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GemPharmatech

Slc25a23 Cas9-KO Strategy

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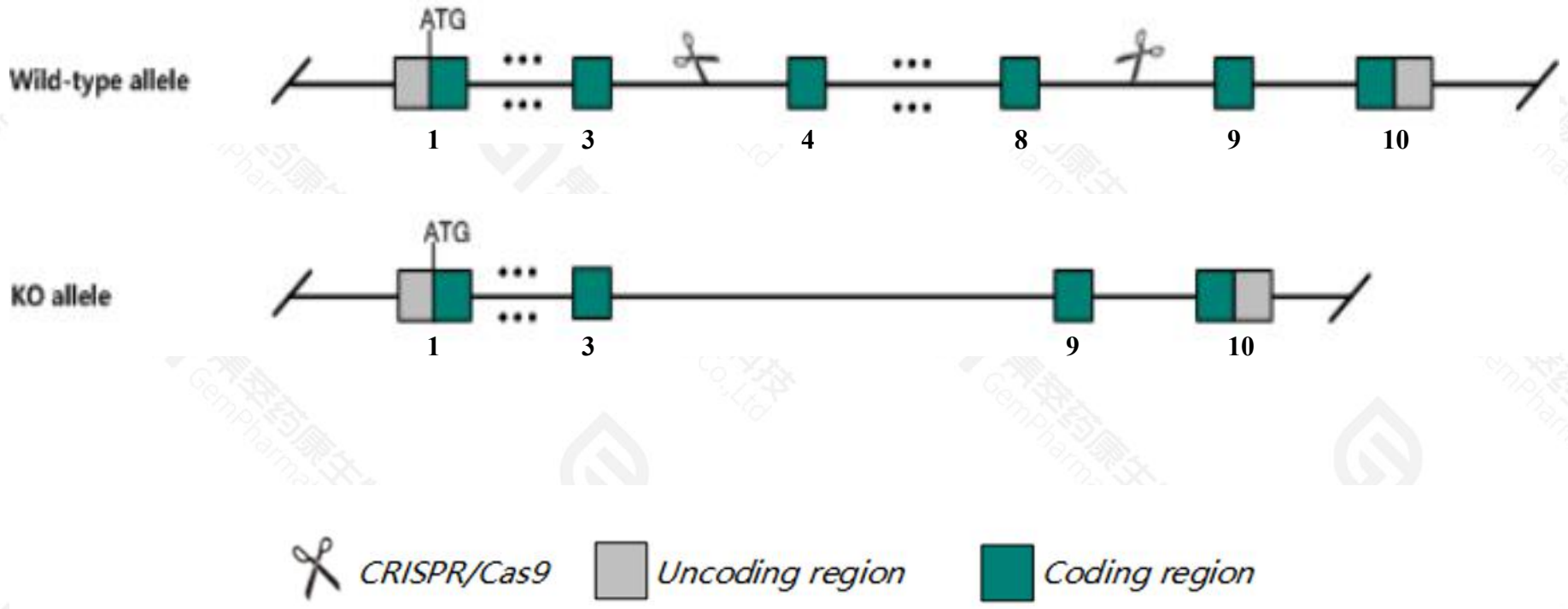
Design Date: 2021-4-23

Project Overview

Project Name	***Slc25a23***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc25a23* gene. The schematic diagram is as follows:



Technical routes

➢ The *Slc25a23* gene has 6 transcripts. According to the structure of *Slc25a23* gene, exon4-exon8 of *Slc25a23-201*(ENSMUST00000040280.14) transcript is recommended as the knockout region.The region contains 700bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Slc25a23* gene. The brief process is as follows: CRISPR/Cas9 system 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,mice homozygous for a knock-out allele exhibit impaired mitochondrial function.

➢ The floxed region is near to the N-terminal of *Crb3* gene,this strategy may influence the regulatory function of the N-terminal of *Crb3* gene.

