Yipf6 Cas9-CKO *Strategy*

Designer: **Min Guan**

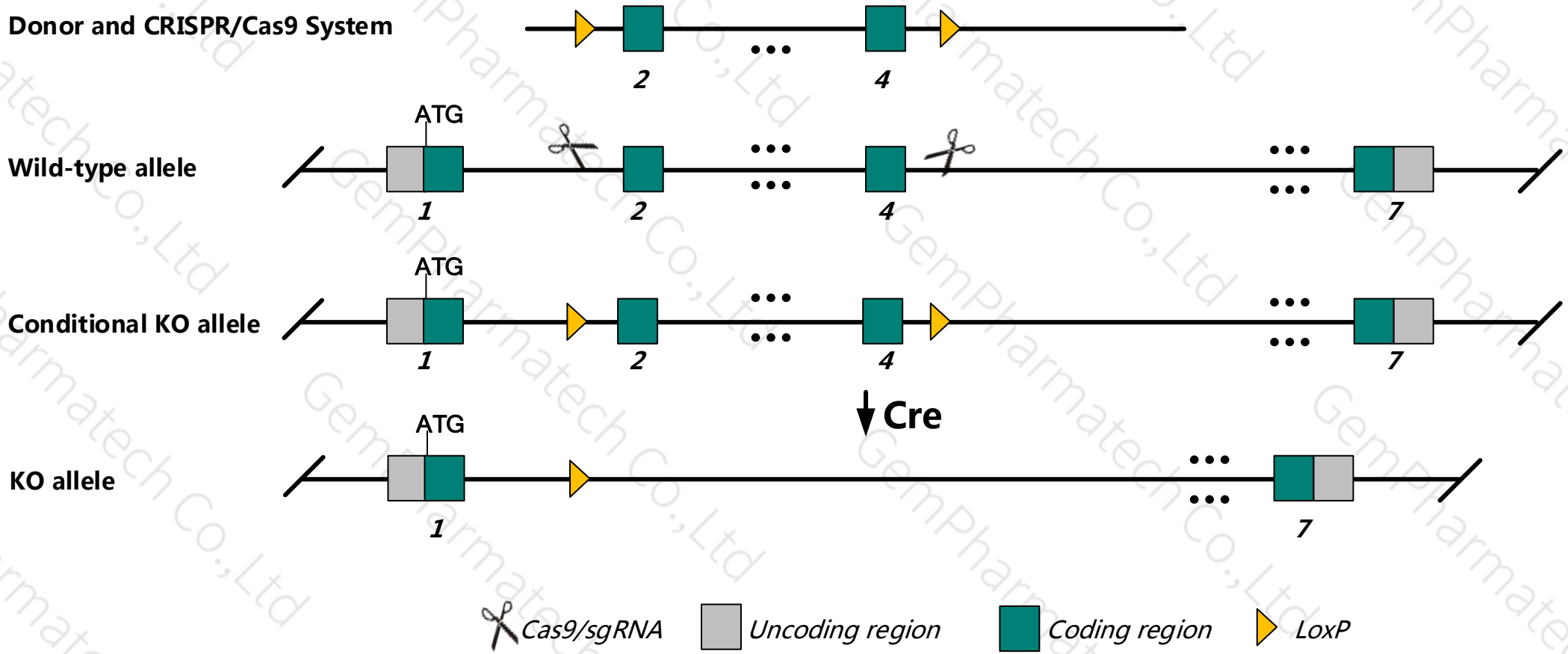
Design Date: **2019-7-29**

Project Overview

Project Name	***Yipf6***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Yipf6* gene. The schematic diagram is as follows:



Technical routes

- The *Yipf6* gene has 6 transcript.According to the structure of *Yipf6* gene, exon2-4 of *Yipf6*-201 (ENSMUST00000054697.6) transcript is recommended as the knockout region.The region contains 251bp coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Yipf6* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed.Cas9, sgRNA and Donor 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 flox mice was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

Notice

- According to the existing MGI data，Mice homozygous or hemizygous for an ENU-induced allele exhibit colitis and increased susceptibility to induced colitis with decreased Paneth and goblet cells.
- The *Yipf6* gene is located on the ChrX. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

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Yipf6 Yip1 domain family, member 6 [*Mus musculus* (house mouse)]

