Cers6 Cas9-KO Strategy

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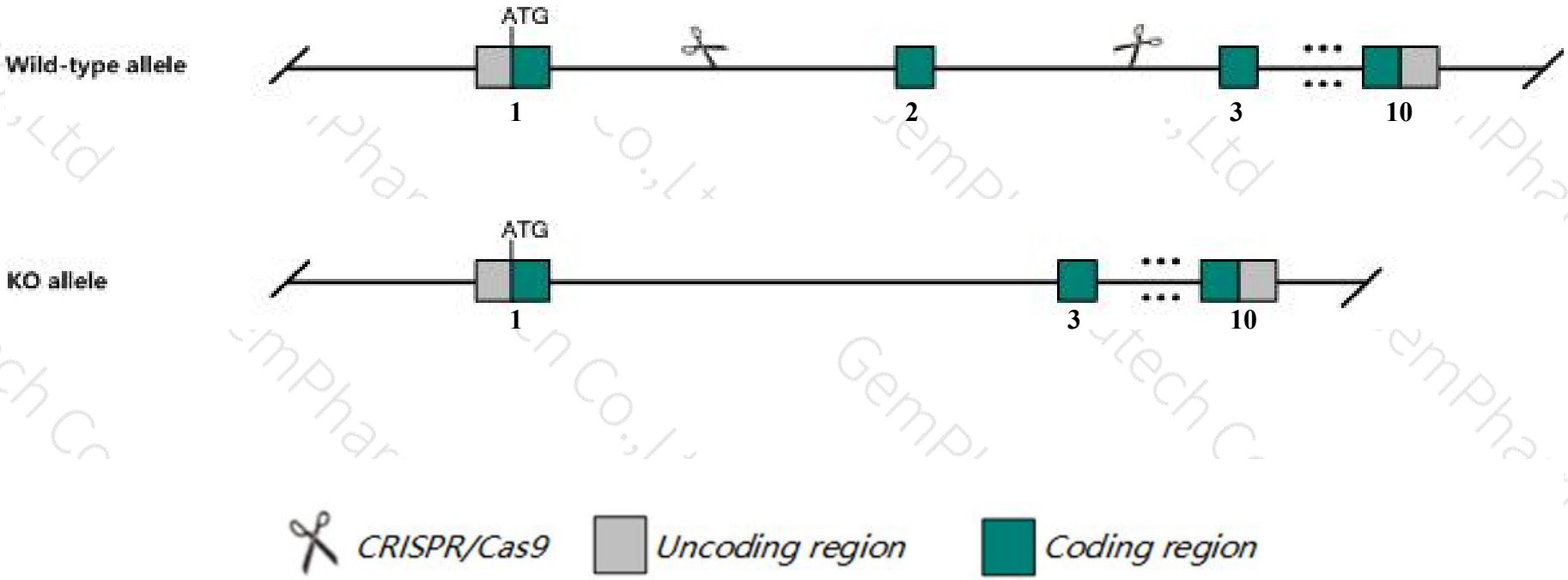
Design Date: 2019-7-22

Project Overview

Project Name	***Cers6***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cers6* gene. The schematic diagram is as follows:



Technical routes

➢ The *Cers6* gene has 7 transcripts. According to the structure of *Cers6* gene, exon2 of *Cers6-206* (ENSMUST00000176018.1) transcript is recommended as the knockout region.The region contains 106bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Cers6* gene. The brief process is as follows: gRNA was transcribed in vitro.Cas9 and gRNA 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 knockout allele exhibit hind limb clasping, habituation deficit and altered lipid homeostasis.
- Transcript *Cers6*-202&204&207 may not be affected.
- The *Cers6* 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 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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Cers6 ceramide synthase 6 [Mus musculus (house mouse)]