➢ The *Slc25a23* gene is located on the Chr17. 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）

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Slc25a23 solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 23 [Mus musculus (house mouse)]

Gene ID: 66972, updated on 17-Dec-2020

Summary

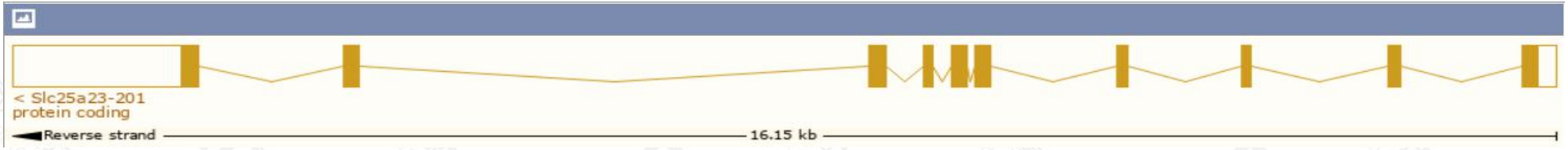
Official Symbol	Slc25a23 provided by MGI
Official Full Name	solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 23 provided byMGI
Primary source	MGI:MGI:1914222
See related	Ensembl:ENSMUSG00000046329
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2310067G05Rik, SCaMC, SCaMC-3
Expression	Broad expression in liver adult (RPKM 76.5), cortex adult (RPKM 70.0) and 27 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

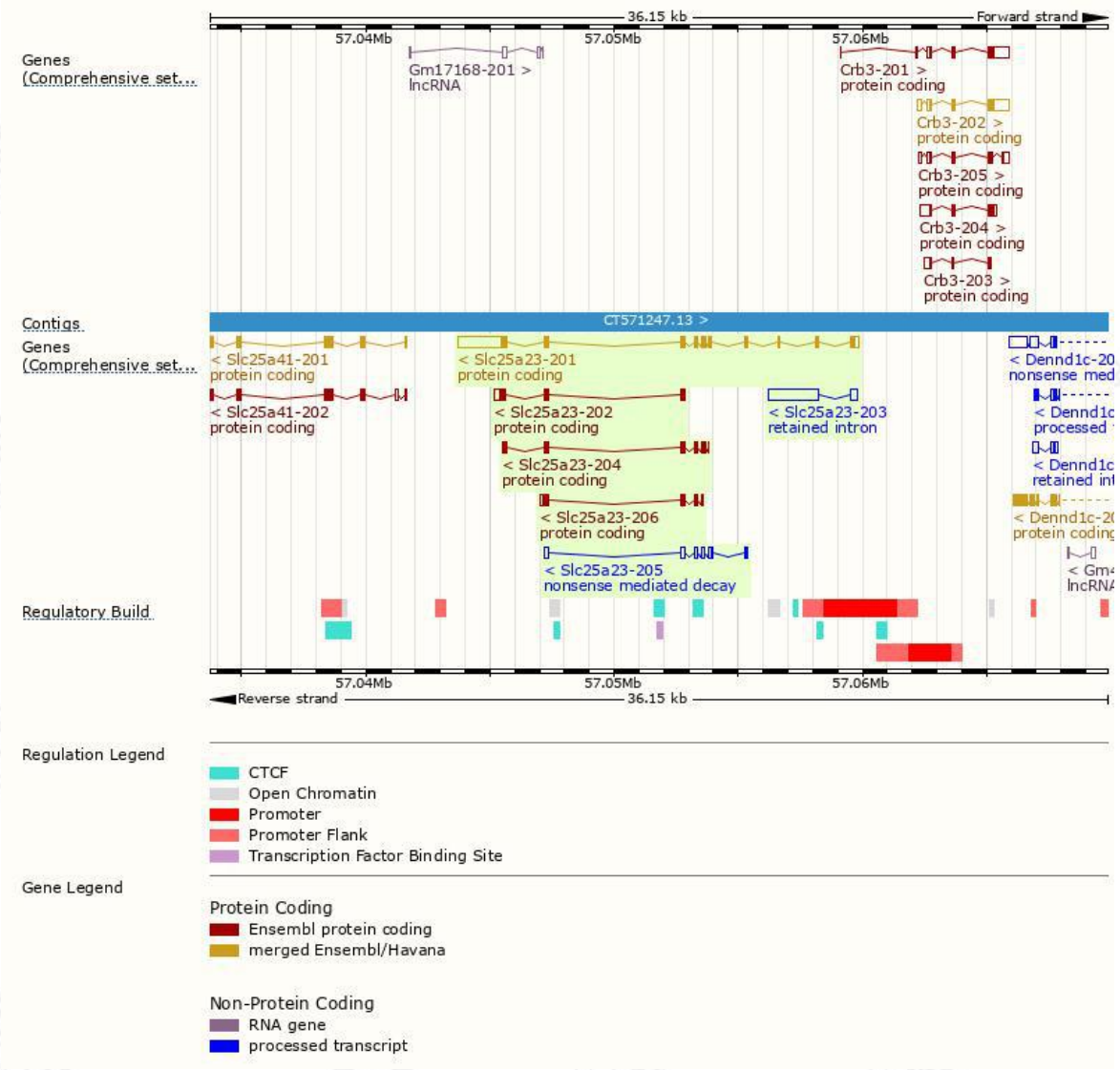
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc25a23-201	ENSMUST00000040280.14	3362	467aa	Protein coding	CCDS28923		TSL:1 , GENCODE basic , APPRIS P1 ,
Slc25a23-204	ENSMUST00000170015.8	796	266aa	Protein coding	-		CDS 5' and 3' incomplete , TSL:5 ,
Slc25a23-202	ENSMUST00000163442.8	736	179aa	Protein coding	-		CDS 5' incomplete , TSL:3 ,
Slc25a23-206	ENSMUST00000171528.2	598	176aa	Protein coding	-		CDS 5' incomplete , TSL:3 ,
Slc25a23-205	ENSMUST00000171128.2	818	47aa	Nonsense mediated decay	-		CDS 5' incomplete , TSL:3 ,
Slc25a23-203	ENSMUST00000165187.2	2298	No protein	Retained intron	-		TSL:1 ,

