Casp7 Cas9-KO *Strategy*

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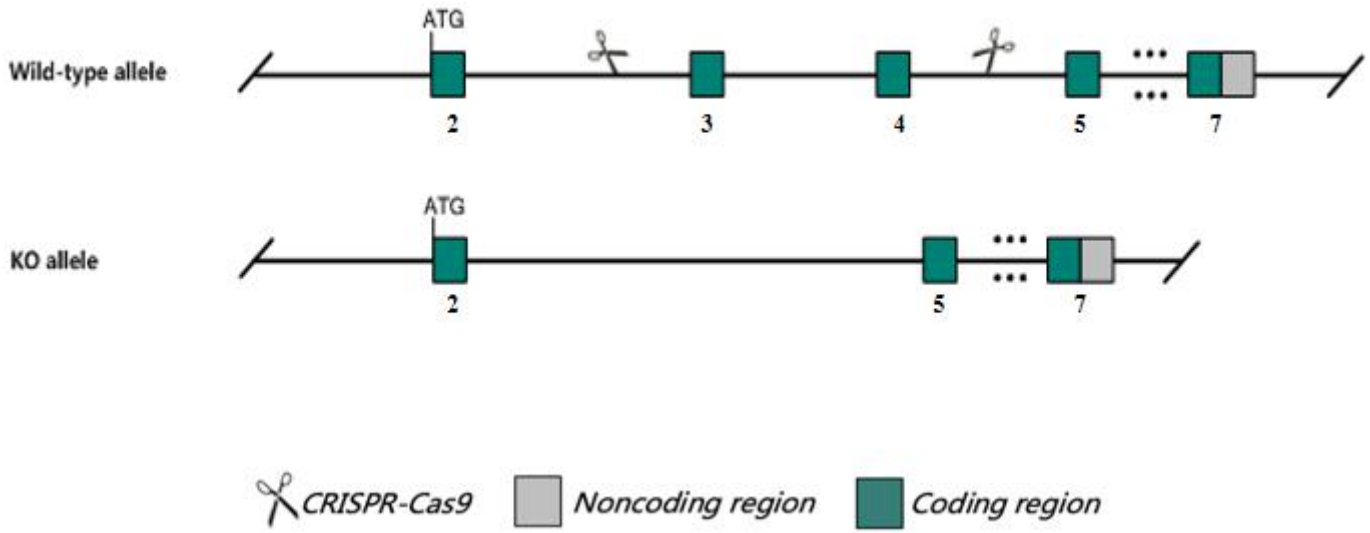
Design Date: 2021-9-27

Project Overview

Project Name	***Casp7***
Project type	**Cas9-KO**
Strain background	**C57BL/6J**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Casp7* gene. The schematic diagram is as follows:



Technical routes

- The *Casp7* gene has 6 transcript.According to the structure of *Casp7* gene, exon 3-4 of Casp7-201 （ENSMUST00000026062.10） transcript is recommended as the knockout region.The region contains 266bp.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Casp7* gene. The brief process is as follows: sgRNA was transcribed in vitro, Cas9, sgRNA 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.

Notice

- The *Casp7* gene is located on the Chr19. 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)

Casp7 caspase 7 [Mus musculus (house mouse)]

Gene ID: 12369, updated on 13-Mar-2020

Summary

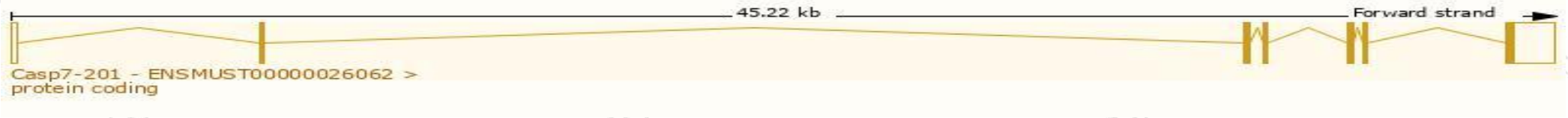
Official Symbol	Casp7 provided by MGI
Official Full Name	caspase 7 provided by MGI
Primary source	MGI:MGI:109383
See related	Ensembl:ENSMUSG00000025076
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI314680, CMH-1, ICE-IAP3, Mch3, caspase-7, mCASP-7
Expression	Broad expression in large intestine adult (RPKM 48.3), duodenum adult (RPKM 25.6) and 22 other tissues See more
Orthologs	human all

