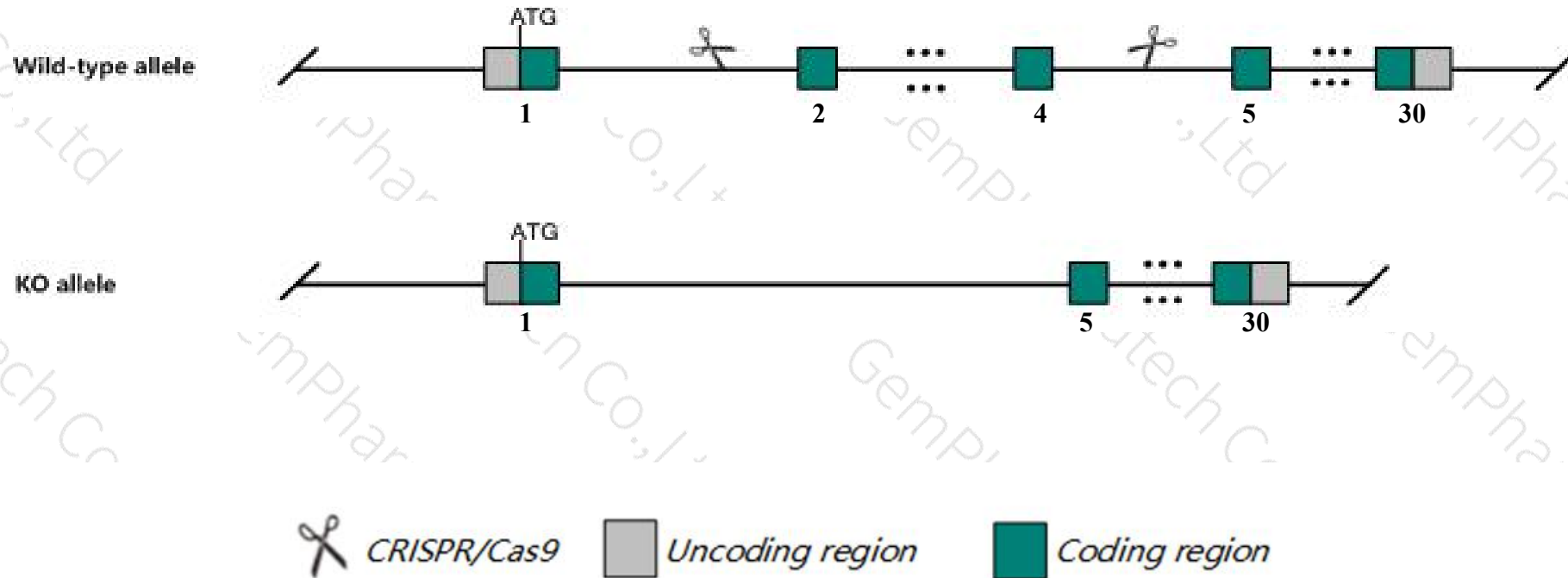
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Itga2* gene. The schematic diagram is as follows:



- The *Itga2* gene has 2 transcripts. According to the structure of *Itga2* gene, exon2-exon4 of *Itga2-201* (ENSMUST00000056117.9) transcript is recommended as the knockout region. The region contains 320bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Itga2* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Homozygotes for targeted null mutations were viable, fertile, showed no overt anatomical defects, and exhibited no bleeding anomalies. Platelet, primary fibroblast and keratinocytes from homozygous mutant mice show less efficient adhesion to collagens in vitro.
- The *Itga2* gene is located on the Chr13. 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)

Itga2 integrin alpha 2 [*Mus musculus* (house mouse)]

Gene ID: 16398, updated on 17-Sep-2019

Summary

- Official Symbol

Itga2 provided by MGI
- Official Full Name

integrin alpha 2 provided by MGI
- Primary source

MGI:MGI:96600
- See related

Ensembl:ENSMUSG00000015533
- 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

