Slc30a3 Cas9-CKO Strategy

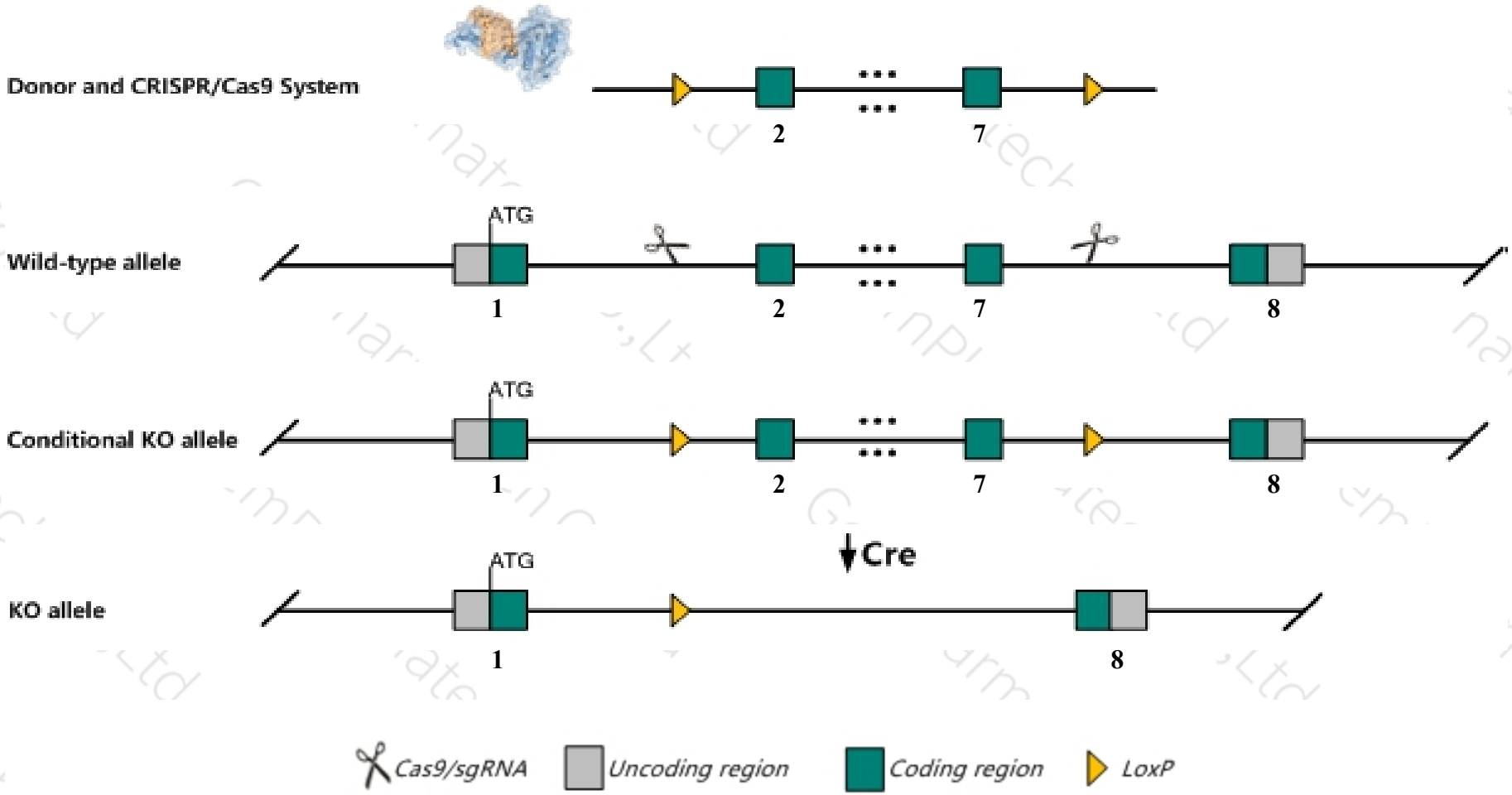
Designer: JiaYu

Project Overview

Project Name	***Slc30a3***
Project type	**Cas9-CKO**
Strain background	**C57BL/6J**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc30a3* gene. The schematic diagram is as follows:



Technical routes

- The *Slc30a3* gene has 6 transcripts. According to the structure of *Slc30a3* gene, exon2-exon7 of *Slc30a3-201* (ENSMUST00000031037.13) transcript is recommended as the knockout region.The region contains 923bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Slc30a3* 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/6J 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/6J 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 and cell types.