Gene ID: 77929, updated on 19-Feb-2019

Summary

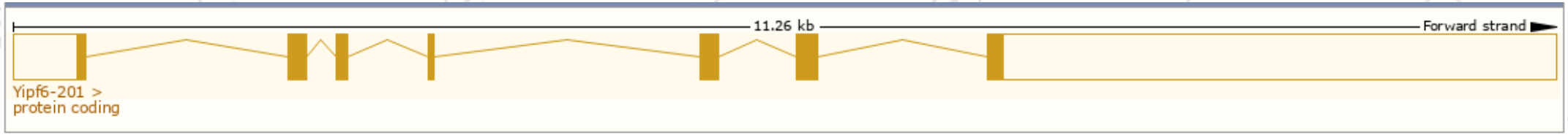
Official Symbol	Yipf6 provided by MGI
Official Full Name	Yip1 domain family, member 6 provided by MGI
Primary source	MGI:MGI:1925179
See related	Ensembl:ENSMUSG00000047694
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	A430107J06Rik
Expression	Ubiquitous expression in bladder adult (RPKM 7.2), placenta adult (RPKM 5.4) and 28 other tissues See more
Orthologs	human all

Transcript information（ Ensembl ）

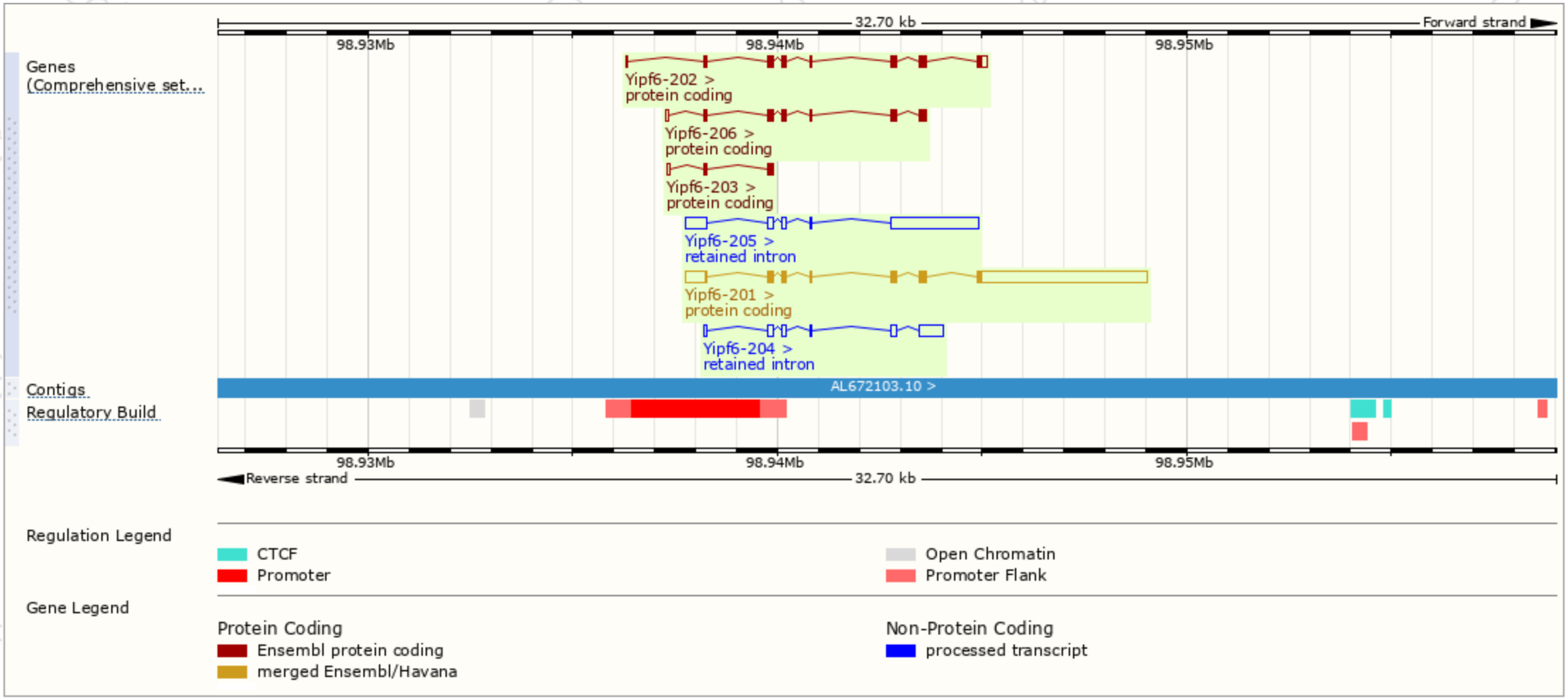
The gene has 6 transcripts, and all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Yipf6-201	ENSMUST00000054697.6	5211	236aa	Protein coding	CCDS30296	Q8BR70	TSL:1 GENCODE basic APPRIS P1
Yipf6-202	ENSMUST00000113811.7	930	236aa	Protein coding	CCDS30296	Q8BR70	TSL:1 GENCODE basic APPRIS P1
Yipf6-206	ENSMUST00000151353.7	690	198aa	Protein coding	-	B1AV66	CDS 3' incomplete TSL:5
Yipf6-203	ENSMUST00000124010.1	284	55aa	Protein coding	-	B1AV65	CDS 3' incomplete TSL:3
Yipf6-205	ENSMUST00000149082.7	2908	No protein	Retained intron	-	-	TSL:1
Yipf6-204	ENSMUST00000140479.1	1020	No protein	Retained intron	-	-	TSL:1

