

Gspt1 Cas9-CKO Strategy

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Project Overview

Project Name

Gspt1

Project type

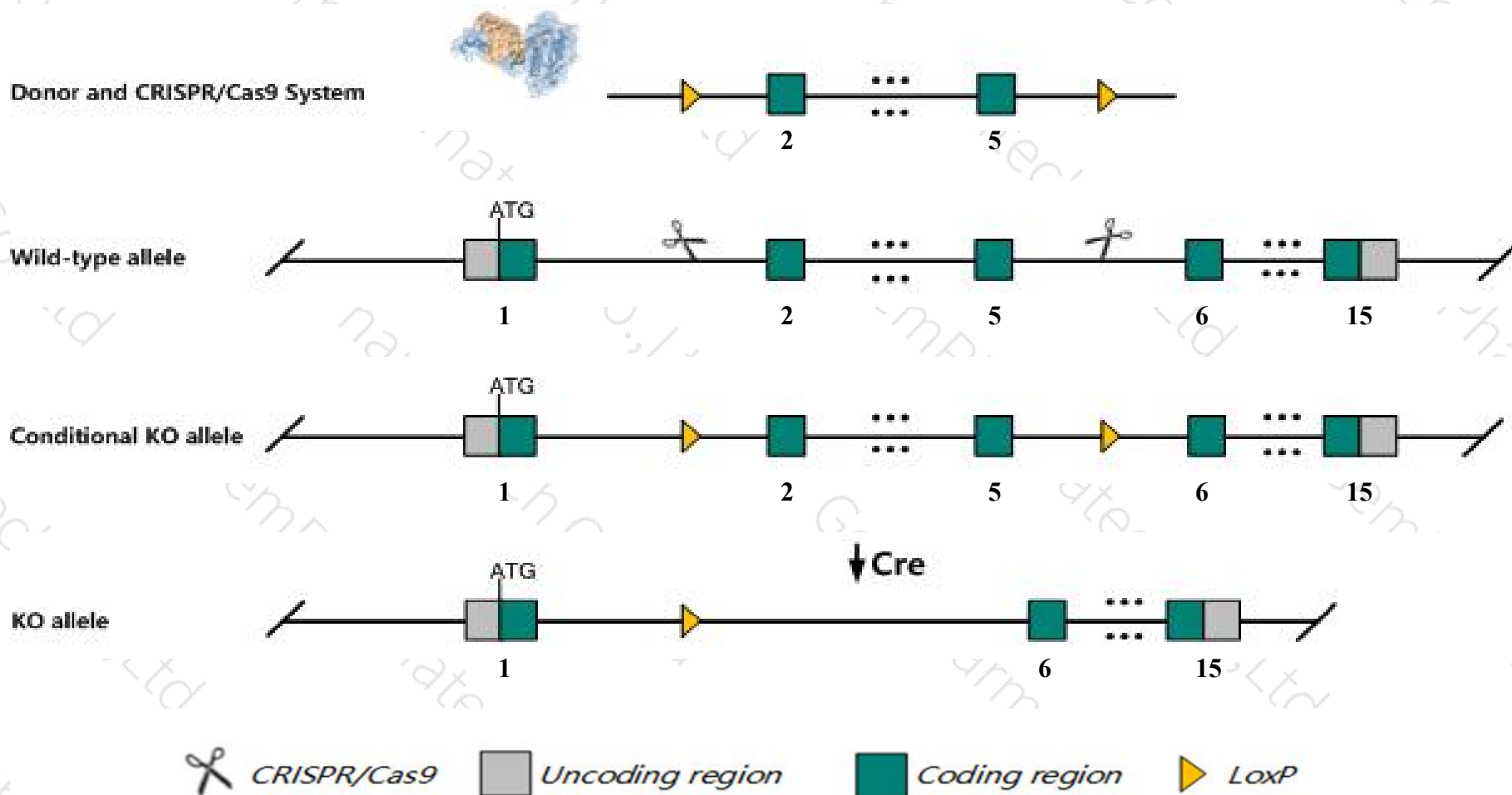
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gspt1* gene. The schematic diagram is as follows:



Technical routes

- The *Gspt1* gene has 6 transcripts. According to the structure of *Gspt1* gene, exon2-exon5 of *Gspt1*-201(ENSMUST00000080030.13) transcript is recommended as the knockout region. The region contains 340bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gspt1* 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 *Gspt1* 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.
- The KO region contains part intron of *2610020C07Rik-204* gene.
- 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)

Gspt1 G1 to S phase transition 1 [*Mus musculus* (house mouse)]

Gene ID: 14852, updated on 8-Jun-2020

Summary



Official Symbol	Gspt1 provided by MGI
Official Full Name	G1 to S phase transition 1 provided by MGI
Primary source	MGI:MGI:1316728
See related	Ensembl:ENSMUSG00000062203
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	G1st; Gst-1; C79774; AI314175; AI326449; AV307676
Expression	Ubiquitous expression in adrenal adult (RPKM 23.1), CNS E11.5 (RPKM 15.9) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

