Slc2a10 Cas9-CKO Strategy

Designer:Xueting Zhang
Reviewer:Yanhua Shen
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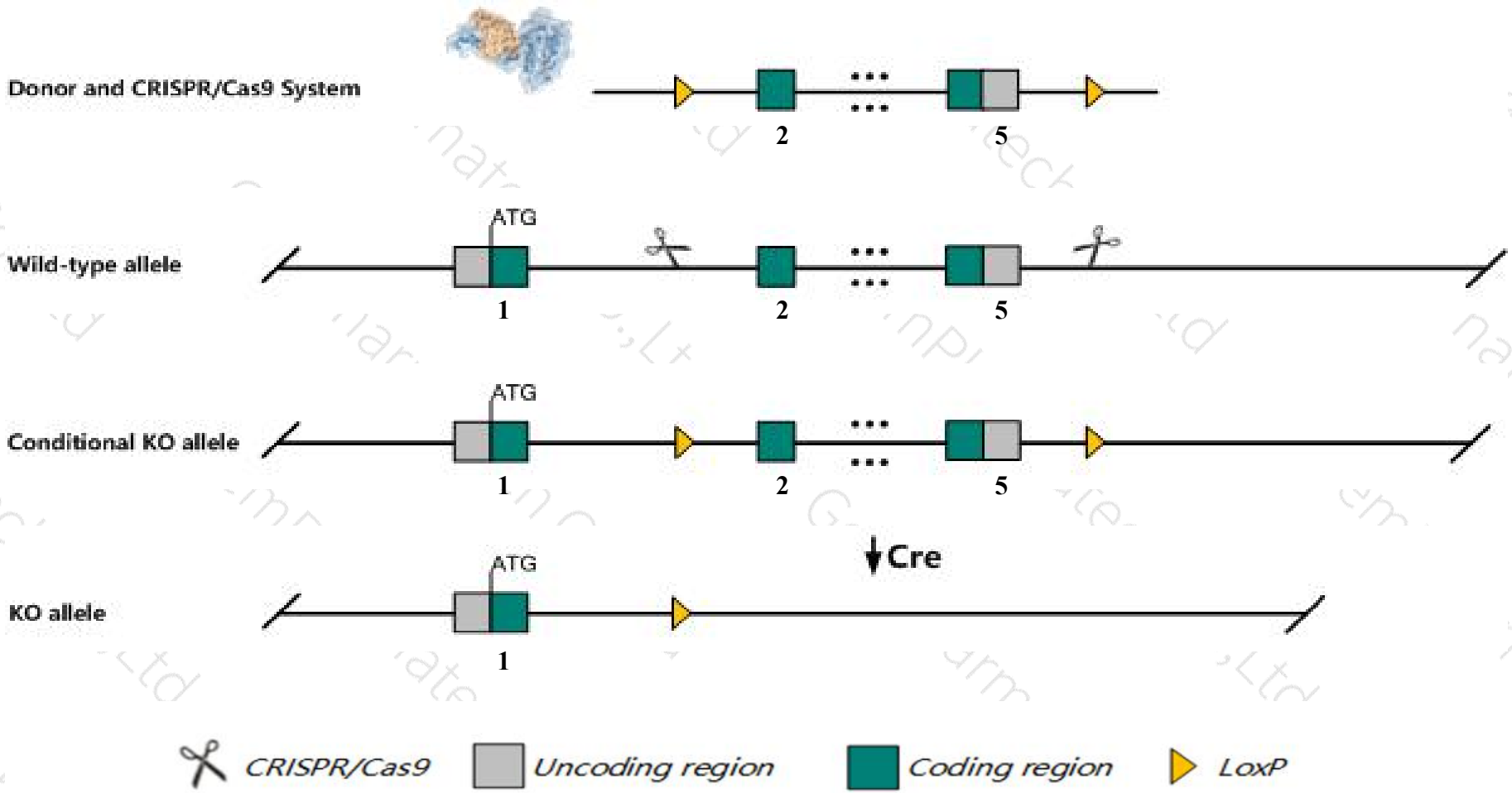
Project Overview

Project Name	***Slc2a10***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc2a10* gene. The schematic diagram is as follows:



Technical routes

- The *Slc2a10* gene has 2 transcripts. According to the structure of *Slc2a10* gene, exon2-exon5 of *Slc2a10-201* (ENSMUST00000029196.4) transcript is recommended as the knockout region.The region contains most of the coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Slc2a10* 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

- According to the existing MGI data,Mice carrying ENU-induced mutations in this gene display thickening and aberrant vessel wall shape of large and medium size arteries, with significantly increased elastic fiber number and size. Cerebral arteries appear normal with no evidence of tortuosity, stenosis/dilatation or aneurysm.