Transcript information （Ensembl）

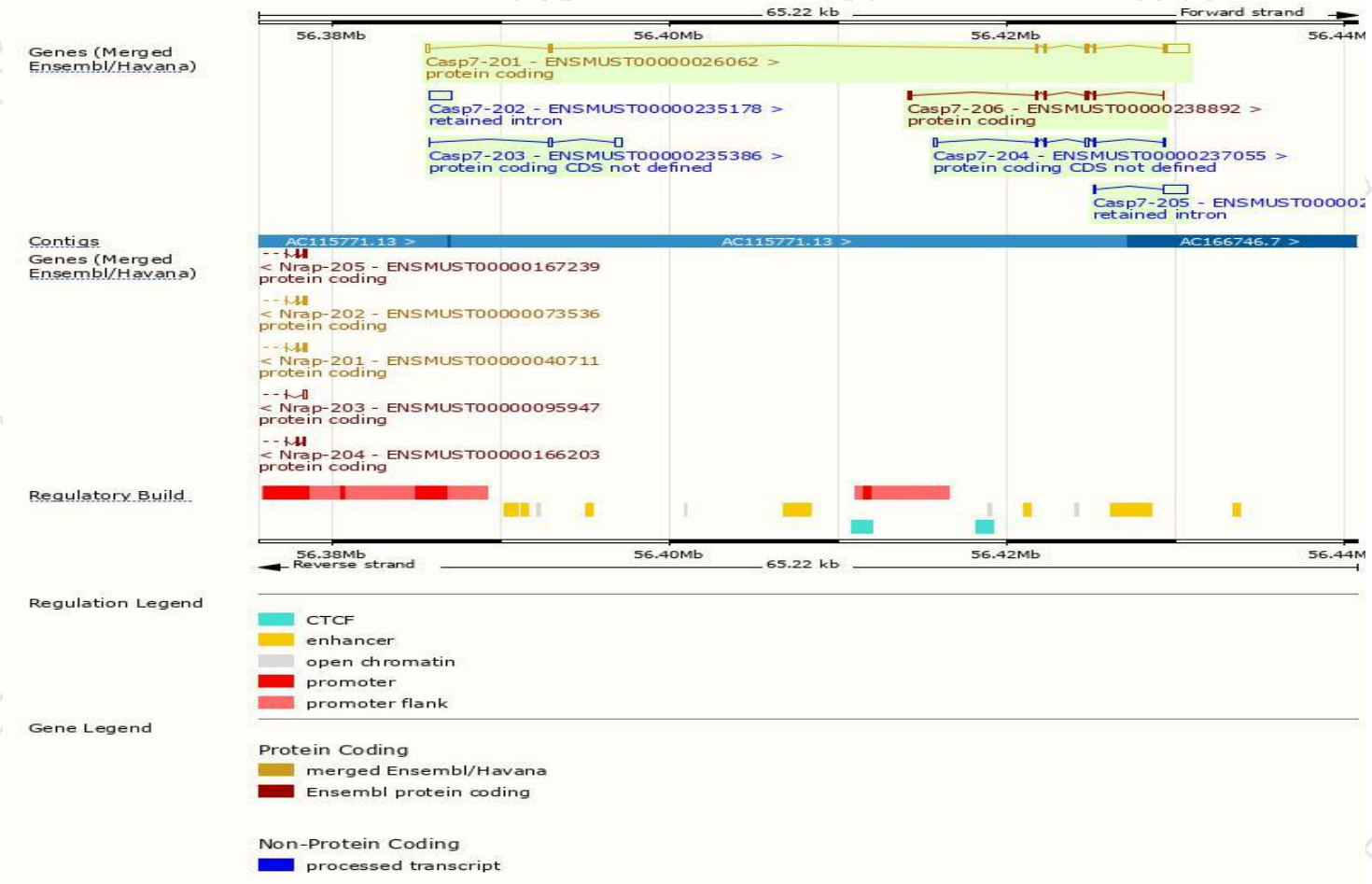
The gene has 6 transcripts, and all transcripts are shown below:

Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000026062.10	Casp7-201	2350	303aa	Protein coding	CCDS29915	P97864 Q4FJQ4	Ensembl Canonical GENCODE basic APPRIS P1 TSL:1
ENSMUST00000238892.2	Casp7-206	787	237aa	Protein coding		A0A5F8MPP6	CDS 3' incomplete
ENSMUST00000237055.3	Casp7-204	842	No protein	Protein coding CDS not defined		-	-
ENSMUST00000235386.2	Casp7-203	519	No protein	Protein coding CDS not defined		-	-
ENSMUST00000237765.2	Casp7-205	1603	No protein	Retained intron		-	-
ENSMUST00000235178.3	Casp7-202	1341	No protein	Retained intron		-	-