Notice

- According to the existing MGI data,While zinc is absent from synaptic vesicles in homozygous null mice, inactivation of this locus does not affect brain morphology.

- The *Slc30a3* gene is located on the Chr5. 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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Slc30a3 solute carrier family 30 (zinc transporter), member 3 [Mus musculus (house mouse)]

Gene ID: 22784, updated on 5-Mar-2019

Summary

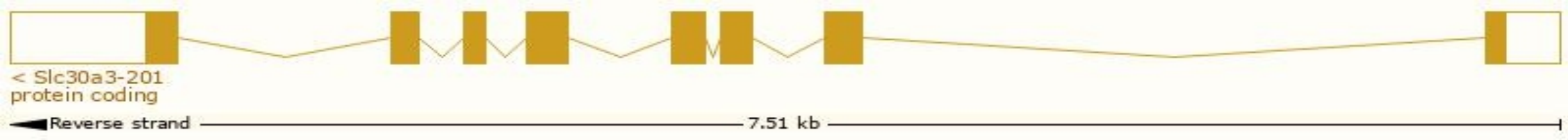
Official Symbol	Slc30a3 provided by MGI
Official Full Name	solute carrier family 30 (zinc transporter), member 3 provided by MGI
Primary source	MGI:MGI:1345280
See related	Ensembl:ENSMUSG00000029151
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Znt3
Expression	Biased expression in testis adult (RPKM 97.3), cortex adult (RPKM 39.8) and 5 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

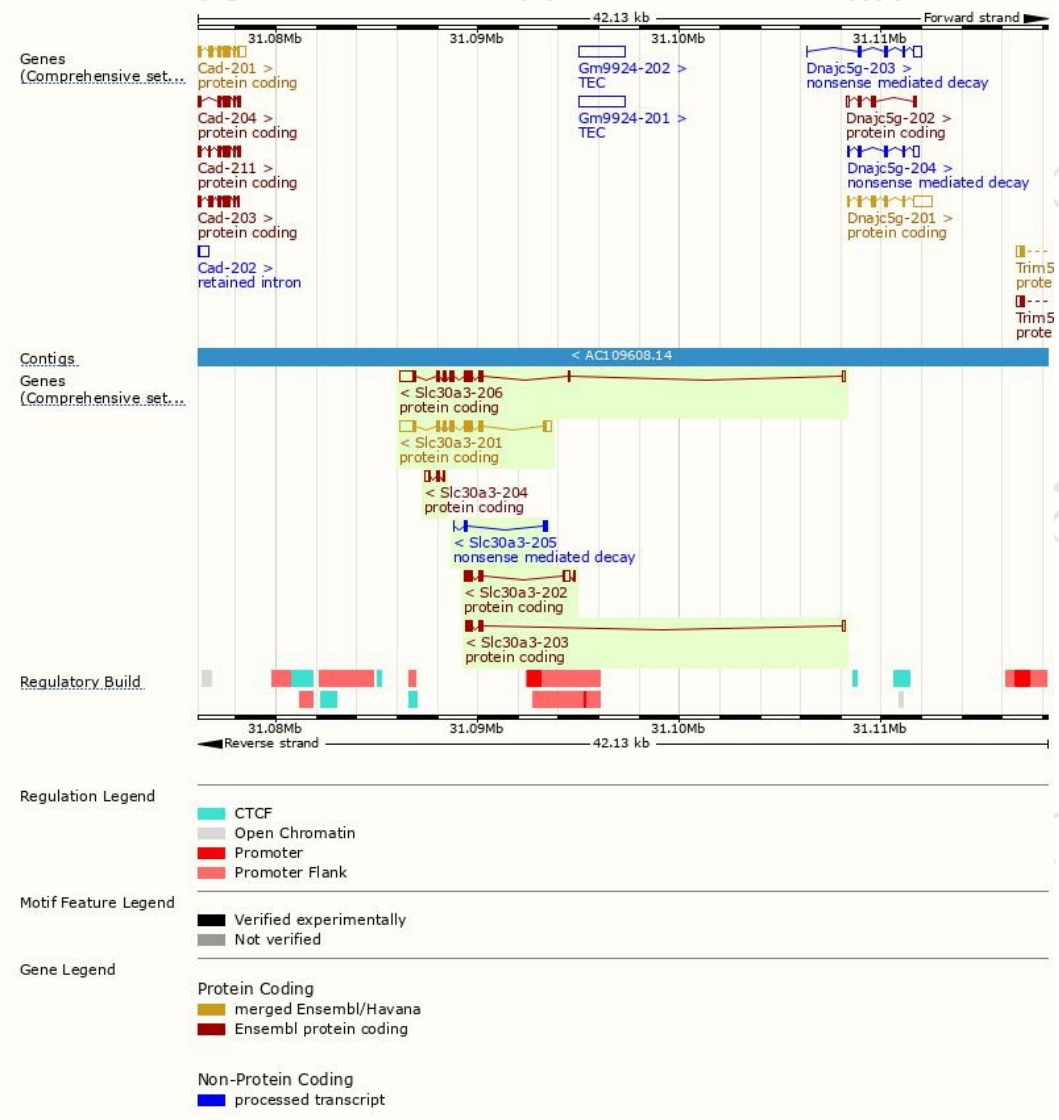
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc30a3-201	ENSMUST00000031037.13	2089	388aa	Protein coding	CCDS51455	P97441 Q3TMQ7	TSL:1 GENCODE basic APPRIS P1
Slc30a3-206	ENSMUST00000202740.3	1989	339aa	Protein coding	CCDS84861	S4R169	TSL:5 GENCODE basic
Slc30a3-202	ENSMUST00000200906.3	806	173aa	Protein coding	-	S4R2M0	CDS 3' incomplete TSL:5
Slc30a3-203	ENSMUST00000201396.1	586	124aa	Protein coding	-	S4R166	CDS 3' incomplete TSL:3
Slc30a3-204	ENSMUST00000201783.1	407	87aa	Protein coding	-	S4R2S4	CDS 5' incomplete TSL:2
Slc30a3-205	ENSMUST00000202731.1	386	60aa	Nonsense mediated decay	-	S4R1P0	TSL:3

