F2r Cas9-KO *Strategy*

Designer:Yun Li
Reviewer:Longyun Hu
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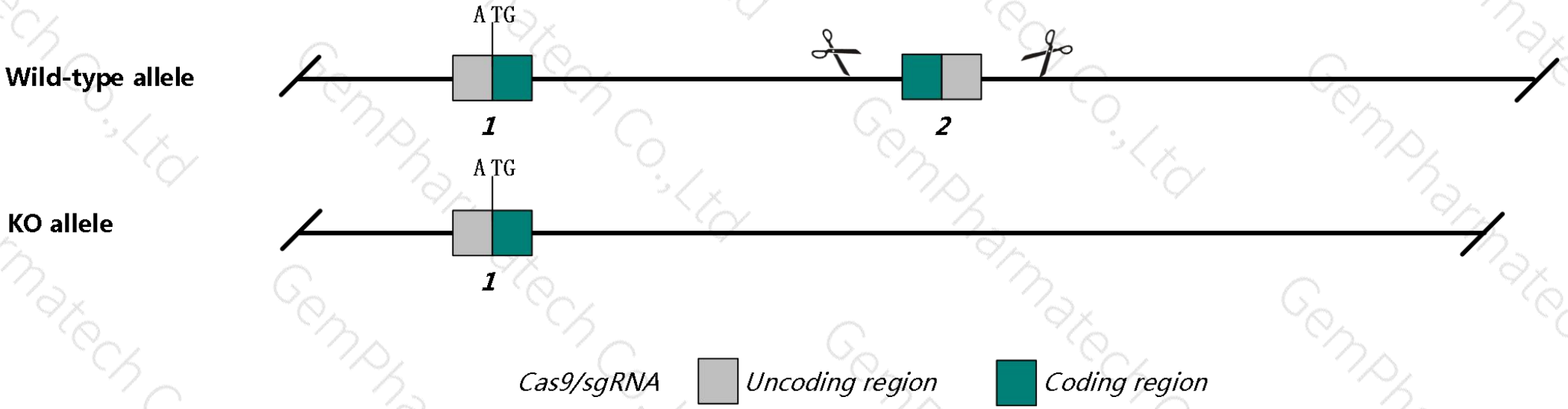
Project Overview

Project Name	***F2r***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *F2r* gene. The schematic diagram is as follows:



Technical routes

- The *F2r* gene has 1 transcript.According to the structure of *F2r* gene, exon2 of *F2r*-201 (ENSMUST00000059193.6)transcript is recommended as the knockout region.The region contains 1205bp coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *F2r* gene. The brief process is as follows: gRNA was transcribed in vitro.Cas9 and gRNA 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.

Notice

- According to the existing MGI data，Targeted mutations of this locus result in increased midgestational lethality, with up to ~50% of mutants surviving to adulthood. Gene deficiency does not affect thrombin signaling in mouse platelets but markedly attenuates thrombin signaling in mouse microvascular endothelial cells.
- The KO region deletes most of the coding sequence and result in frameshift.
- The *F2r* 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）

集萃药康 GemPharmatech

F2r coagulation factor II (thrombin) receptor [*Mus musculus* (house mouse)]

Gene ID: 14062, updated on 6-Nov-2018

Summary

Official Symbol	F2r provided by MGI
Official Full Name	coagulation factor II (thrombin) receptor provided by MGI
Primary source	MGI:MGI:101802
See related	Ensembl:ENSMUSG00000048376
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	Cf2r; Par1; ThrR; AI482343
Expression	Broad expression in lung adult (RPKM 53.2), adrenal adult (RPKM 42.2) and 24 other tissues See more
Orthologs	human all

