Atp13a3 Cas9-CKO Strategy

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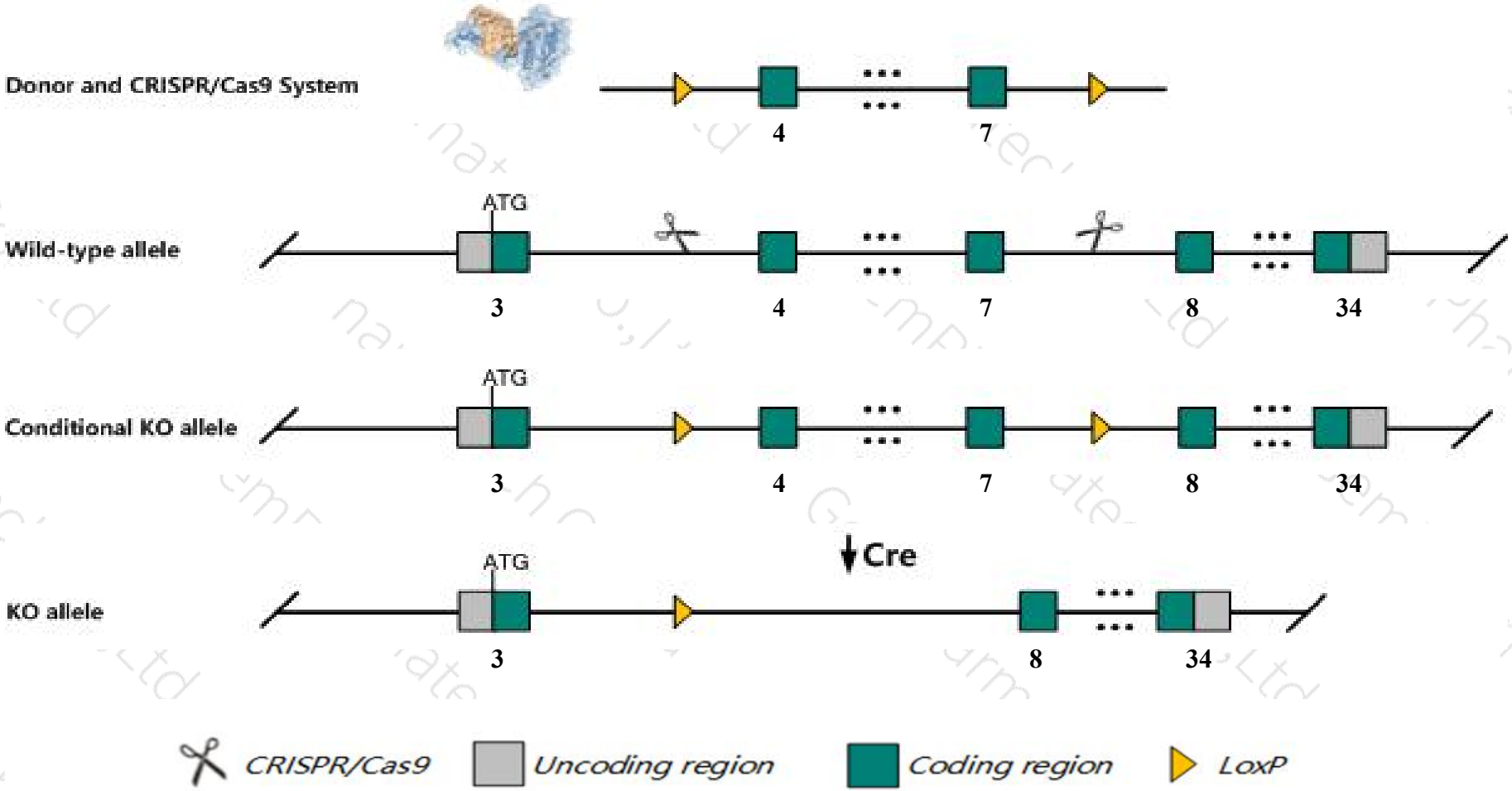
Project Overview

Project Name	***Atp13a3***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Atp13a3* gene. The schematic diagram is as follows:



Technical routes

- The *Atp13a3* gene has 8 transcripts. According to the structure of *Atp13a3* gene, exon4-exon7 of *Atp13a3-202* (ENSMUST00000100013.8) transcript is recommended as the knockout region.The region contains 497bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Atp13a3* gene. The brief process is as follows:CRISPR/Cas9 system 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 will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

- The *Atp13a3* gene is located on the Chr16. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

集萃药康 GemPharmatech

Atp13a3 ATPase type 13A3 [Mus musculus (house mouse)]