Gene ID: 241447, updated on 31-Jan-2019

Summary

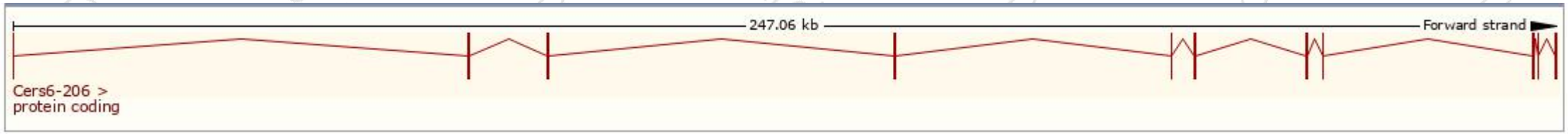
Official Symbol	Cers6 provided by MGI
Official Full Name	ceramide synthase 6 provided by MGI
Primary source	MGI:MGI:2442564
See related	Ensembl:ENSMUSG00000027035
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4732462C07Rik, AW544719, Lass6, T1L
Expression	Ubiquitous expression in CNS E18 (RPKM 3.5), large intestine adult (RPKM 3.5) and 27 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

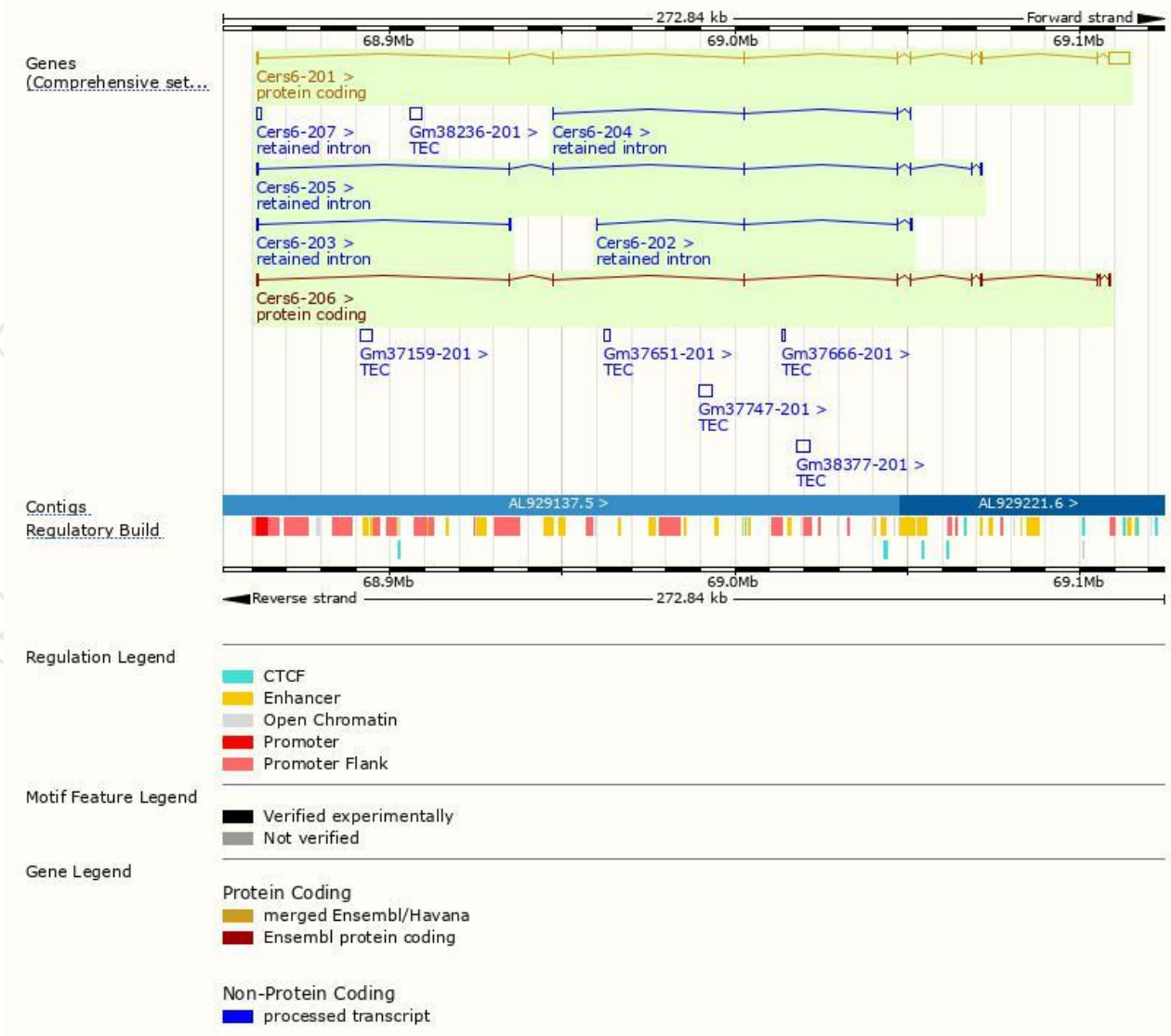
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cers6-201	ENSMUST00000028426.8	7038	384aa	Protein coding	CCDS16086	Q8C172	TSL:1 GENCODE basic APPRIS P3
Cers6-206	ENSMUST00000176018.1	1279	392aa	Protein coding	CCDS84532	H3BL08	TSL:5 GENCODE basic APPRIS ALT1
Cers6-207	ENSMUST00000183755.1	1283	No protein	Retained intron	-	-	TSL:NA
Cers6-205	ENSMUST00000175684.7	1134	No protein	Retained intron	-	-	TSL:5
Cers6-202	ENSMUST00000141498.1	762	No protein	Retained intron	-	-	TSL:3
Cers6-203	ENSMUST00000141983.1	673	No protein	Retained intron	-	-	TSL:2
Cers6-204	ENSMUST00000155748.7	400	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Cers6-206* transcript,The transcription is shown below

