

Supt16 Cas9-CKO Strategy

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Reviewer :

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Design Date:

2019-10-10

Project Overview



Project Name

Supt16

Project type

Cas9-CKO

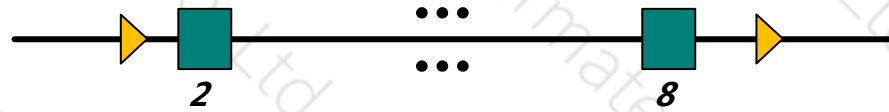
Strain background

C57BL/6JGpt

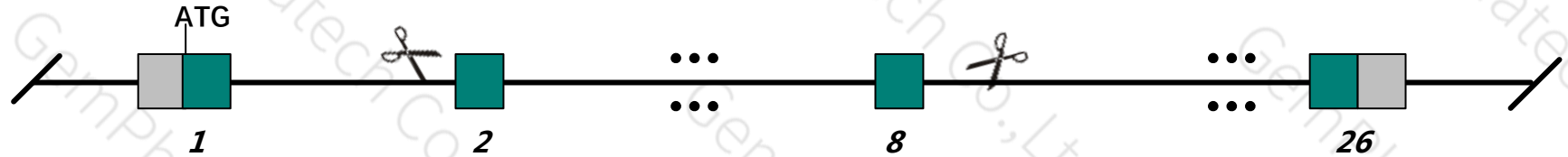
Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Supt16* gene. The schematic diagram is as follows:

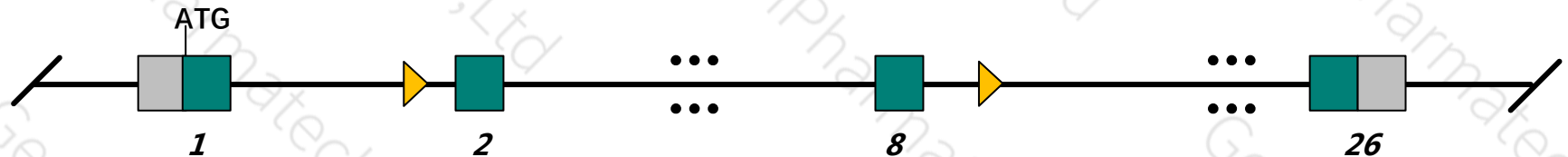
Donor and CRISPR/Cas9 System



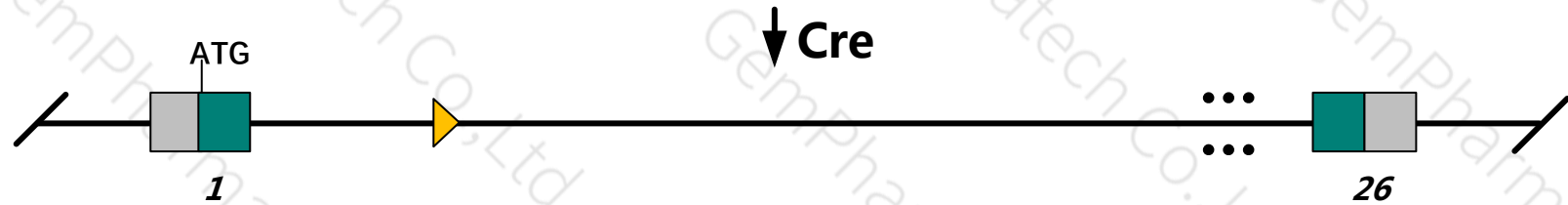
Wild-type allele



Conditional KO allele



KO allele



- The *Supt16* gene has 2 transcripts. According to the structure of *Supt16* gene, exon2-exon8 of *Supt16*-201 (ENSMUST00000046709.8) transcript is recommended as the knockout region. The region contains 980bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Supt16* 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/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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- The *Supt16* gene is located on the Chr14. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)



Supt16 SPT16, facilitates chromatin remodeling subunit [*Mus musculus* (house mouse)]

Gene ID: 114741, updated on 12-Aug-2019

Summary

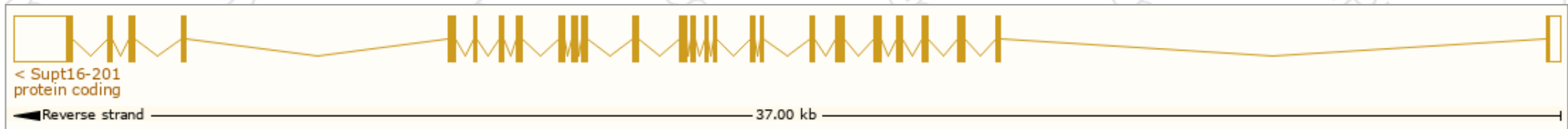
Official Symbol	Supt16 provided by MGI
Official Full Name	SPT16, facilitates chromatin remodeling subunit provided by MGI
Primary source	MGI:MGI:1890948
See related	Ensembl:ENSMUSG00000035726
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Cdc68; Spt16; Fact140; Supt16h
Expression	Broad expression in CNS E11.5 (RPKM 42.5), liver E14 (RPKM 20.1) and 23 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