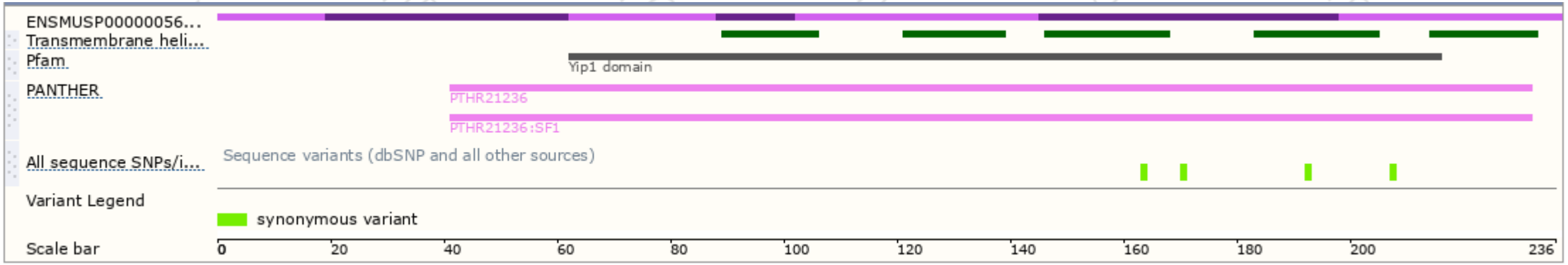
The strategy is based on the design of *Yipf6*-201 transcript,The transcription is shown below



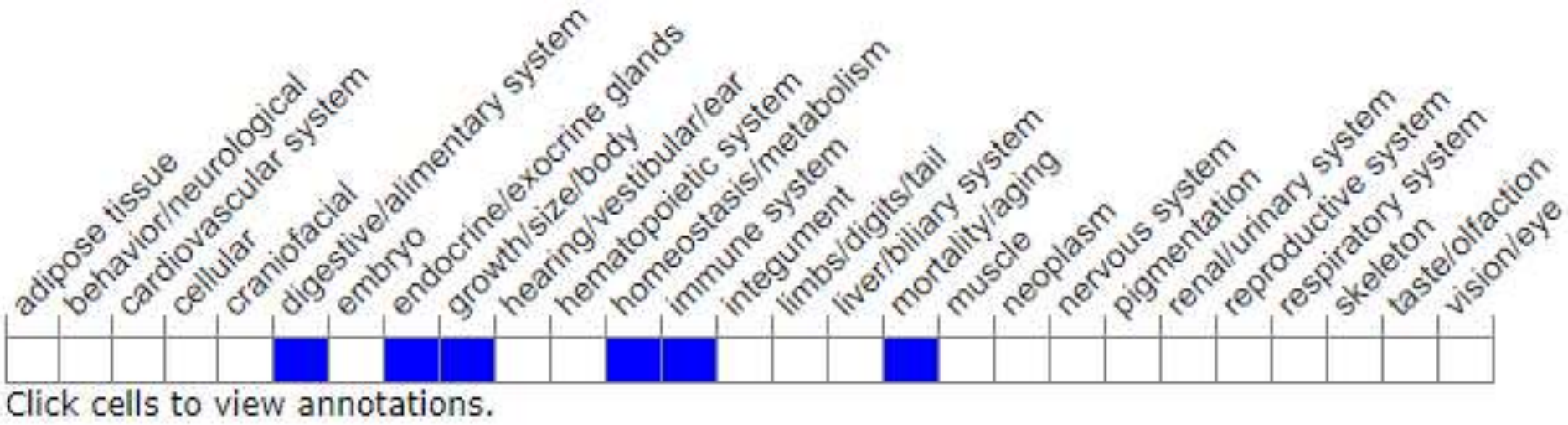
Genomic location distribution



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/) .

Mice homozygous or hemizygous for an ENU-induced allele exhibit colitis and increased susceptibility to induced colitis with decreased Paneth and goblet cells.

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

Tel: 025-5864 1534

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GemPharmatech Co.,Ltd