- The *Slc2a10* gene is located on the Chr2. 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）

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Slc2a10 solute carrier family 2 (facilitated glucose transporter), member 10 [*Mus musculus* (house mouse)]

Gene ID: 170441, updated on 21-Jan-2020

Summary

Official Symbol	Slc2a10 provided by MGI
Official Full Name	solute carrier family 2 (facilitated glucose transporter), member 10 provided by MGI
Primary source	MGI:MGI:2156687
See related	Ensembl:ENSMUSG00000027661
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Glut10; AA450473
Summary	This gene encodes a class III facilitative glucose transporter. Mutations in the related gene in human are associated with arterial tortuosity syndrome. [provided by RefSeq, Dec 2013]
Expression	Biased expression in stomach adult (RPKM 17.5), colon adult (RPKM 9.3) and 13 other tissues See more
Orthologs	human all

Genomic context

Location: 2 H3; 2 85.66 cM

See Slc2a10 in Genome Data Viewer

Exon count: 5

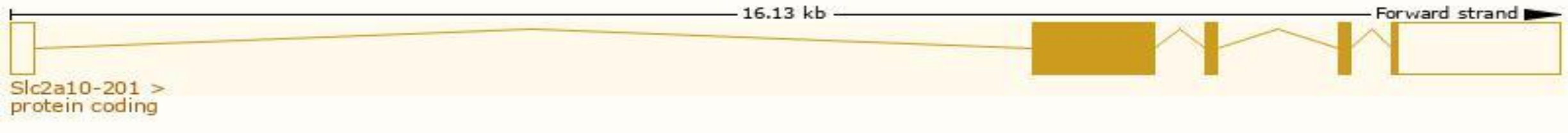
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	2	NC_000068.7 (165503897..165519917)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	2	NC_000068.6 (165329478..165345411)