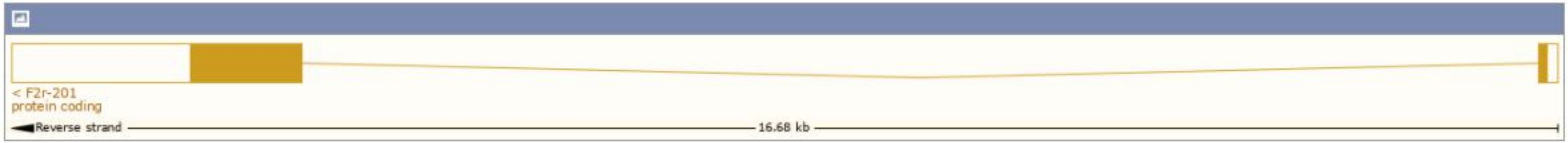
Transcript information（Ensembl）

The gene has 1 transcripts, and the transcript is shown below:

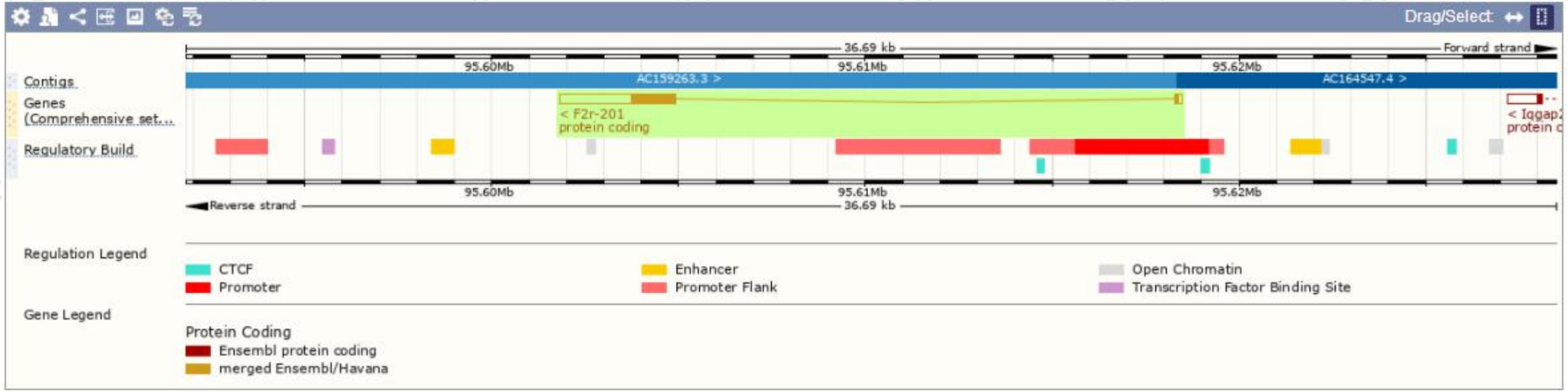
Show/hide columns (1 hidden) Filter

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
F2r-201	ENSMUST00000059193.6	3336	430aa	Protein coding	CCDS26701	P30558	NM_010169 NP_034299	TSL:1 GENCODE basic APPRIS P1

