

Casp12 Cas9-KO Strategy

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Design Date:

2018-6-27

Project Overview



Project Name

Casp12

Project type

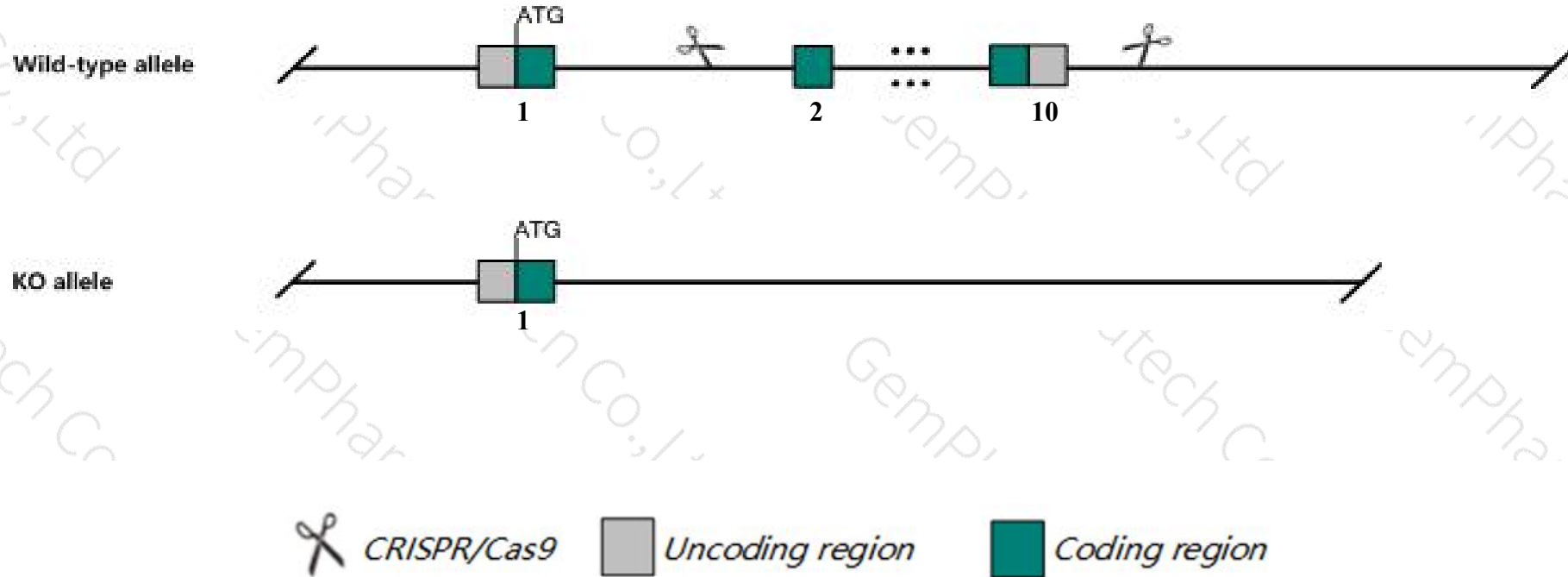
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Casp12* gene. The schematic diagram is as follows:



- The *Casp12* gene has 5 transcripts. According to the structure of *Casp12* gene, exon2-exon10 of *Casp12-201* (ENSMUST00000027009.10) transcript is recommended as the knockout region. The region contains 1253bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Casp12* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous mice for some mutations of this gene display resistance to ER stress-induced apoptosis.
- The *Casp12* gene is located on the Chr9. 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)

Casp12 caspase 12 [*Mus musculus* (house mouse)]

Gene ID: 12364, updated on 12-Aug-2019

Summary

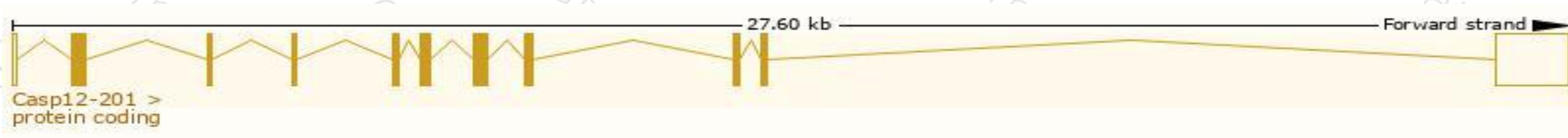
Official Symbol	Casp12 provided by MGI
Official Full Name	caspase 12 provided by MGI
Primary source	MGI:MGI:1312922
See related	Ensembl:ENSMUSG00000025887
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Biased expression in bladder adult (RPKM 12.1), subcutaneous fat pad adult (RPKM 1.5) and 5 other tissues See more

Transcript information (Ensembl)