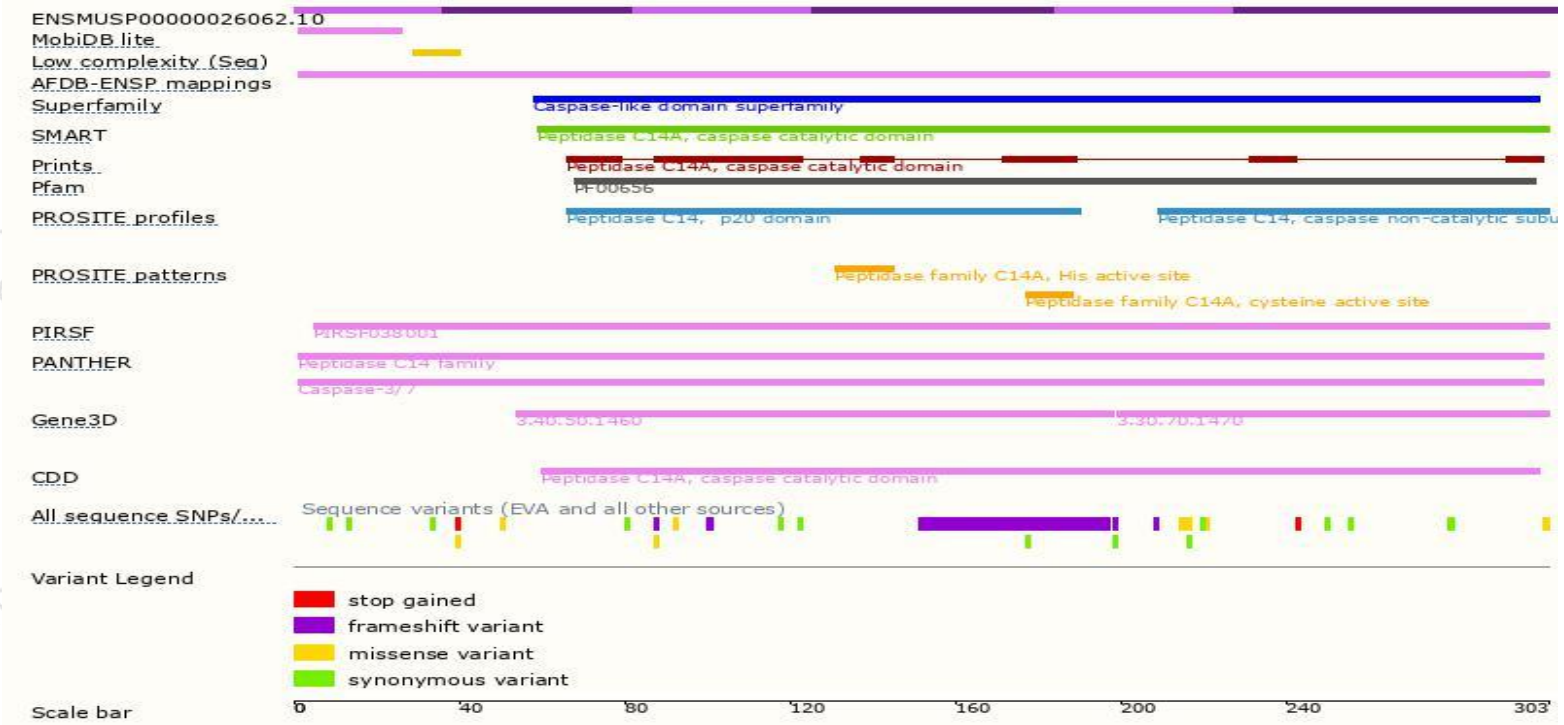
The strategy is based on the design of *Casp7*-201 transcript,The transcription is shown below



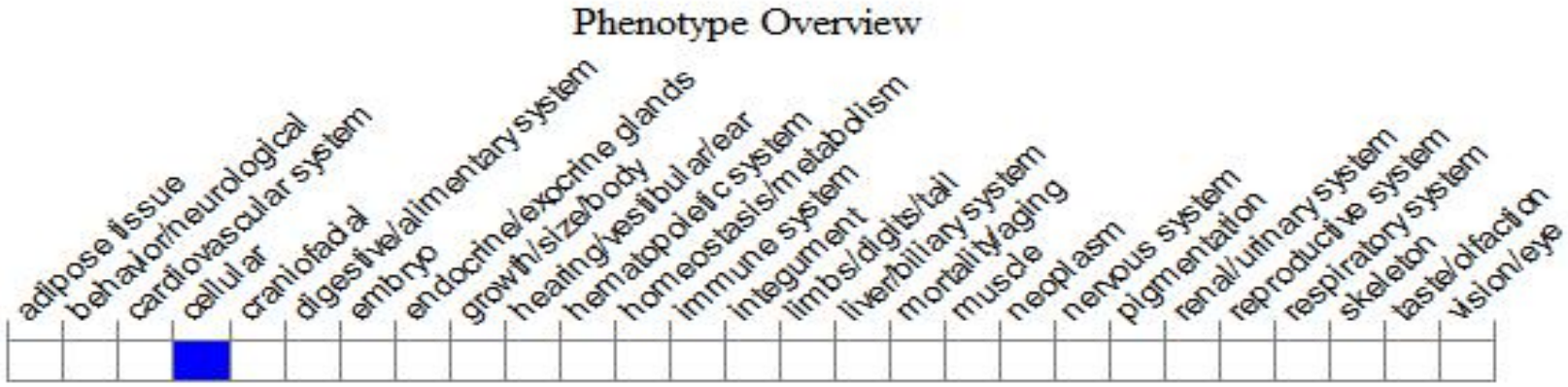
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



- Mice homozygous for a targeted mutation have normal appearance, organ morphology and lymphoid development.

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

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