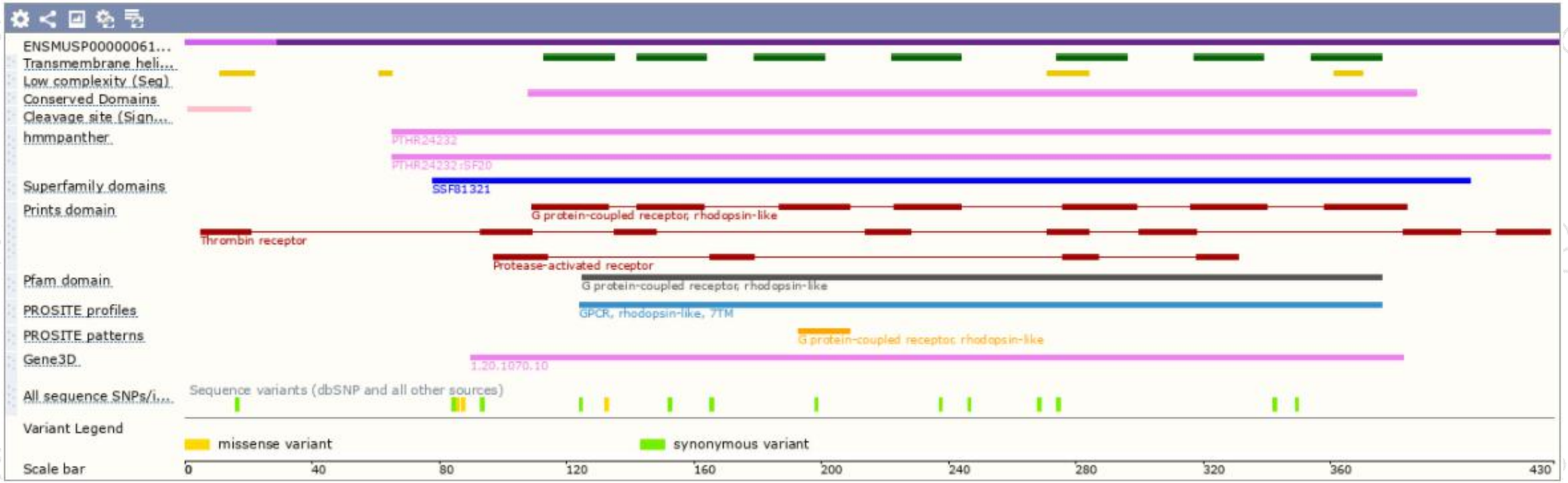
The strategy is based on the design of *F2r-201*transcript,The transcription is shown below



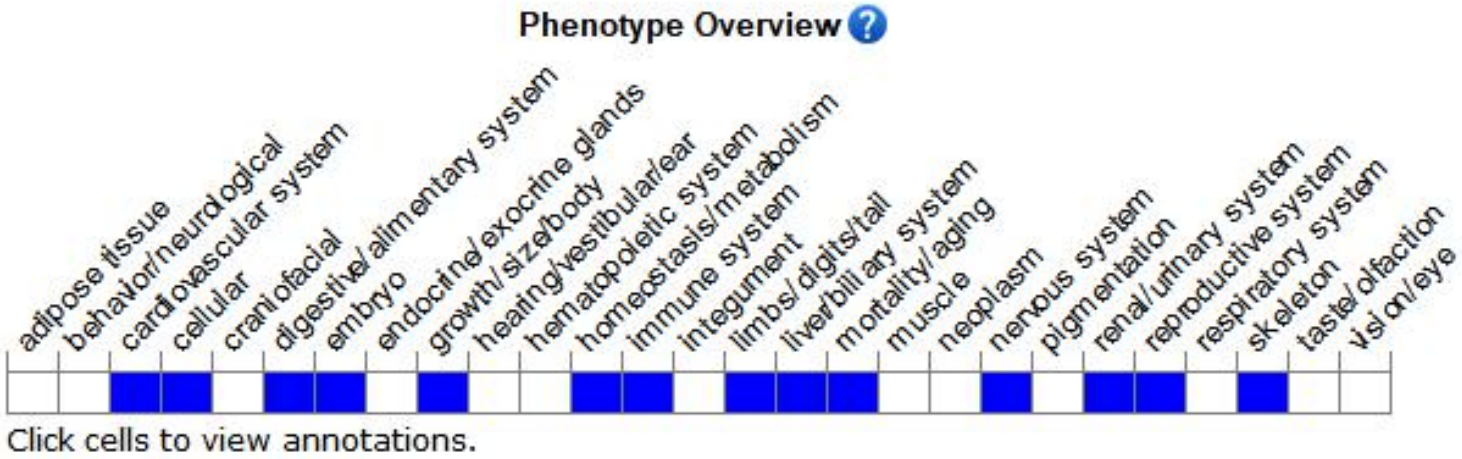
Genomic location (Ensembl)



Protein domain (Ensembl)



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.
Tel: 400-9660890

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GemPharmatech Co.,Ltd