Transcript information（Ensembl）

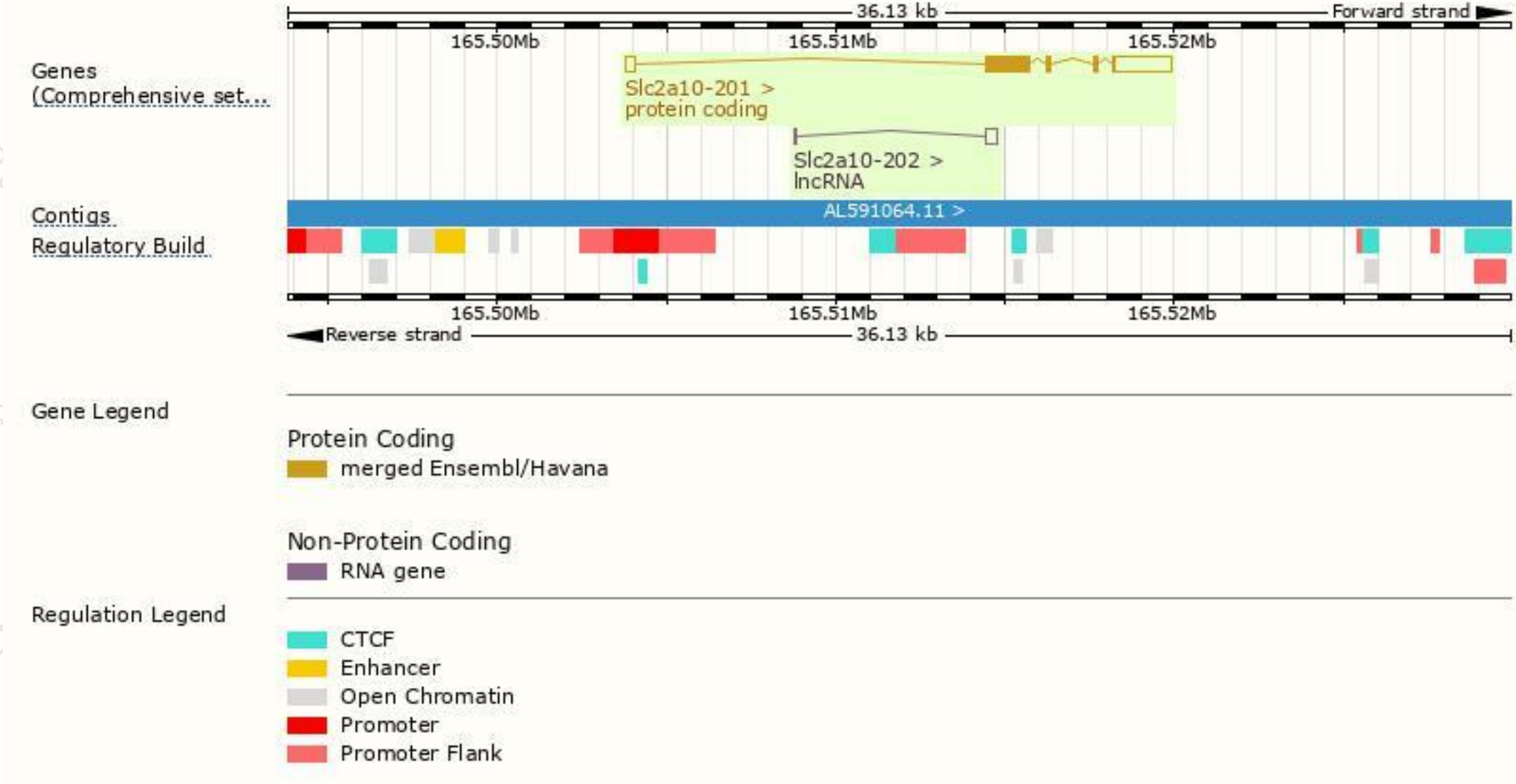
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc2a10-201	ENSMUST00000029196.4	3544	536aa	Protein coding	CCDS17083	A2A4V1 Q8VHD6	TSL:1 GENCODE basic APPRIS P1
Slc2a10-202	ENSMUST00000148463.1	378	No protein	lncRNA	-	-	TSL:2

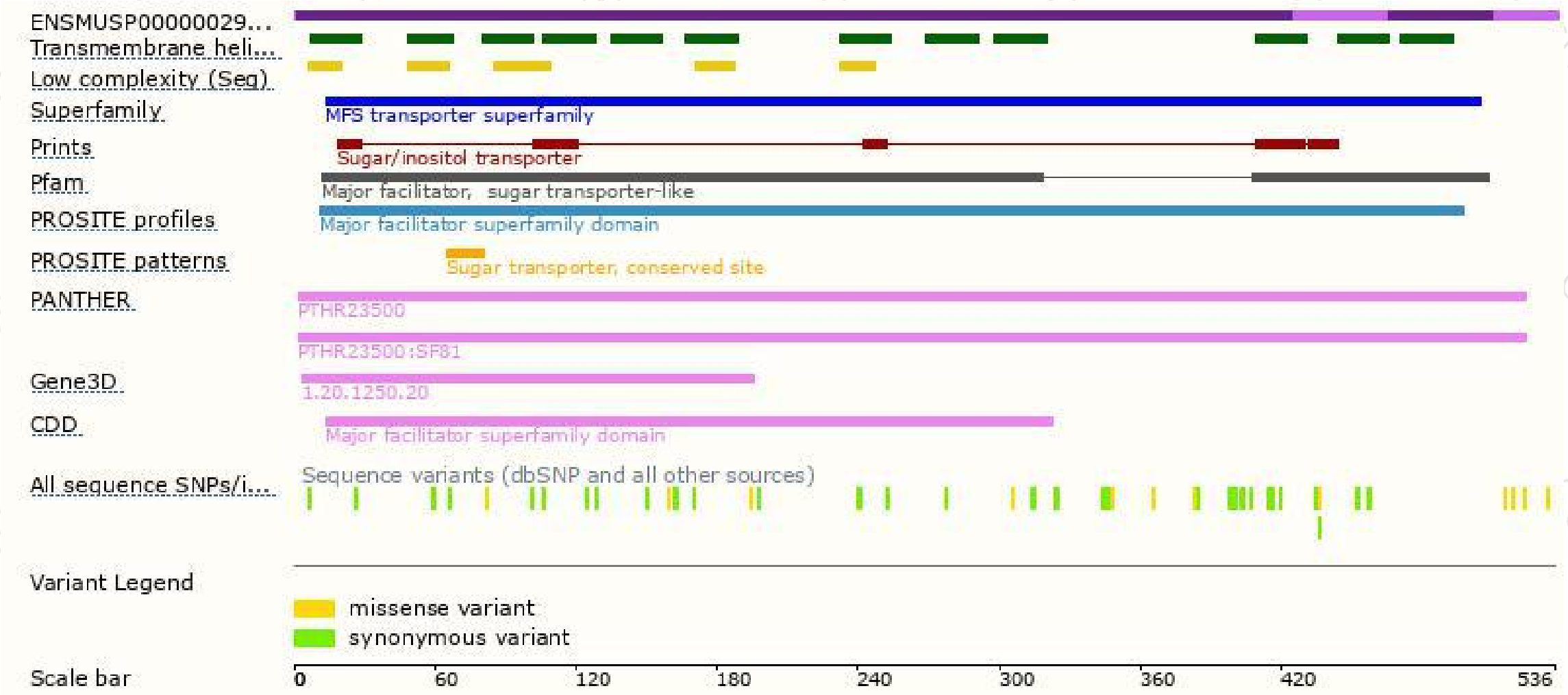
The strategy is based on the design of *Slc2a10-201* transcript,The transcription is shown below