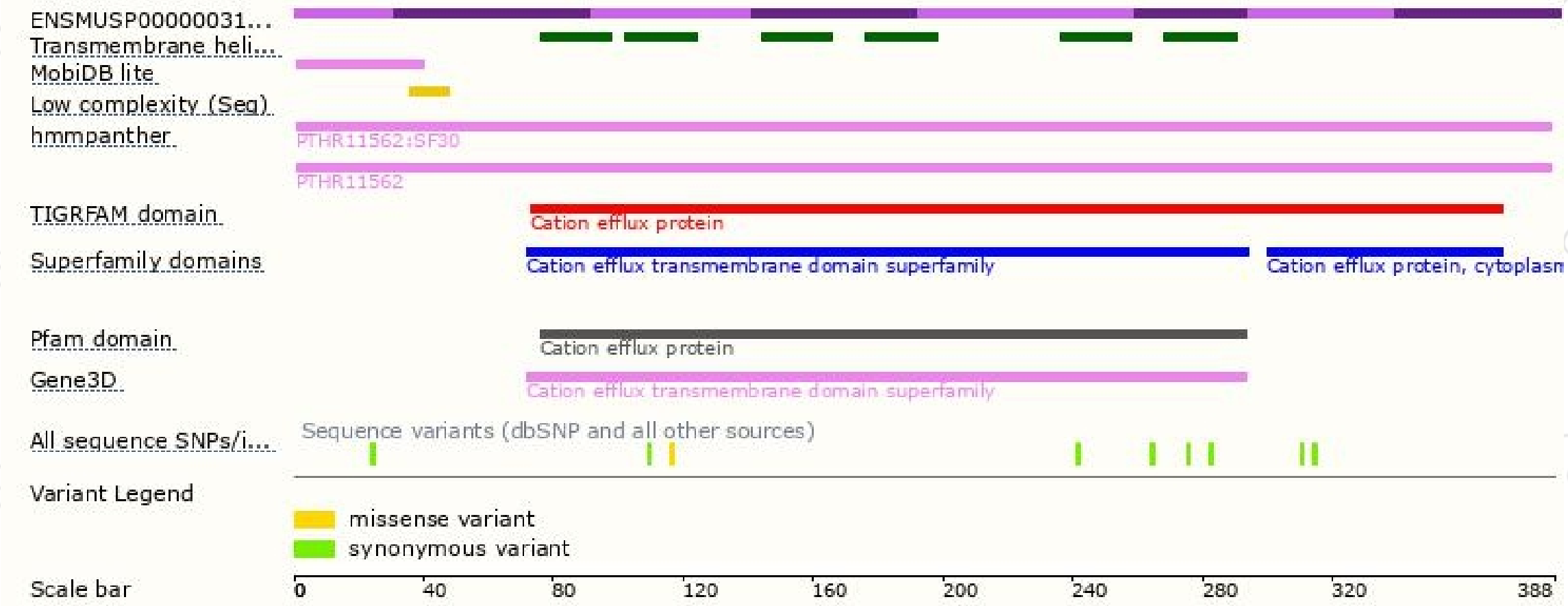
The strategy is based on the design of *Slc30a3-201* transcript,The transcription is shown below