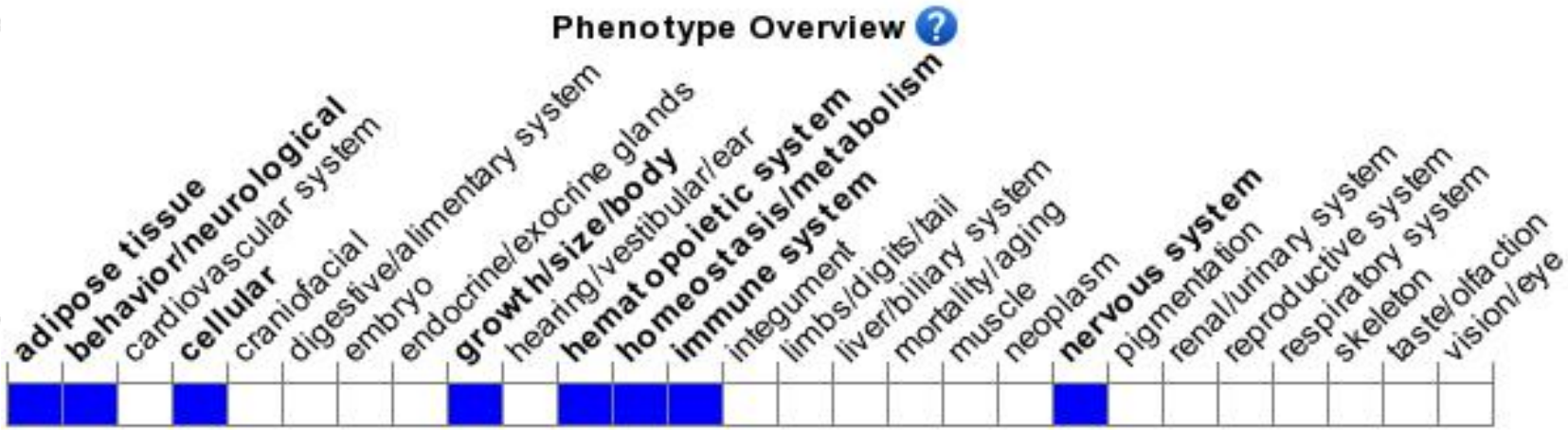


Genomic location distribution



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

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