Gene ID: 224088, updated on 13-Mar-2020

Summary

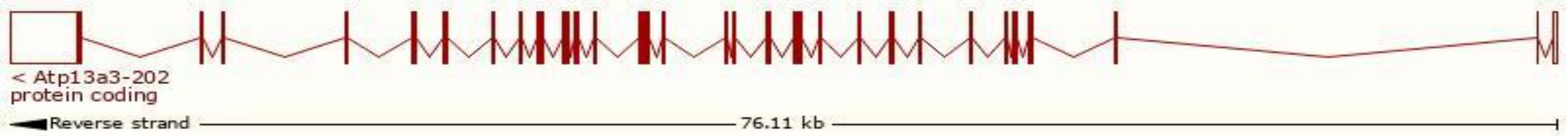
Official Symbol	Atp13a3 provided by MGI
Official Full Name	ATPase type 13A3 provided by MGI
Primary source	MGI:MGI:2685387
See related	Ensembl:ENSMUSG00000022533
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AU022875, Gm1745, Gm541, Gm542
Expression	Ubiquitous expression in bladder adult (RPKM 11.5), placenta adult (RPKM 10.4) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

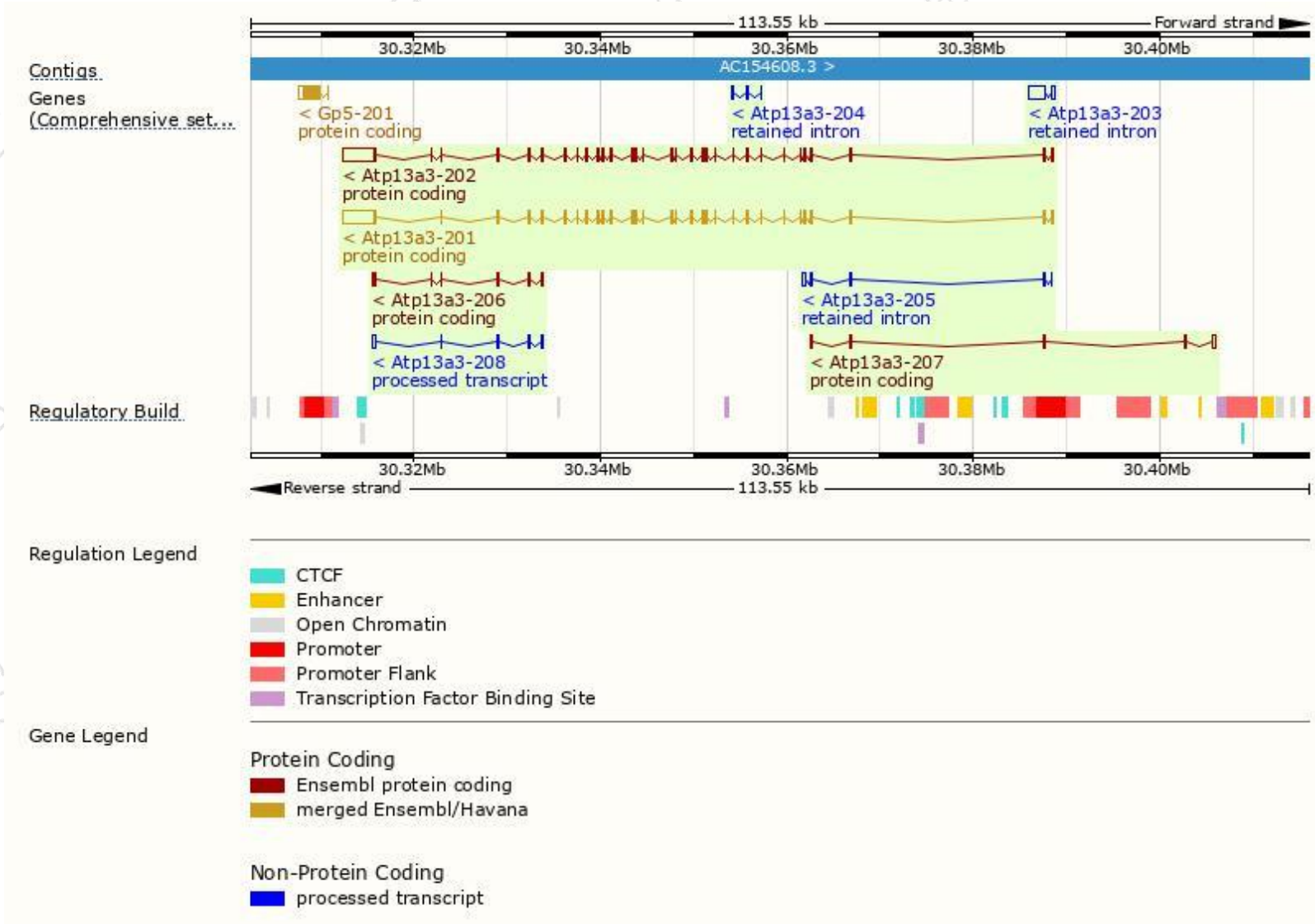
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Atp13a3-202	ENSMUST00000100013.8	7310	1249aa	Protein coding	CCDS49821	Q5XF89	TSL:5 GENCODE basic APPRIS P4
Atp13a3-201	ENSMUST00000061350.12	7220	1219aa	Protein coding	CCDS49820	Q5XF89	TSL:5 GENCODE basic APPRIS ALT2
Atp13a3-206	ENSMUST00000229503.1	924	259aa	Protein coding	-	A0A2R8VI02	CDS 5' incomplete
Atp13a3-207	ENSMUST00000229616.1	662	74aa	Protein coding	-	A0A2R8VJX0	CDS 3' incomplete
Atp13a3-208	ENSMUST00000229750.1	825	No protein	Processed transcript	-	-	
Atp13a3-203	ENSMUST00000136065.1	2250	No protein	Retained intron	-	-	TSL:1
Atp13a3-205	ENSMUST00000153656.1	793	No protein	Retained intron	-	-	TSL:2
Atp13a3-204	ENSMUST00000149882.1	310	No protein	Retained intron	-	-	TSL:5