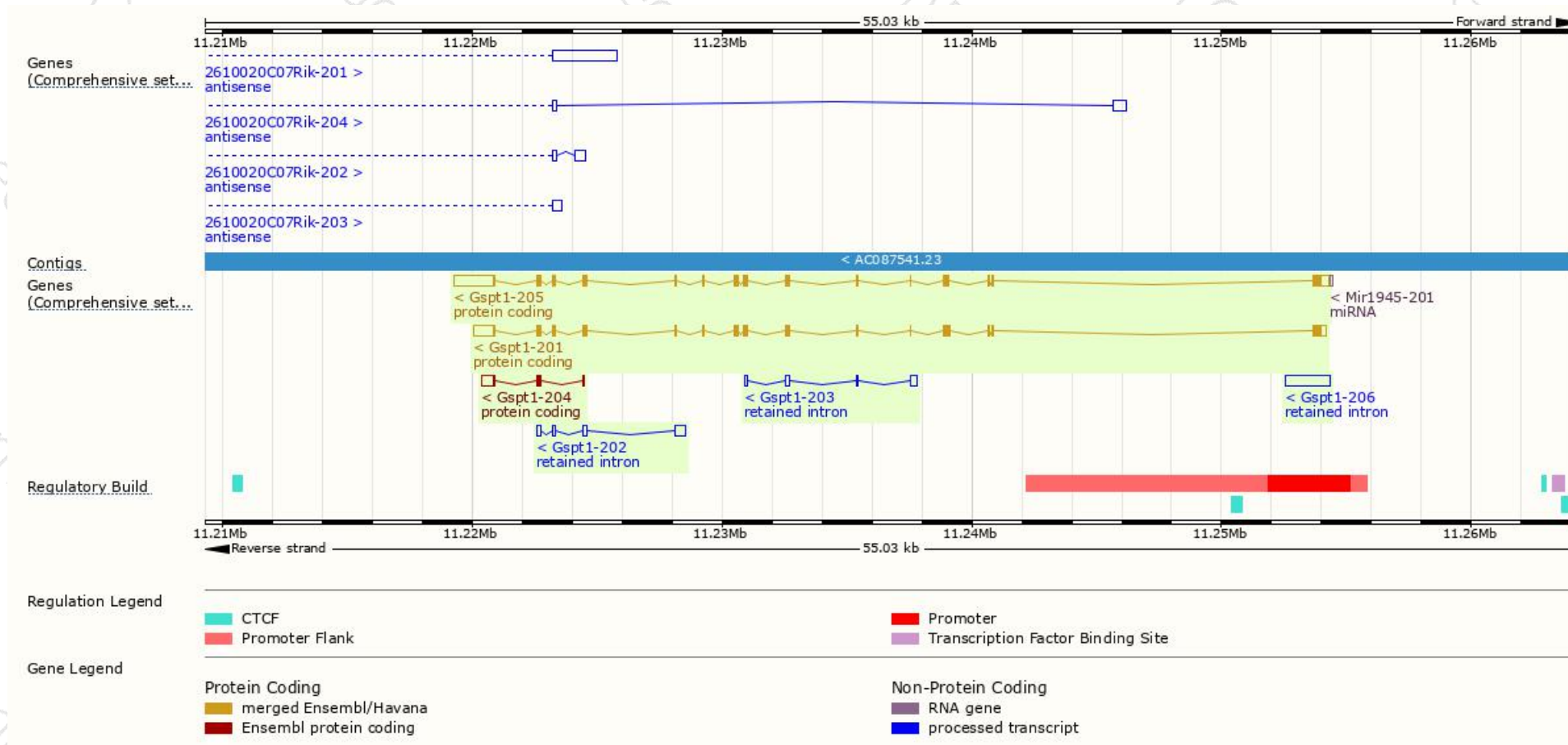
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gspt1-205	ENSMUST00000167571.7	3716	635aa	Protein coding	CCDS49764	Q8R050	TSL:1 GENCODE basic APPRIS ALT2
Gspt1-201	ENSMUST00000080030.13	2898	636aa	Protein coding	CCDS27961	Q8R050	TSL:1 GENCODE basic APPRIS P3
Gspt1-204	ENSMUST00000167025.1	727	100aa	Protein coding	-	F7CE88	CDS 5' incomplete TSL:3
Gspt1-206	ENSMUST00000229660.1	1759	No protein	Retained intron	-	-	-
Gspt1-202	ENSMUST00000164098.1	836	No protein	Retained intron	-	-	TSL:2
Gspt1-203	ENSMUST00000166063.1	629	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Gspt1-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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