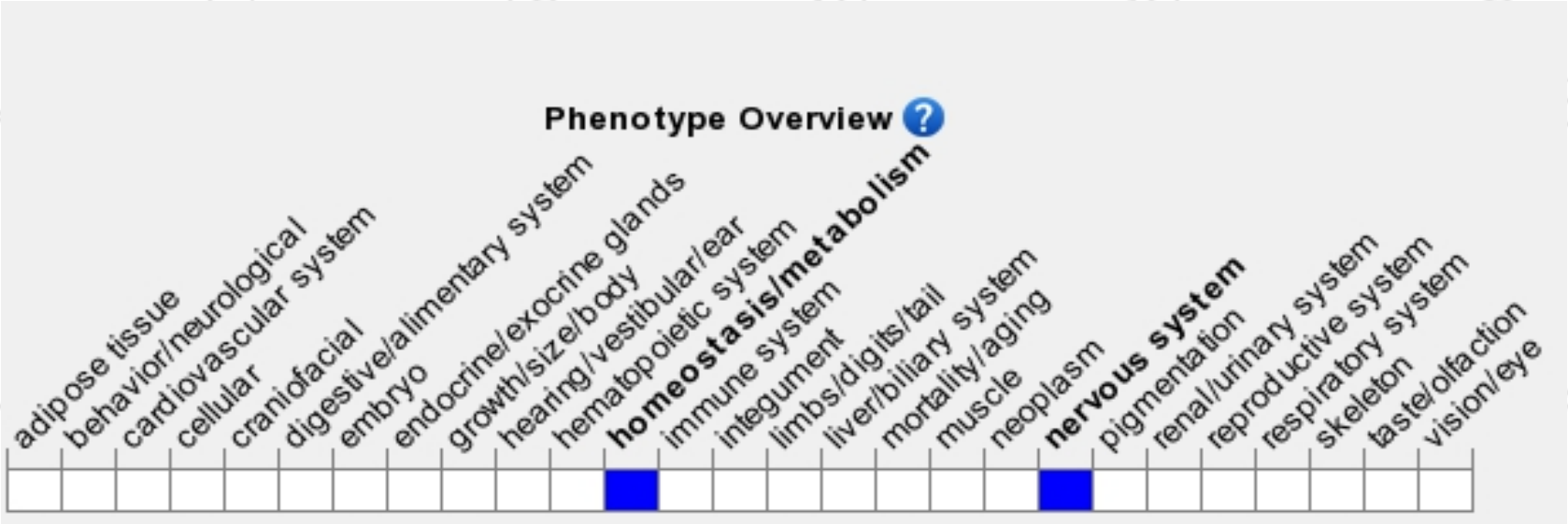
Genomic location distribution



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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集萃药康
GemPharmatech

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

Tel: 025-5864 1534

集萃药康生物科技
GemPharmatech Co.,Ltd