

# **Plek Cas9-KO Strategy**

Designer: Reviewer:

**Design Date:** 

Daohua Xu Huimin Su 2020-1-20

### **Project Overview**



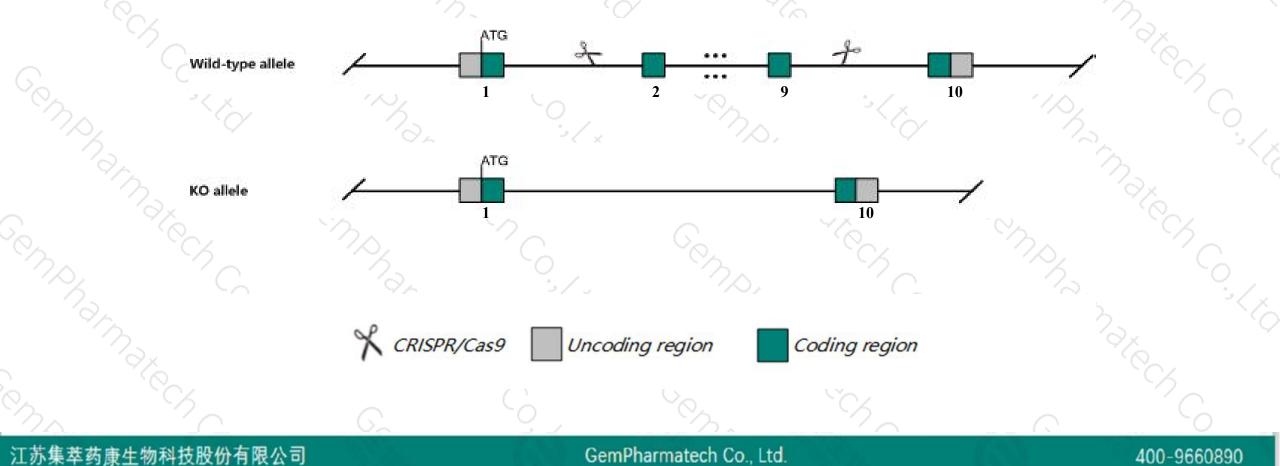


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# **Knockout** strategy



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





- The Plek gene has 3 transcripts. According to the structure of Plek gene, exon2-exon9 of Plek-202 (ENSMUST00000102881.9) transcript is recommended as the knockout region. The region contains 1007bp coding sequence. Knock out the region will result in disruption of protein function.
- > In this project we use CRISPR/Cas9 technology to modify *Plek* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Mice homozygous for a null mutation display mild thrombocytopenia, impaired platelet aggregation, and impaired platelet granule secretion.
- > The *Plek* 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.

Notice

# **Gene information (NCBI)**



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### Plek pleckstrin [Mus musculus (house mouse)]

Gene ID: 56193, updated on 31-Jan-2019

#### Summary

Official SymbolPlek provided by MGIOfficial Full NameJeckstrin provided by MGIPrimary soureMGI:MGI:1860485See relateEnsembl:ENSMUSG0000020120Gene typeprotein codingVal IDATEDVal IDATEDOrganianMus musculusLineageEukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Golires; Rodentia; Myomorpha;<br/>Muroidea; Murinae; Mus; MusAlso knowna010300B13RikExpressionBroad expression in liver E14 (RPKM 8.7), liver E14.5 (RPKM 6.7) and 19 other tissues<br/>See more

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### **Transcript information (Ensembl)**



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

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags		
Plek-202	ENSMUST00000102881.9	4101	<u>350aa</u>	Protein coding	CCDS24446	Q5F271 Q9JHK5	TSL:1 GENCODE basic APPRIS P1		
Plek-201	ENSMUST00000020321.12	3896	<u>327aa</u>	Protein coding	-	Q8CAG6	TSL:1 GENCODE basic		
Plek-203	Plek-203 ENSMUST00000156101.1		<u>46aa</u>	Protein coding	(22)	Q5F270	CDS 3' incomplete TSL:3		