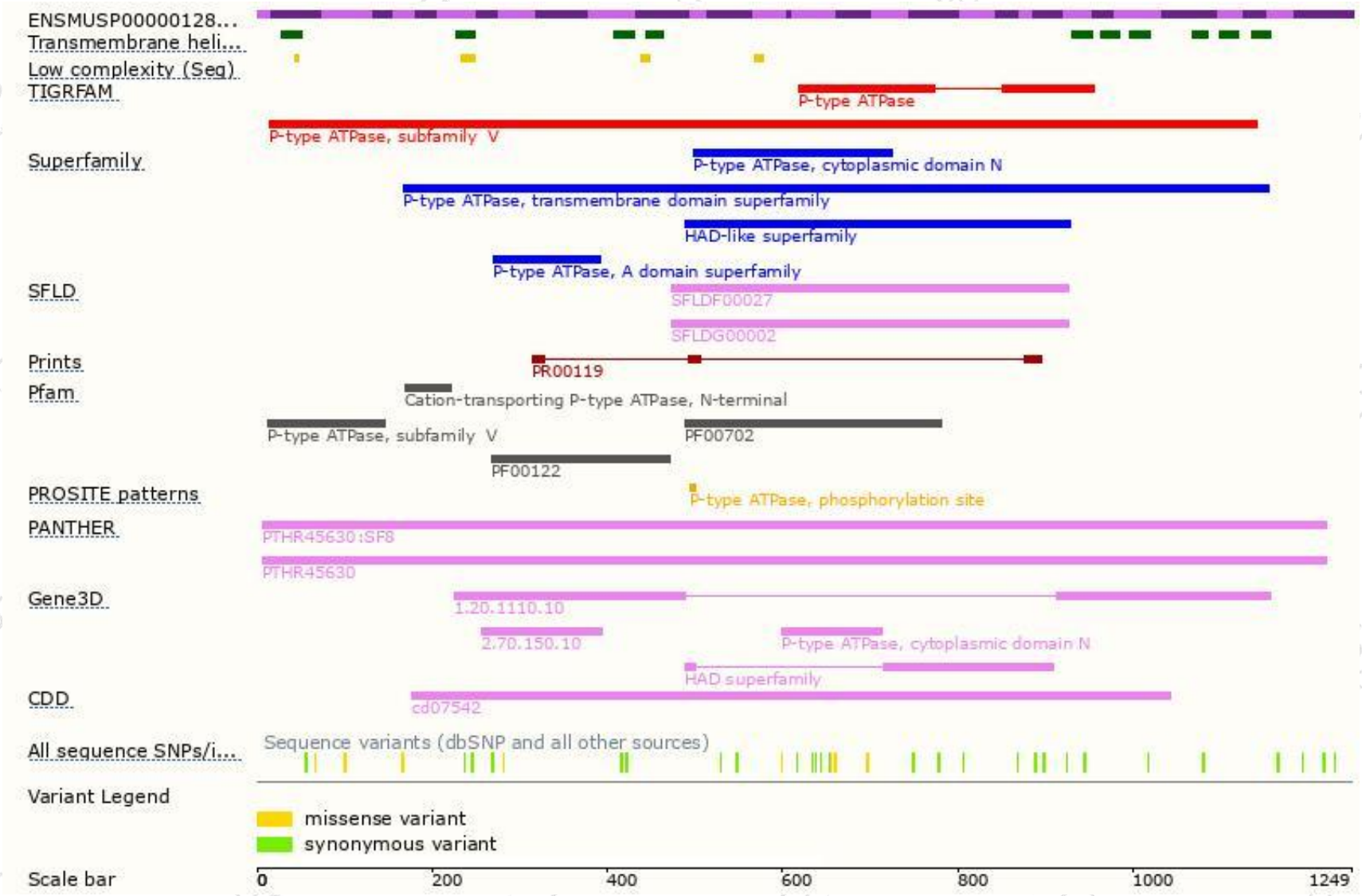
The strategy is based on the design of *Atp13a3-202* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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