DX5; GPIa; CD49B
- Expression

Broad expression in large intestine adult (RPKM 1.3), placenta adult (RPKM 1.3) and 21 other tissues [See more](#)
- Orthologs

[human](#) [all](#)

Genomic context

Location: 13 D2.2; 13 64.61 cM

See Itga2 in [Genome Data Viewer](#)

Exon count: 30

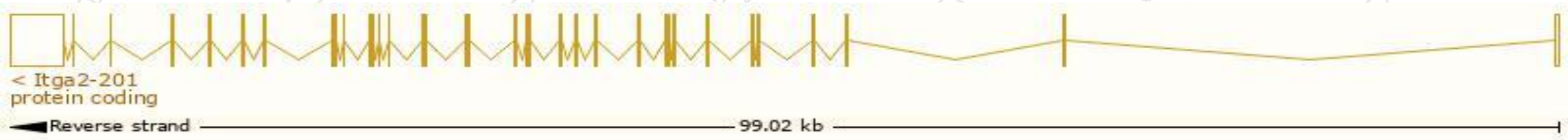
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	13	NC_000079.6 (114833081..114932100, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	13	NC_000079.5 (115626120..115722249, complement)

Transcript information (Ensembl)

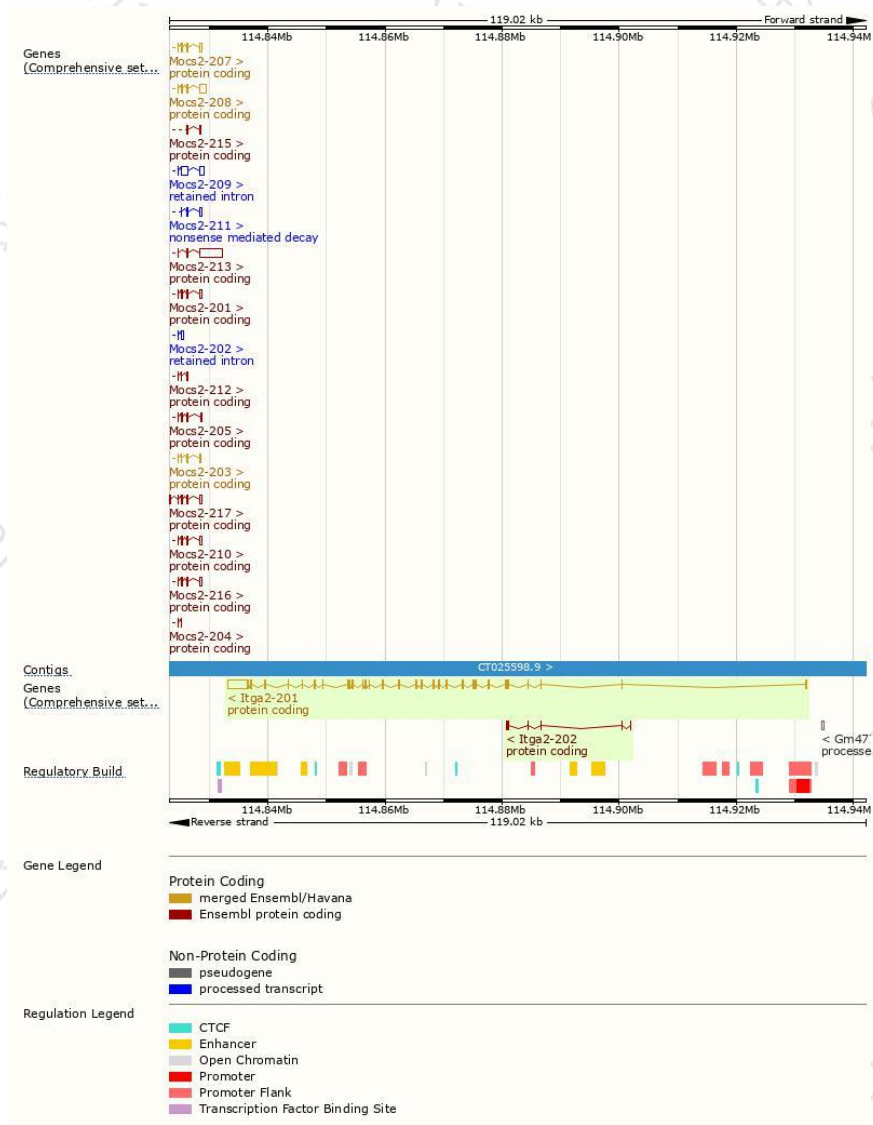
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Itga2-201	ENSMUST00000056117.9	7108	1178aa	Protein coding	CCDS26787	Q62469	TSL:1 GENCODE basic APPRIS P1
Itga2-202	ENSMUST00000224204.1	480	154aa	Protein coding	-	A0A286YCM1	CDS 3' incomplete