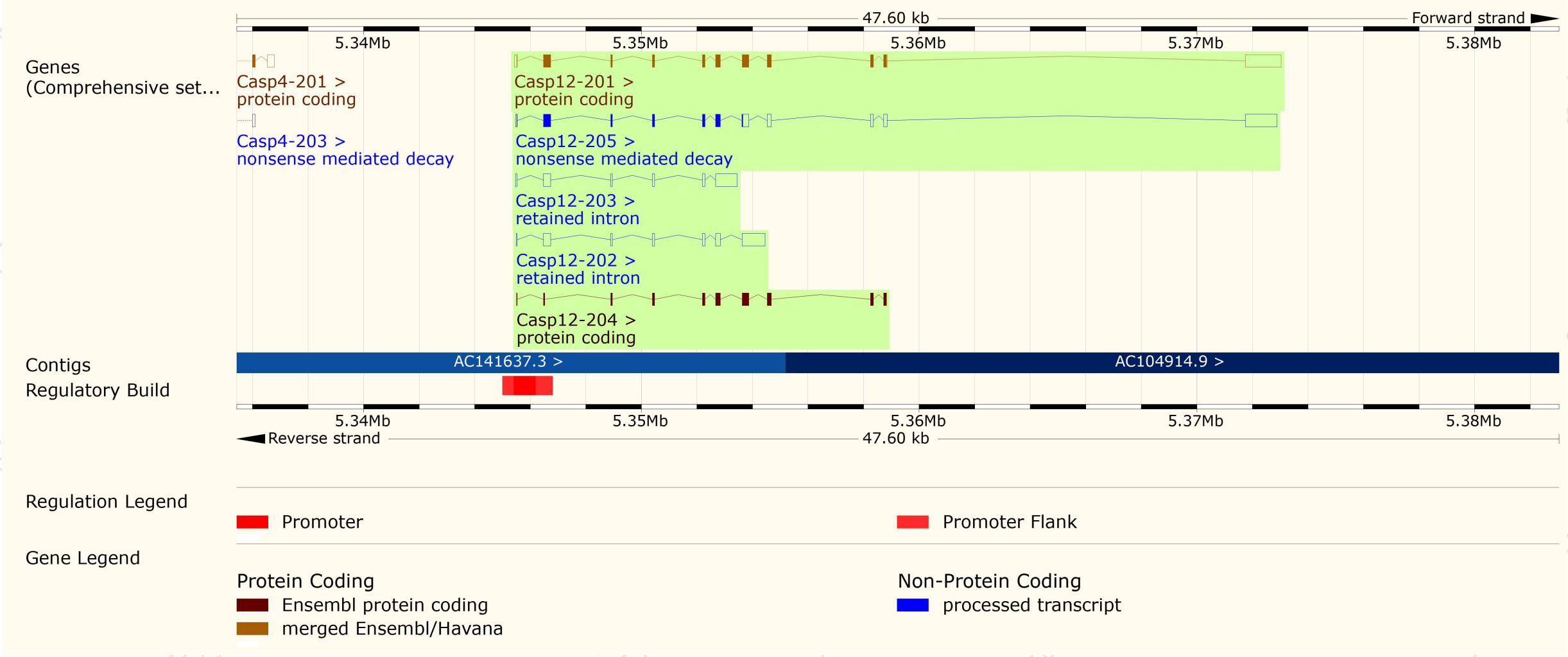
The gene has 5 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Casp12-201	ENSMUST00000027009.10	2649	419aa	Protein coding	CCDS22800	O08736	TSL:1 GENCODE basic APPRIS P1
Casp12-204	ENSMUST00000151332.1	1065	349aa	Protein coding	-	E9Q575	TSL:1 GENCODE basic
Casp12-205	ENSMUST00000151788.7	2463	231aa	Nonsense mediated decay	-	D6RCG7	TSL:1
Casp12-202	ENSMUST00000138308.1	1504	No protein	Retained intron	-	-	TSL:1
Casp12-203	ENSMUST00000149520.7	1306	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Casp12-201* transcript, The transcription is shown below



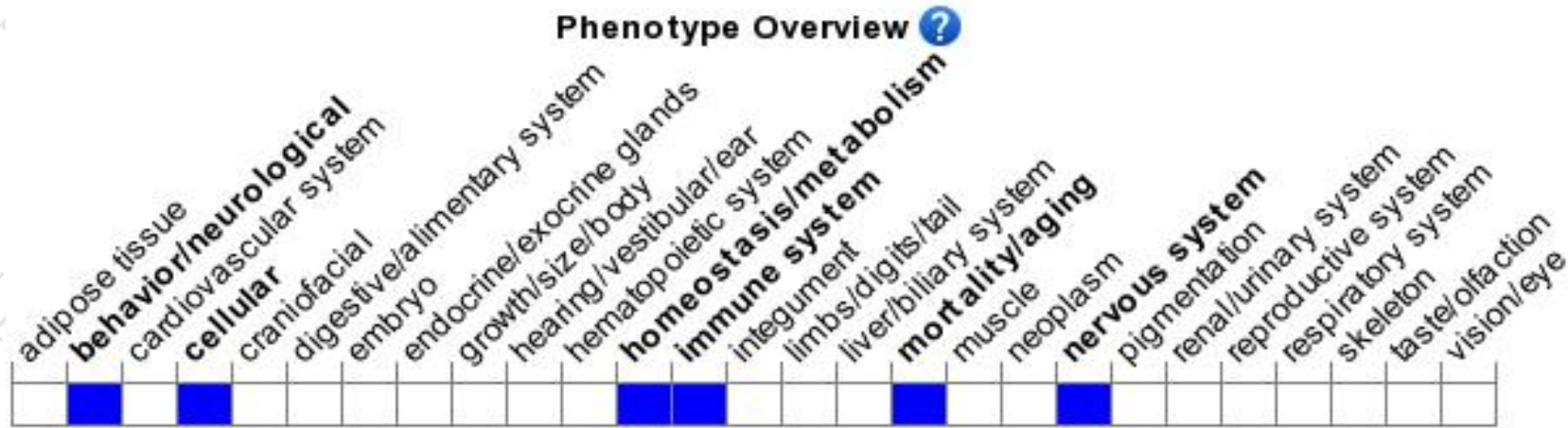
Genomic location distribution



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/>).

According to the existing MGI data, Homozygous mice for some mutations of this gene display resistance to ER stress-induced apoptosis.

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

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