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

#### < Plek-202 protein coding

Reverse strand

- 37.50 kb -

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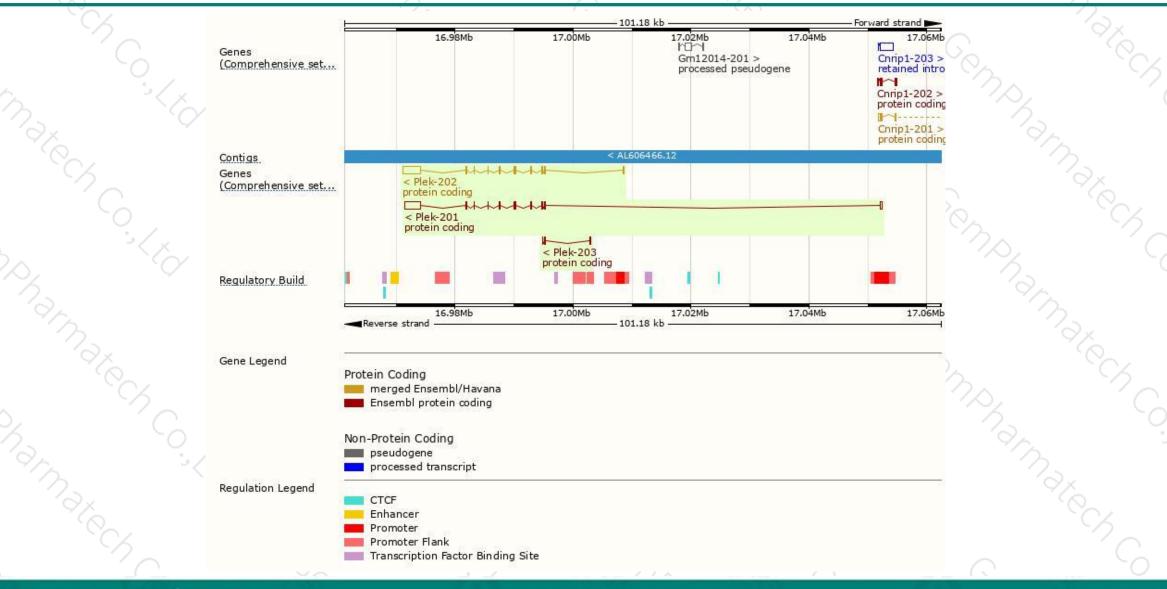
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### **Genomic location distribution**



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## **Protein domain**

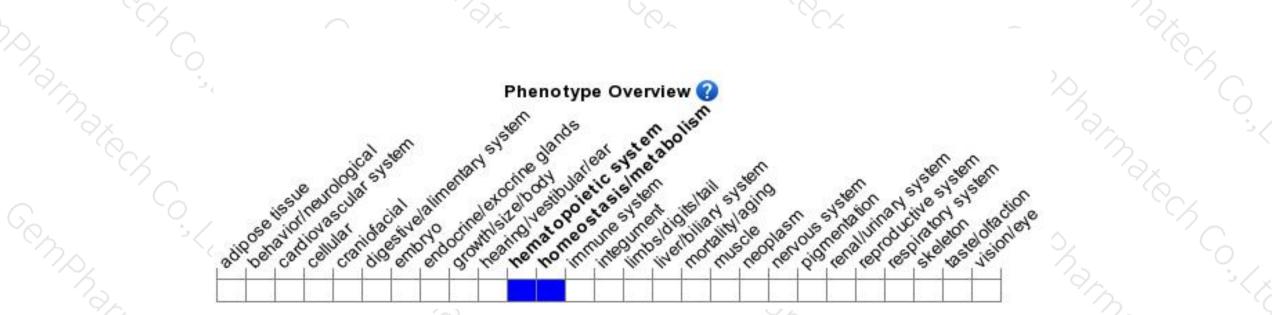
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### Mouse phenotype description(MGI)





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 display mild thrombocytopenia, impaired platelet aggregation, and impaired platelet granule secretion.



If you have any questions, you are welcome to inquire. Tel: 400-9660890