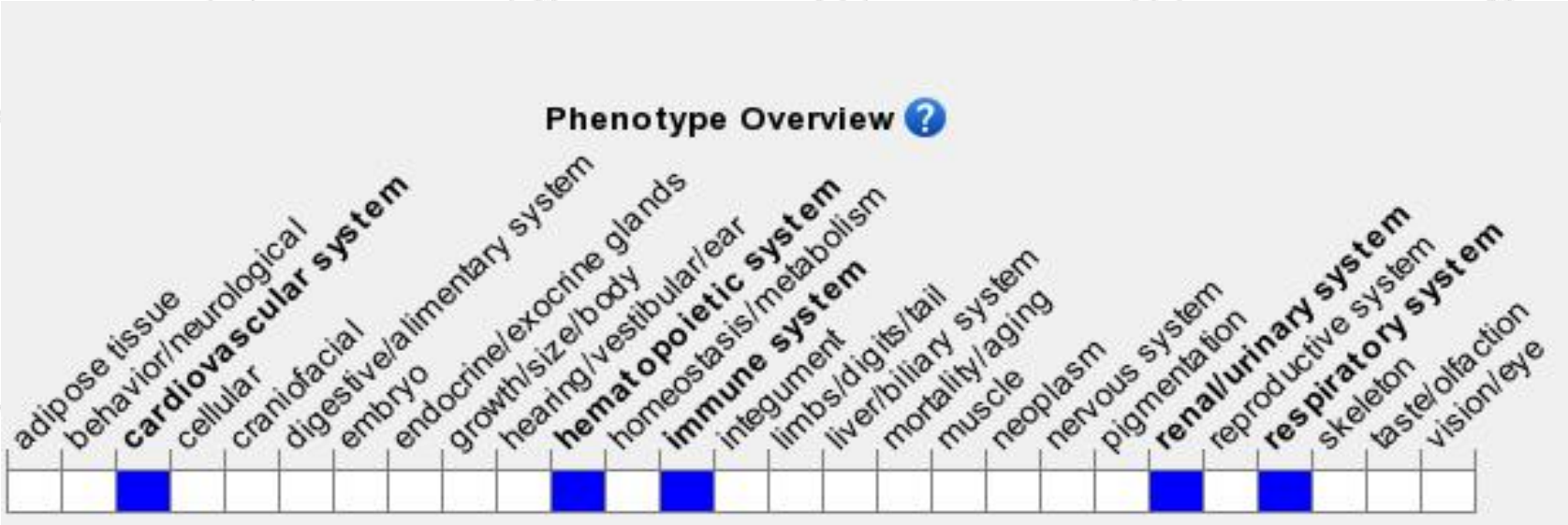
Genomic location distribution



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/).

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GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd