

Actr5 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Actr5

Project type

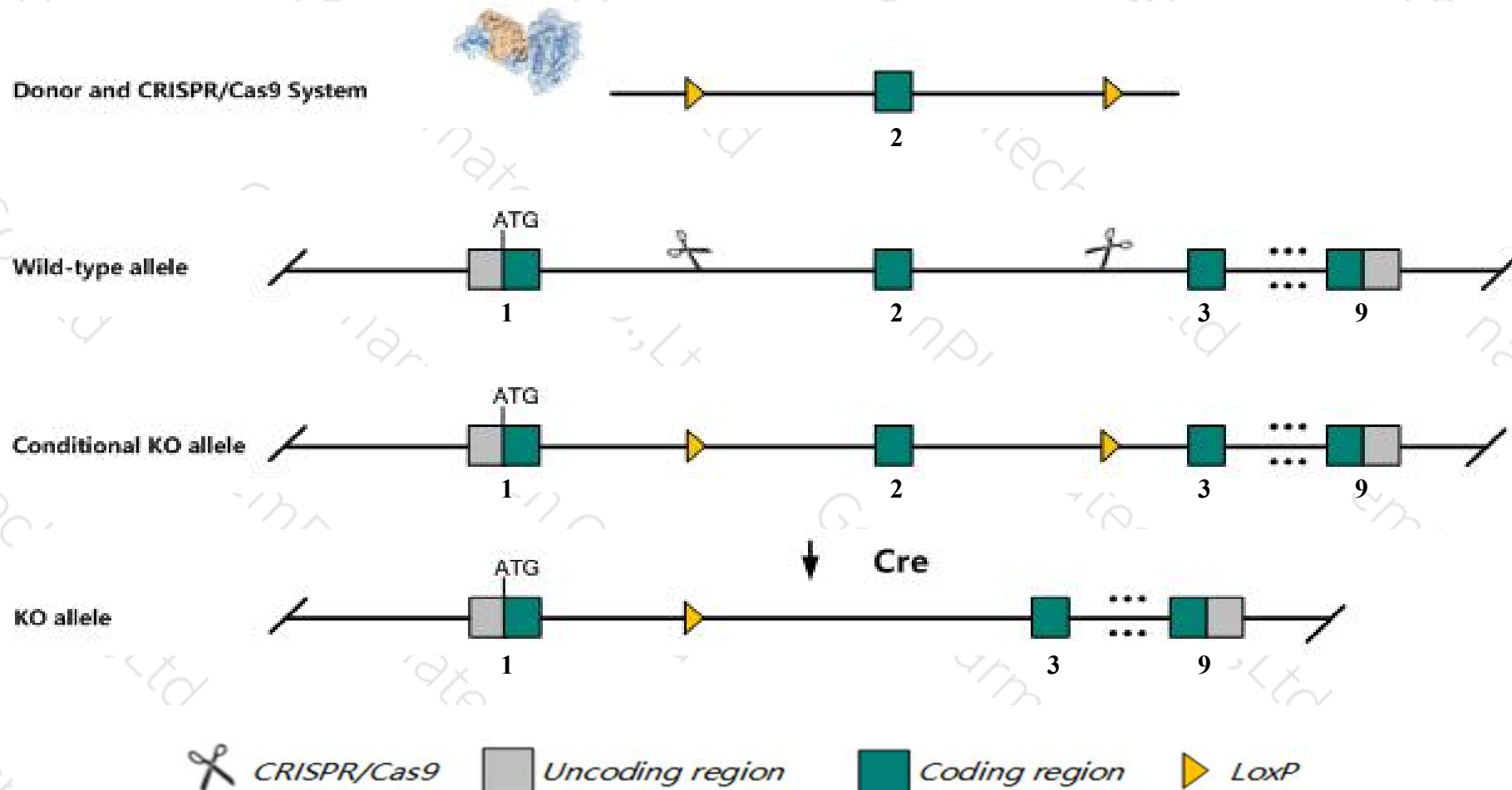
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Actr5* gene. The schematic diagram is as follows:



- The *Actr5* gene has 5 transcripts. According to the structure of *Actr5* gene, exon2 of *Actr5-201* (ENSMUST00000045644.8) transcript is recommended as the knockout region. The region contains 230bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Actr5* 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 *Actr5* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Actr5 ARP5 actin-related protein 5 [Mus musculus (house mouse)]

Gene ID: 109275, updated on 23-Feb-2019

Summary



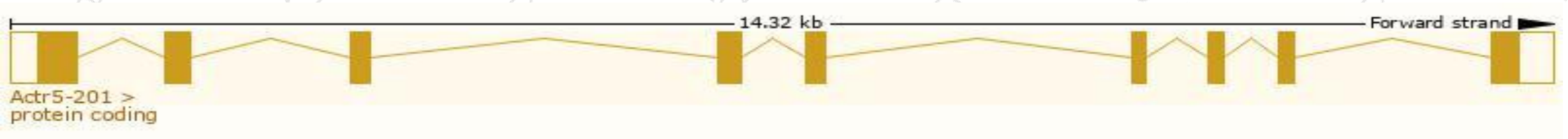
Official Symbol	Actr5 provided by MGI
Official Full Name	ARP5 actin-related protein 5 provided by MGI
Primary source	MGI:MGI:1924748
See related	Ensembl:ENSMUSG00000037761
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA545173, B430109J19Rik
Expression	Ubiquitous expression in thymus adult (RPKM 7.1), CNS E11.5 (RPKM 4.8) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

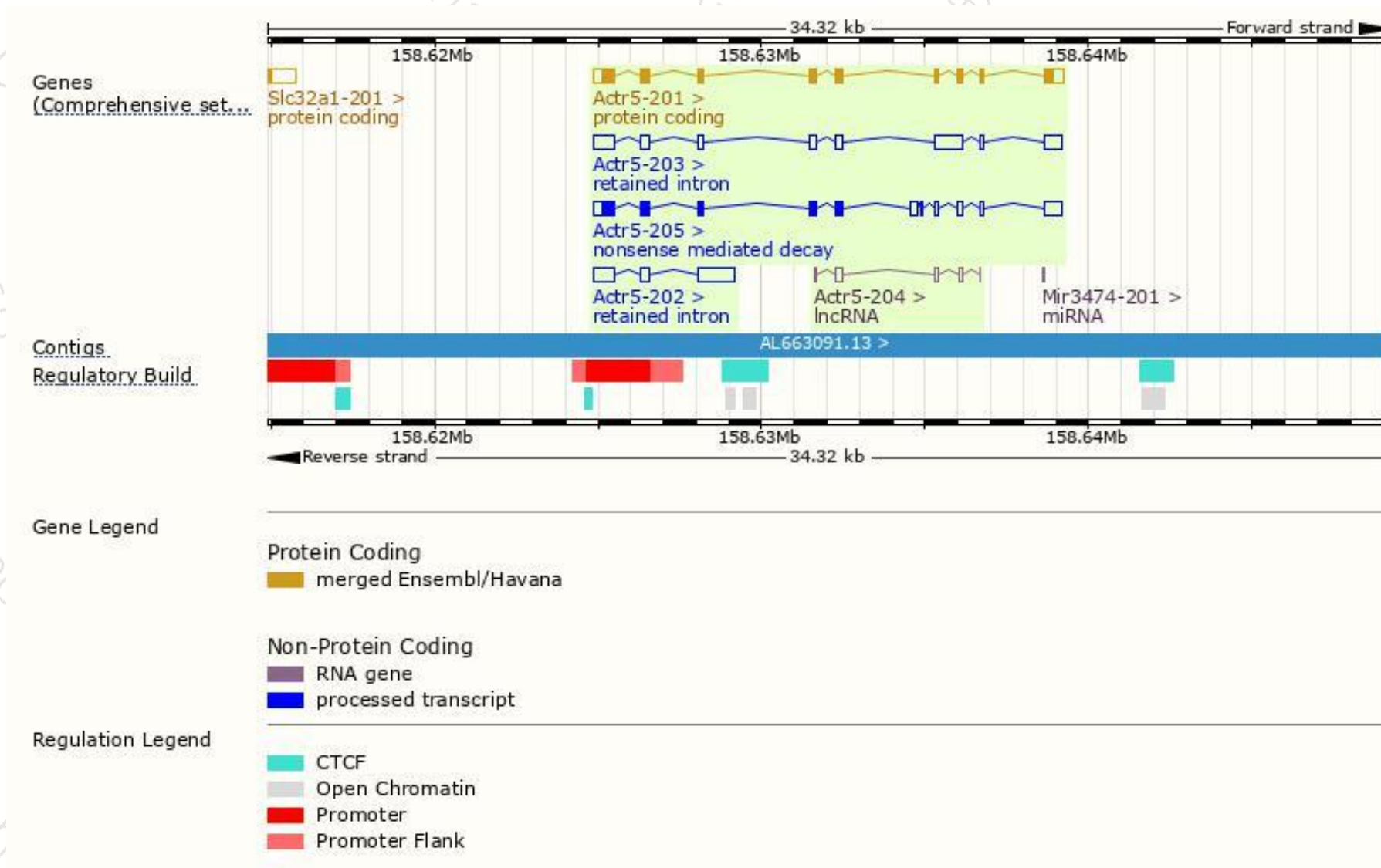
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Actr5-201	ENSMUST00000045644.8	2402	608aa	Protein coding	CCDS38310	A0A0A0MQ89	TSL:1 GENCODE basic APPRIS P1
Actr5-205	ENSMUST00000183731.7	2661	401aa	Nonsense mediated decay	-	V9GXE4	TSL:1
Actr5-204	ENSMUST00000183586.1	506	No protein	Processed transcript	-	-	TSL:5
Actr5-203	ENSMUST00000142531.7	2970	No protein	Retained intron	-	-	TSL:1
Actr5-202	ENSMUST00000125390.7	1960	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Actr5-201* transcript,The transcription is shown below