The strategy is based on the design of *Itga2-201* transcript,The transcription is shown below



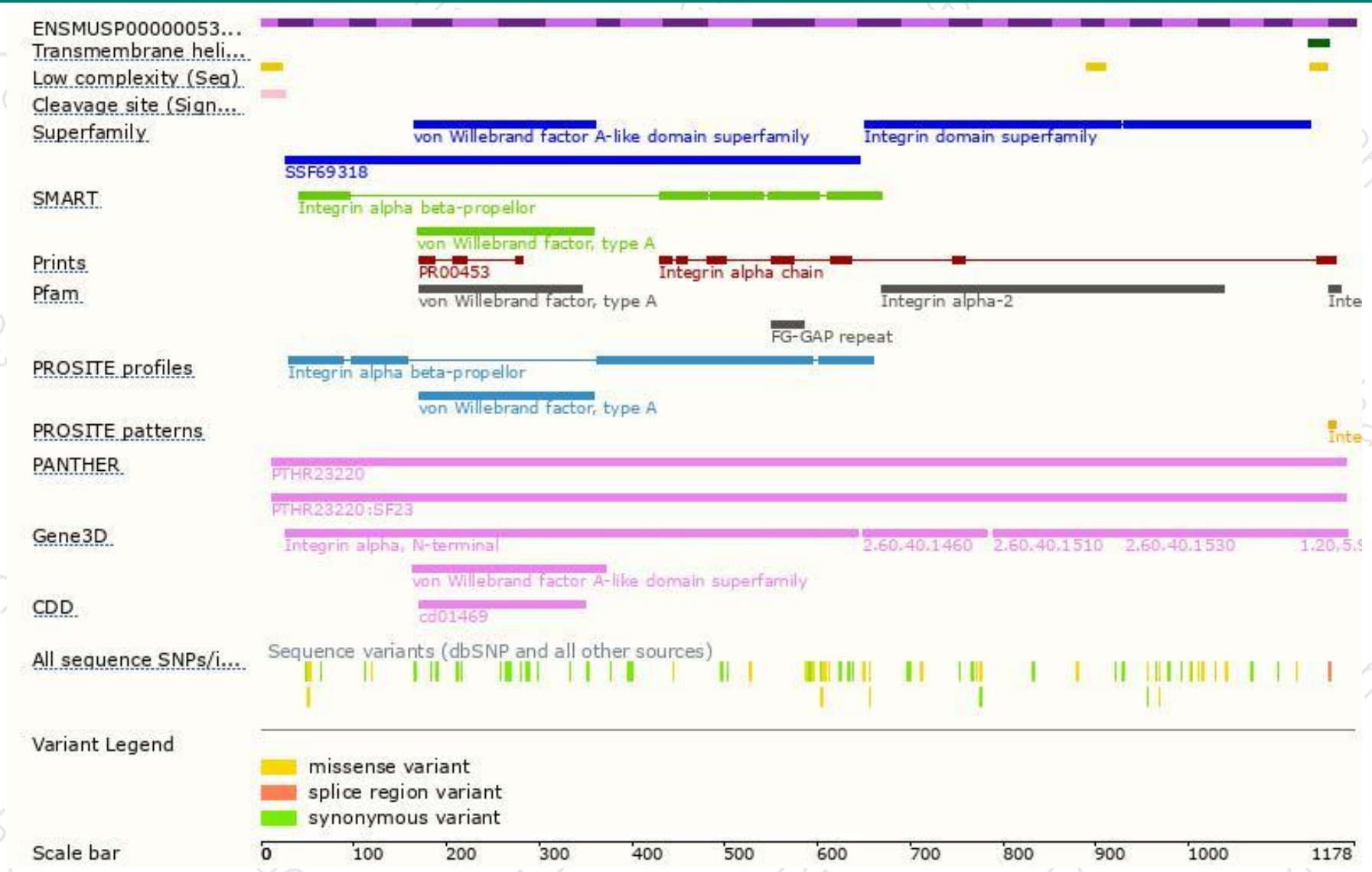
Genomic location distribution



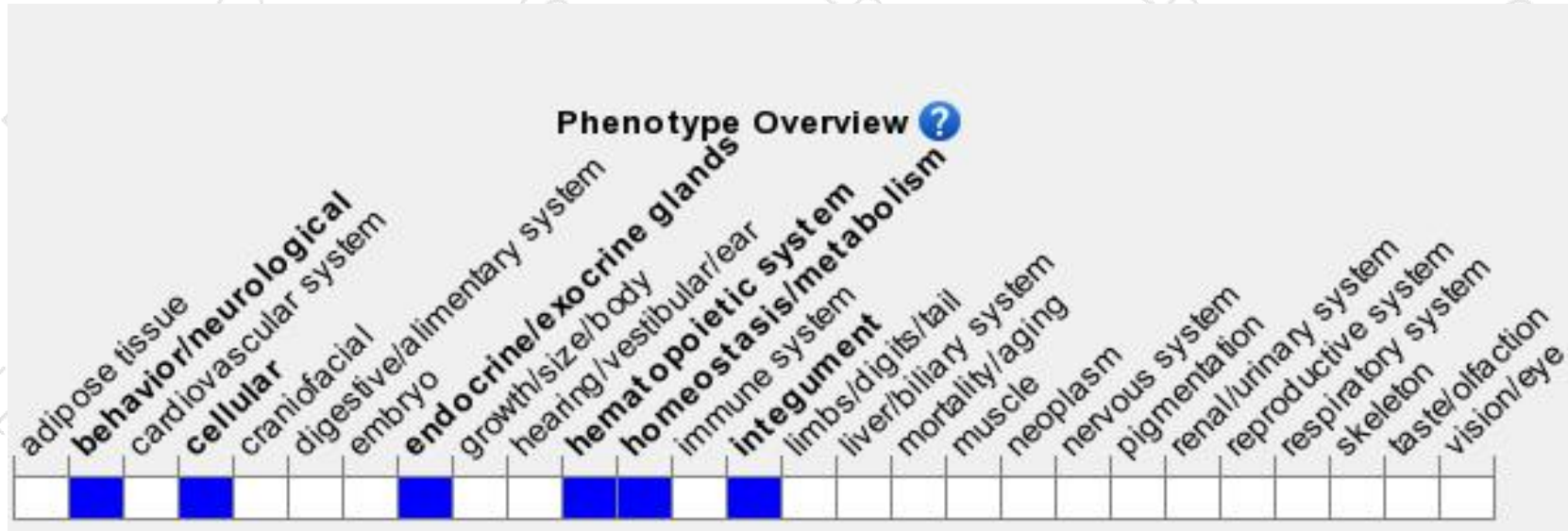
Protein domain



集萃药康
GemPharmatech



Mouse phenotype description(MGI)



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

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

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