

# ***Car5b* Cas9-KO Strategy**

Designer: Huimin Su

Reviewer: Ruirui Zhang

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# Project Overview

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**Project Name**

***Car5b***

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**Project type**

**Cas9-KO**

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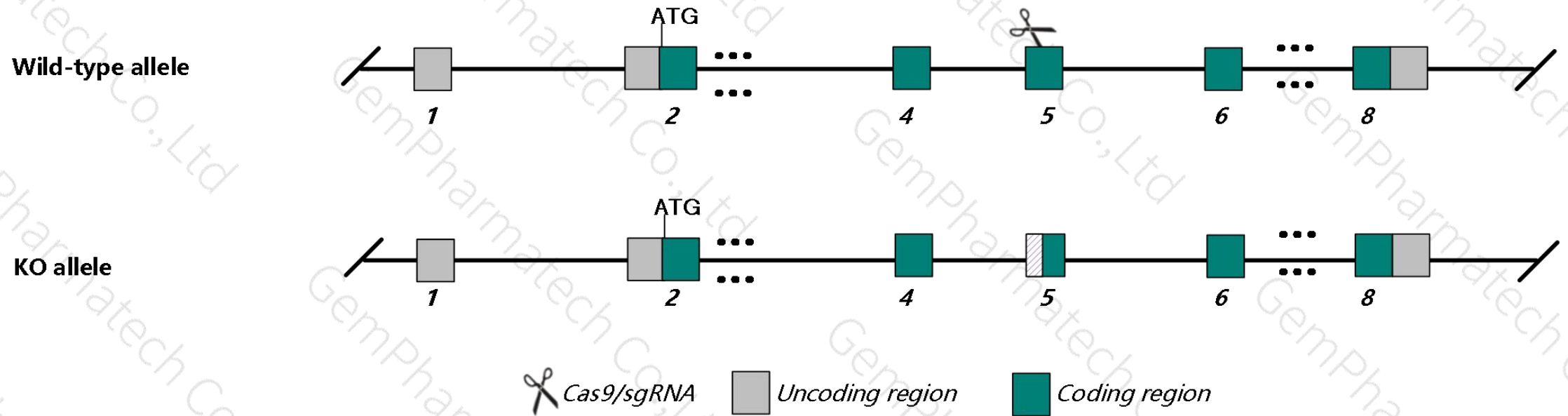
**Strain background**

**C57BL/6N**

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# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Car5b* gene. The schematic diagram is as follows:



- In this project we use CRISPR/Cas9 technology to modify *Car5b* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6N 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/6N mice.

- According to the MGI date, Mice that are either homozygous or hemizygous for a knock-out allele exhibit normal survival and show no detectable differences in blood ammonia or fasting glucose levels relative to control littermates.
- The *Car5b* gene is located on the ChrX. 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)

## Car5b carbonic anhydrase 5b, mitochondrial [ *Mus musculus* (house mouse) ]

Gene ID: 56078, updated on 12-Aug-2019

### Summary

**Official Symbol** Car5b provided by [MGI](#)

**Official Full Name** carbonic anhydrase 5b, mitochondrial provided by [MGI](#)

**Primary source** [MGI:MGI:1926249](#)

**See related** [Ensembl:ENSMUSG000000031373](#)

**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** CAVB; Ca5b; CarVb; 7330410H16Rik; D730005F19Rik

**Expression** Biased expression in subcutaneous fat pad adult (RPKM 31.5), genital fat pad adult (RPKM 23.6) and 7 other tissues [See more](#)

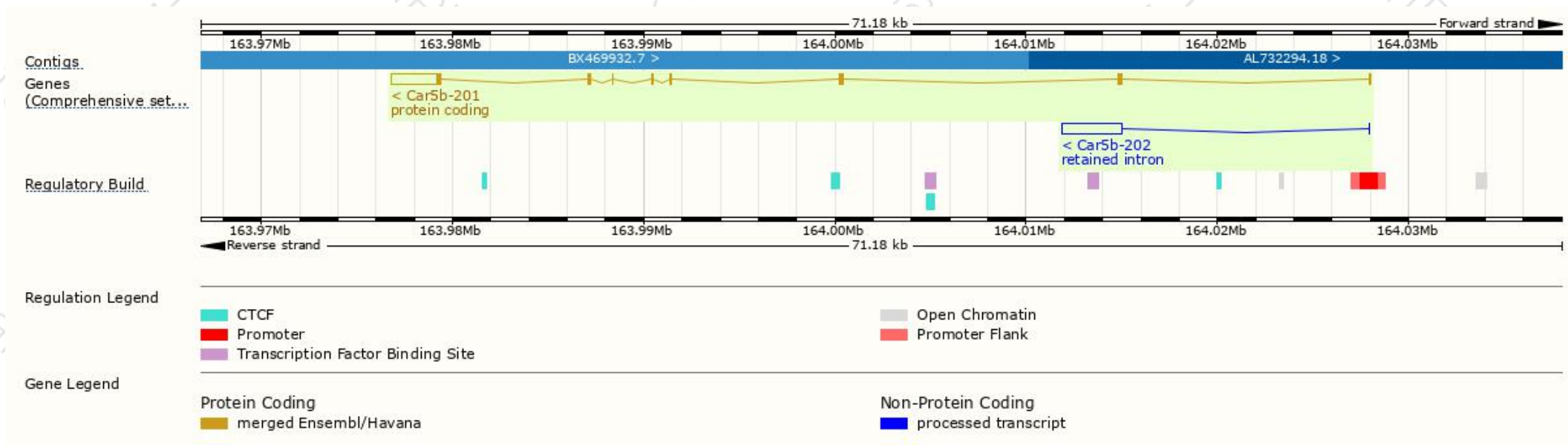
**Orthologs** [human](#) [all](#)

# Transcript information (Ensembl)

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

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Car5b-201	<a href="#">ENSMUST00000033739.4</a>	3436	<a href="#">317aa</a>	 Protein coding	<a href="#">CCDS30515</a>	<a href="#">Q9QZA0</a>	TSL:1 GENCODE basic APPRIS P1
Car5b-202	<a href="#">ENSMUST00000126650.1</a>	3157	No protein	 Retained intron	-	-	TSL:2

# Genomic location distribution





# Mouse phenotype description(MGI)



Mice that are either homozygous or hemizygous for a knock-out allele exhibit normal survival and show no detectable differences in blood ammonia or fasting glucose levels relative to control littermates.

*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.

Tel: 025-5864 1534