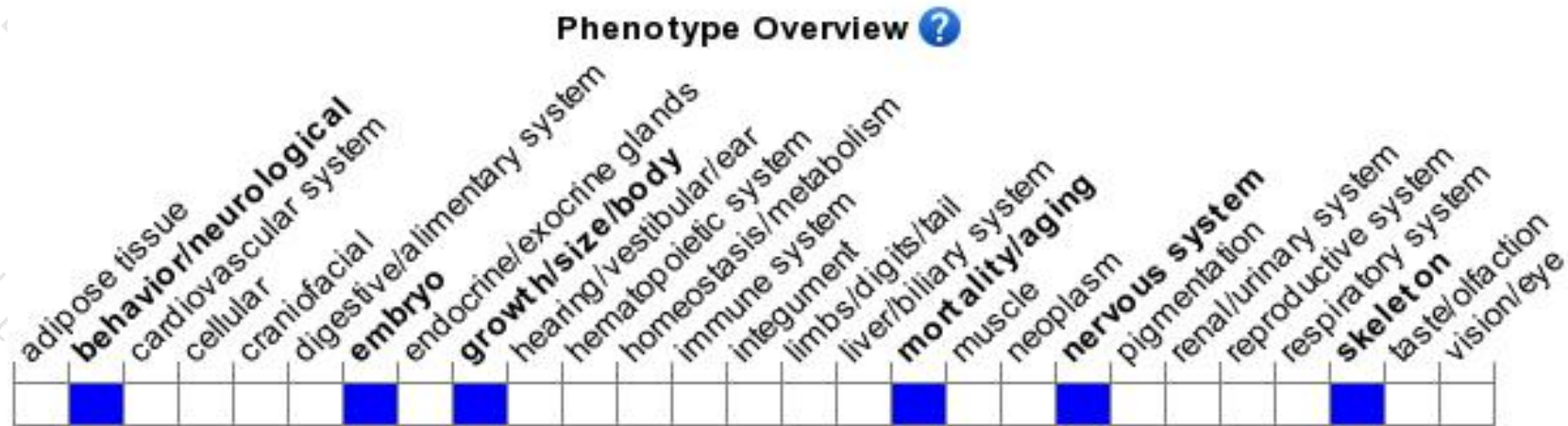
Genomic location distribution



集萃药康
GemPharmatech



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

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

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