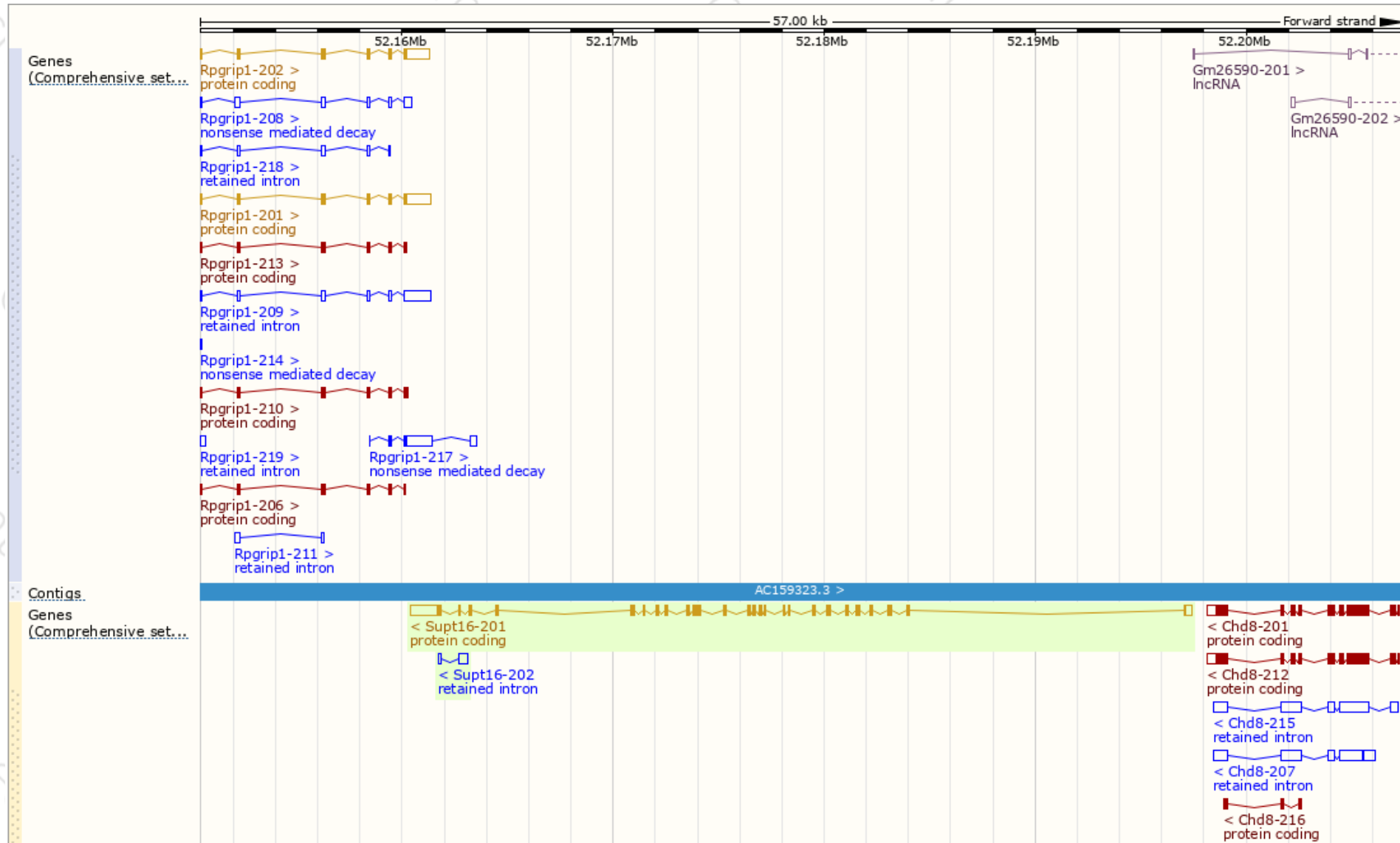
The gene has 2 transcripts, and all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Supt16-201	ENSMUST00000046709.8	4673	1047aa	Protein coding	CCDS27051	G3X956	TSL:1 GENCODE basic APPRIS P1
Supt16-202	ENSMUST00000227577.1	548	No protein	Retained intron	-	-	-

The strategy is based on the design of *Supt16-201* 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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