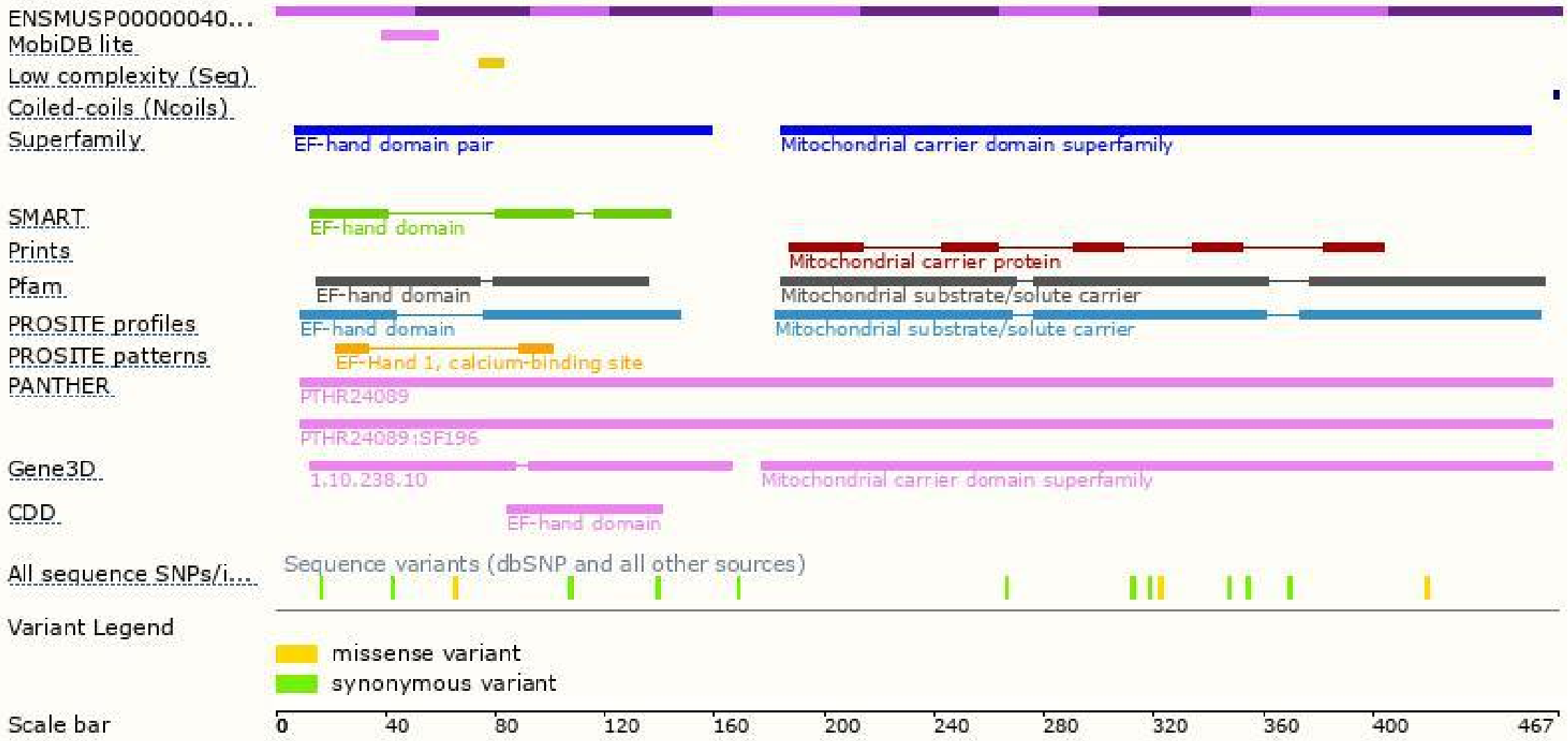
The strategy is based on the design of *Slc25a23-201* transcript,the transcription is shown below:



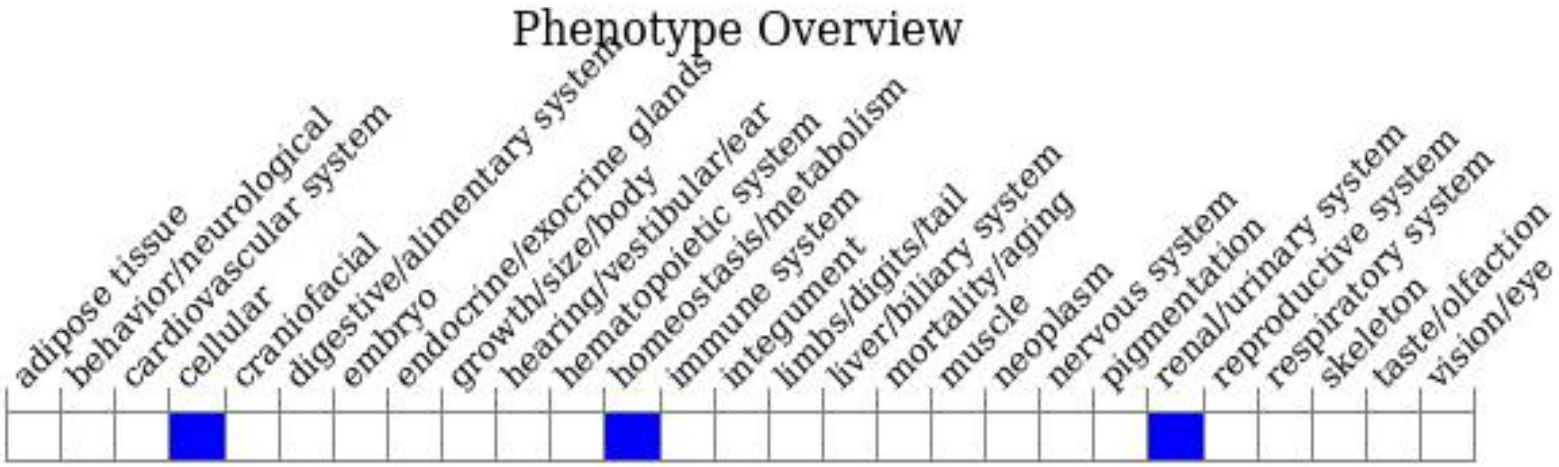
Genomic location distribution



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/).

According to the existing MGI data,mice homozygous for a knock-out allele exhibit impaired mitochondrial function.

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